

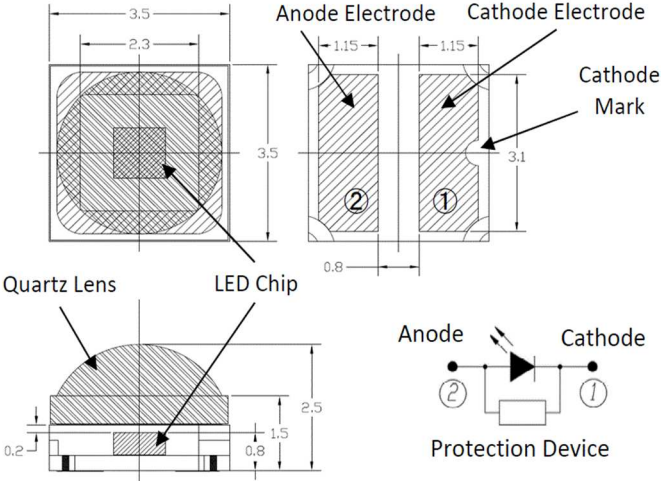
Data Sheet

page 1 of 3

UV SMD LED**EOLS-310-667**

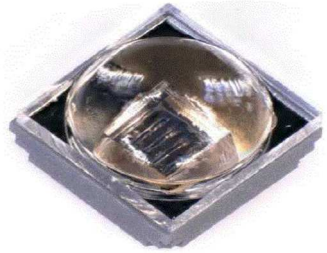
Rev. 02, 2020

Radiation	Type	Case
UVA	AlGaN	Metal sealed SMD 3535 (1414), lens



Technical drawing of the LED package showing top, side, and cross-sectional views. Dimensions are in mm. Top view shows a square package with a central LED chip and a quartz lens. Side view shows the package height and the lens diameter. Cross-sectional view shows the internal structure, including the anode and cathode electrodes, the LED chip, and the quartz lens. A protection device is also shown.

Unit: mm



Photograph of the LED package, showing the metal sealed SMD 3535 (1414) case and the quartz lens.

Applications:

- Analytical instruments: biochemical, medical, and scientific analysis
- Photo catalyst
- Medical phototherapy
- UV curing: spot bonding, printing, film coating and general purpose

Maximum Ratings $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test conditions	Symbol	Value	Unit
Forward current		I_F	600	mA
Junction temperature		T_J	100	$^{\circ}\text{C}$
Operating temperature range		T_{amb}	-30 to +85	$^{\circ}\text{C}$
Storage temperature range	no condensation	T_{stg}	-40 to +85	$^{\circ}\text{C}$

Optical and Electrical Characteristics $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Symbol	Conditions	Min	typ	max	Unit
Forward voltage	V_F	$I_F = 350\text{ mA}$		5.9		V
Radiant power*	Φ_e	$I_F = 350\text{ mA}$	33	47		mW
Peak wavelength**	λ_p	$I_F = 350\text{ mA}$	303	308	313	nm
FWHM	$\Delta\lambda_{0.5}$	$I_F = 350\text{ mA}$		15	20	nm
Viewing angle	ϕ	$I_F = 350\text{ mA}$		65		deg

*Radiant power measurement tolerance is $\pm 10\%$.**Peak wavelength measurement tolerance is $\pm 3\text{ nm}$.

We reserve the right to make changes to improve technical design and may do so without further notice. Parameters can vary in different applications. All operating parameters must be validated for each customer application by the customer.

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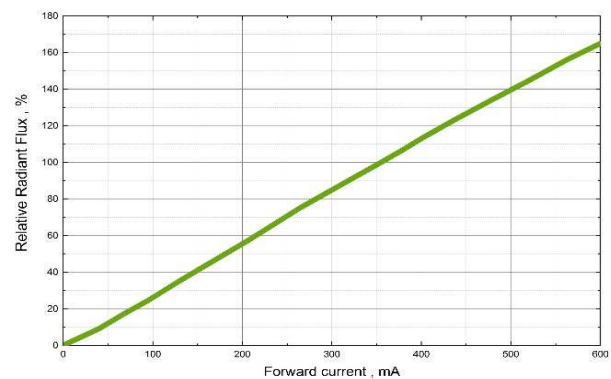
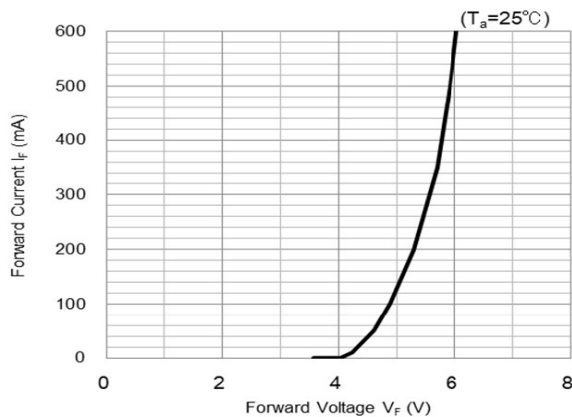
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UV SMD LED

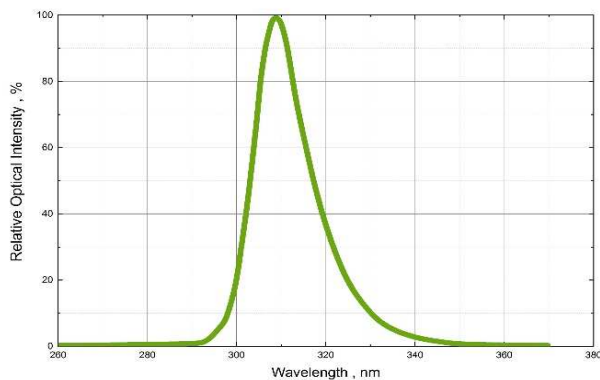
EOLS-310-667

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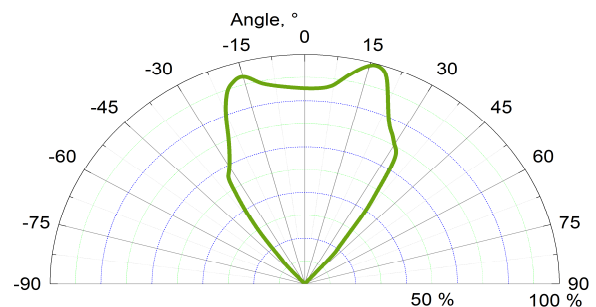
Rev. 02, 2020



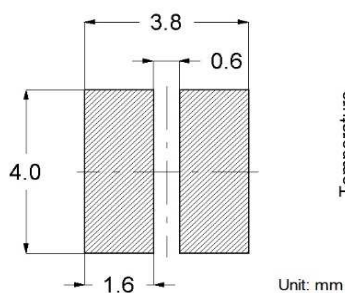
Radiant power vs forward current



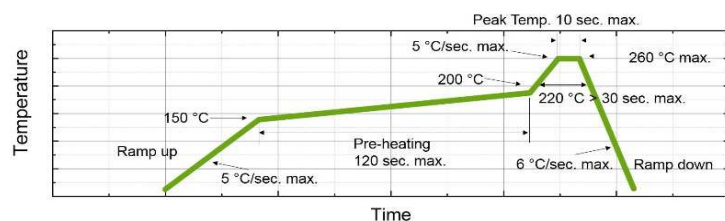
Spectrum @ 350 mA



Radiation pattern



Recommended solder pad



Reflow soldering profile

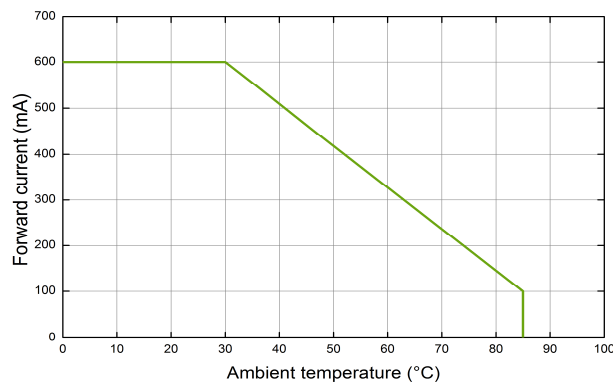
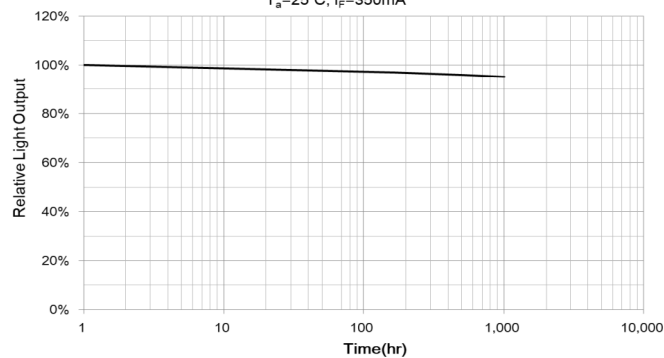
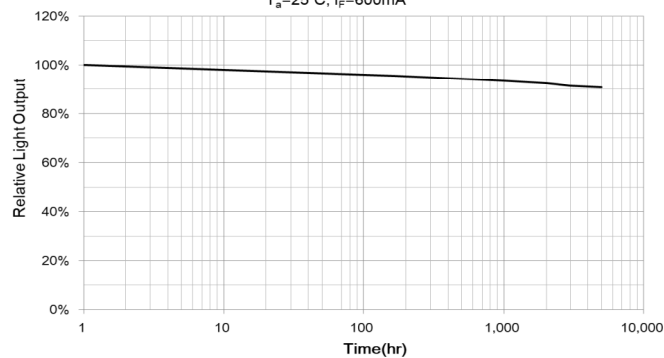


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Data Sheet**UV SMD LED****EOLS-310-667**

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Rev. 02, 2020

**Thermal derating curve** $T_a = 25^{\circ}\text{C}$, $I_F = 350\text{mA}$ **Life test @ 350 mA** $T_a = 25^{\circ}\text{C}$, $I_F = 600\text{mA}$ **Life test @ 600 mA**

Art. No. 133 275



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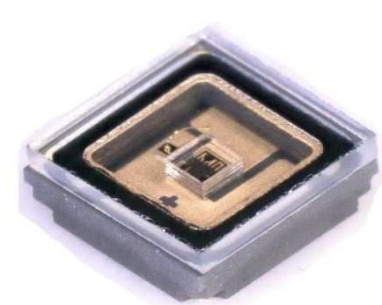
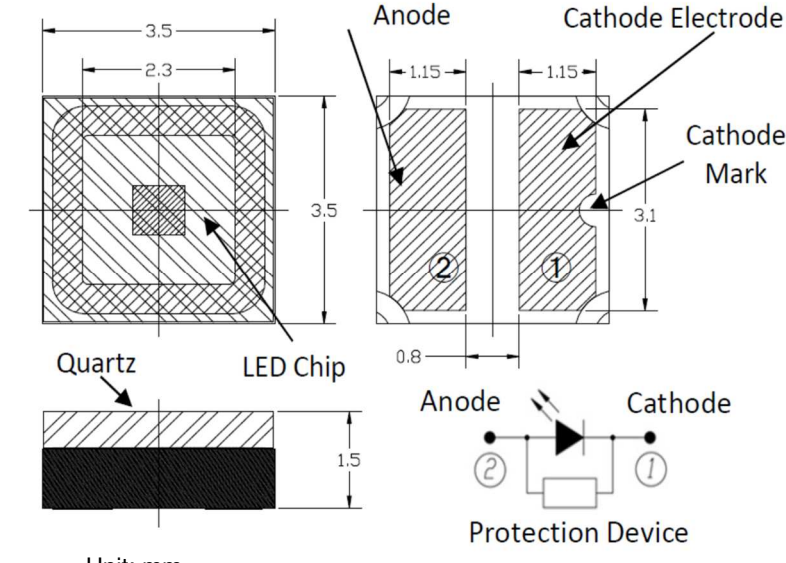
Data Sheet

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UV SMD LED**EOLS-310-695**

Rev. 04, 2020

Radiation	Type	Case
UVB	AlGaIn	Ceramic SMD 3535 (1414), flat top



Applications:

- Analytical instruments: biochemical, medical, and scientific analysis
- Photo catalyst
- Medical phototherapy
- UV curing: spot bonding, printing, film coating and general purpose

Maximum Ratings $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test conditions	Symbol	Value	Unit
Forward current		I_F	150	mA
Junction temperature		T_J	90	$^{\circ}\text{C}$
Operating temperature range		T_{amb}	-30 to +85	$^{\circ}\text{C}$
Storage temperature range	no condensation	T_{stg}	-40 to +85	$^{\circ}\text{C}$
Thermal resistance junction-ambient		R_{th}	20	K/W

Optical and Electrical Characteristics $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Symbol	Conditions	Min	typ	max	Unit
Forward voltage	V_F	$I_F = 100\text{ mA}$		5.3		V
Viewing half angle	φ	$I_F = 100\text{ mA}$		120		deg
Radiant power	Φ_e	$I_F = 100\text{ mA}$	7	12	18	mW
Peak wavelength	λ_p	$I_F = 100\text{ mA}$	303	308	313	nm
FWHM	$\Delta\lambda_{0.5}$	$I_F = 100\text{ mA}$		15		nm



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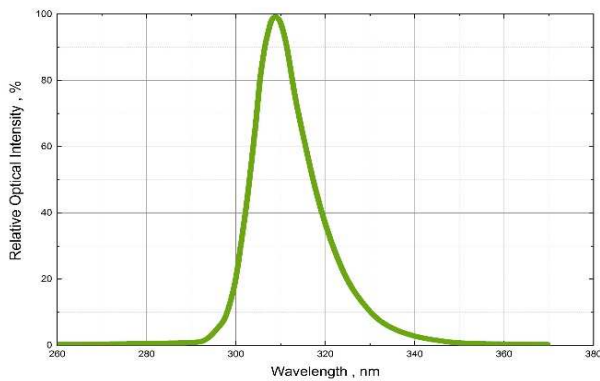
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UV SMD LED

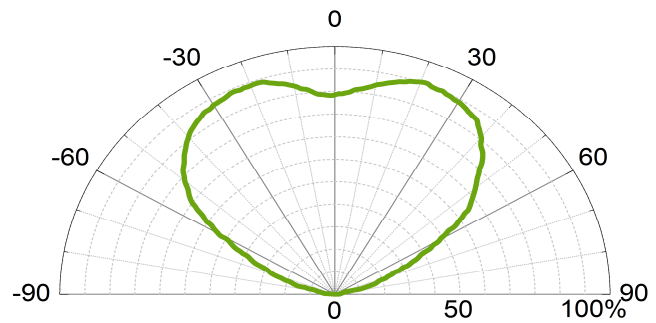
EOLS-310-695

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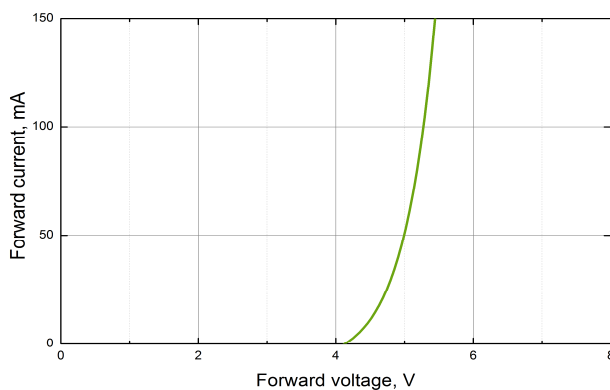
Rev. 04, 2020



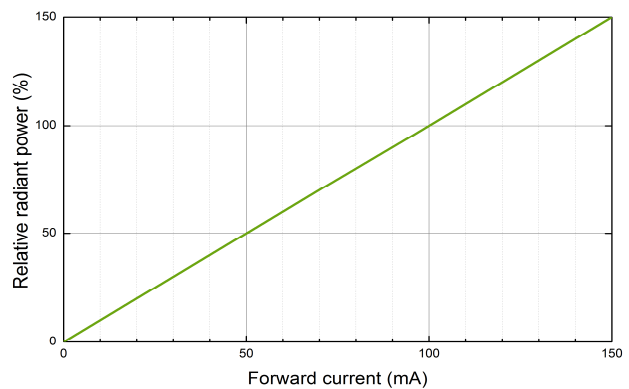
Spectrum at 100 mA



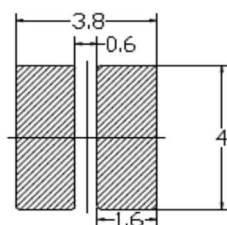
Radiation pattern



Forward current vs forward voltage

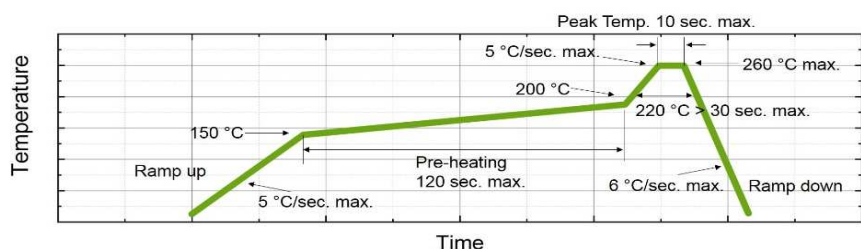


Radiant power vs forward current



Unit : mm

Recommended solder pad



Recommended reflow soldering profile



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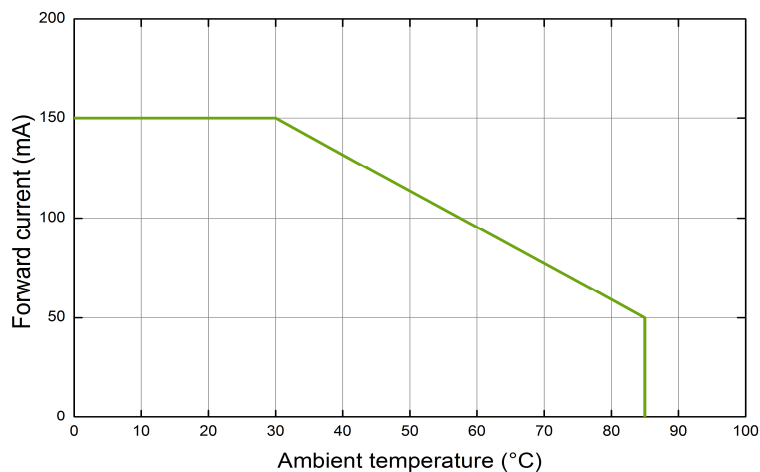
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UV SMD LED

EOLS-310-695

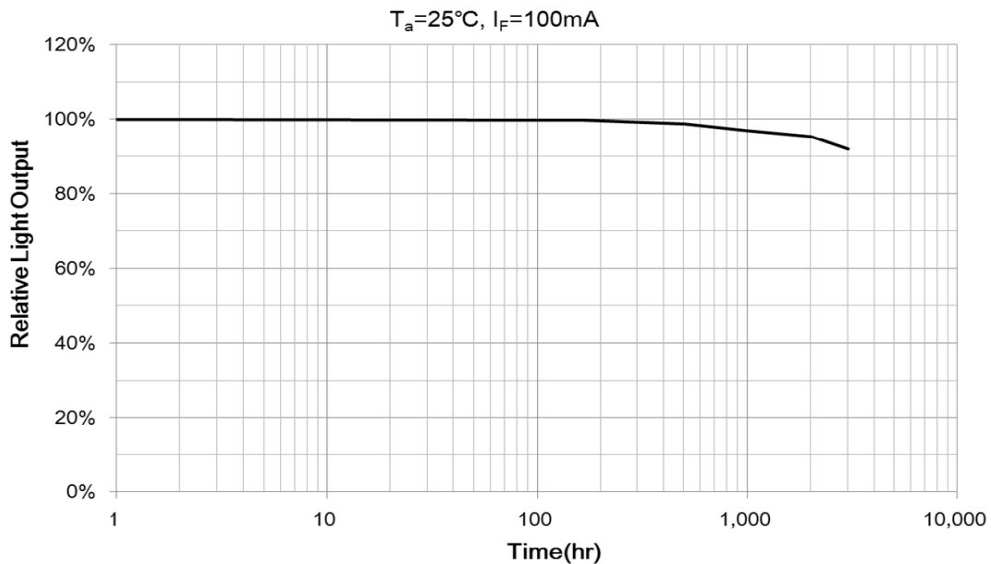
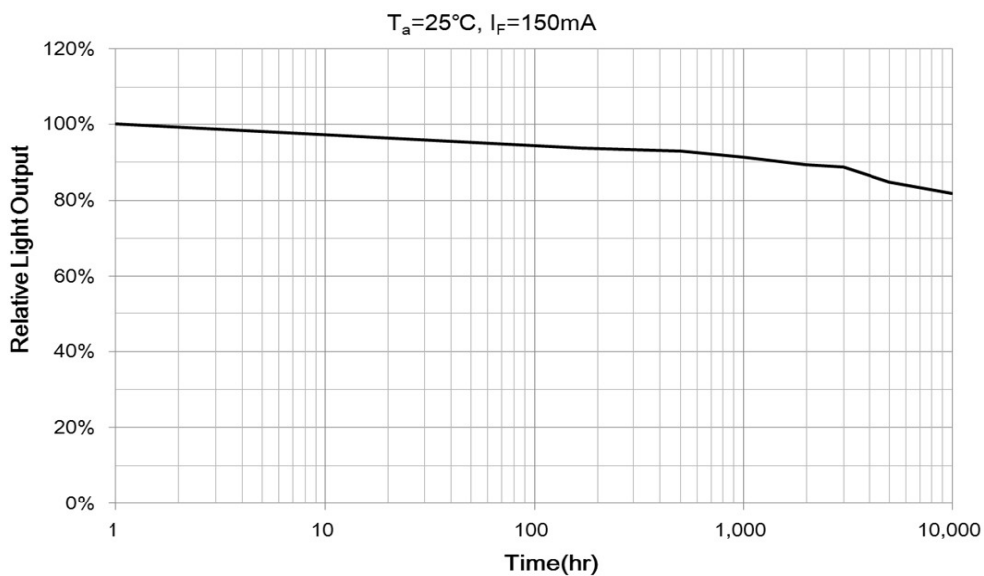
Rev. 04, 2020



Derating curve



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Data Sheet**UV SMD LED****EOLS-310-695**page 4 of 4
Rev. 04, 2020**Life expectancy data @ 100 mA****Life expectancy data @ 150 mA**

Art. No. 133 200



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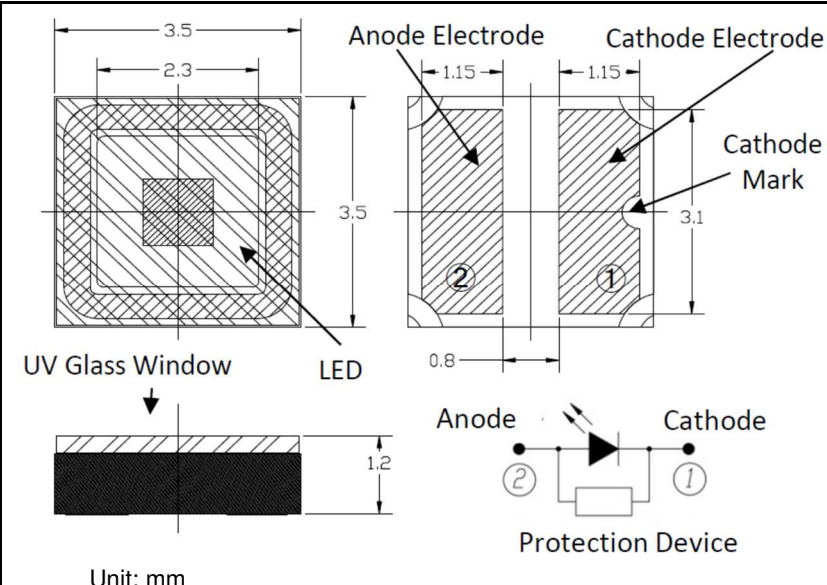
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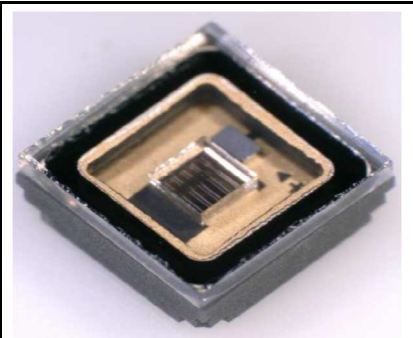
UV SMD LED**EOLS-310-697**

Rev. 07, 2020

Radiation	Type	Case
Deep UV (UVB)	AlGaN	Ceramic SMD 3535 (1414), flat top



Unit: mm



Applications:

- Analytical instruments: biochemical, medical, and scientific analysis
- Photo catalyst
- Medical phototherapy
- UV curing: spot bonding, printing, film coating and general purpose

Maximum Ratings $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test conditions	Symbol	Value	Unit
Forward current		I_F	600	mA
Operating temperature range		T_{amb}	-30 to +85	$^{\circ}\text{C}$
Storage temperature range	no condensation	T_{stg}	-40 to +85	$^{\circ}\text{C}$
Soldering temperature	within 5 sec	T_{sol}	260	$^{\circ}\text{C}$
Thermal resistance junction-ambient		R_{th}	15	K/W

Optical and Electrical Characteristics $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Symbol	Conditions	Min	typ	max	Unit
Forward voltage	V_F	$I_F = 350\text{ mA}$		5.5		V
Radiant power	Φ_e	$I_F = 350\text{ mA}$	36	50		mW
Peak wavelength	λ_p	$I_F = 350\text{ mA}$	303	308	313	nm
FWHM	$\Delta\lambda_{0.5}$	$I_F = 350\text{ mA}$		15	20	nm
Viewing angle	ϕ	$I_F = 350\text{ mA}$		120		deg

*Radiant power measurement tolerance is $\pm 10\%$.**Peak wavelength measurement tolerance is $\pm 3\text{ nm}$.

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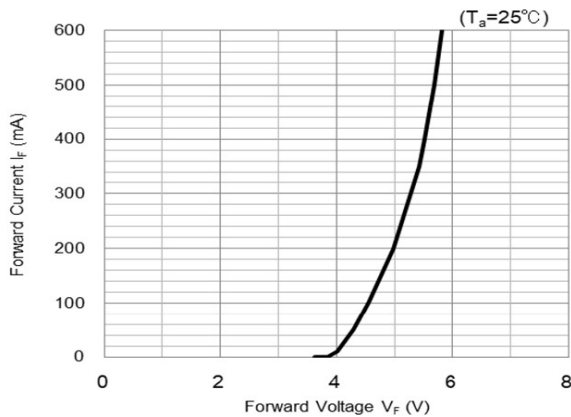
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UV SMD LED

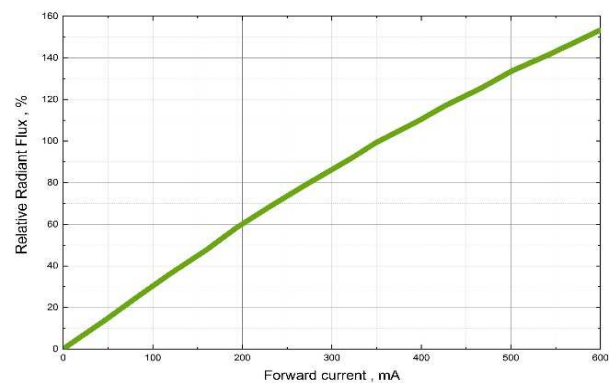
EOLS-310-697

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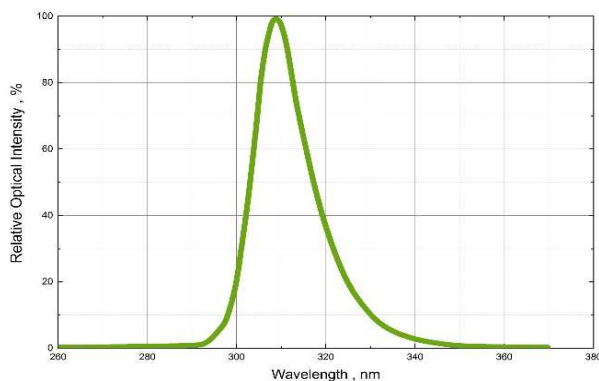
Rev. 07, 2020



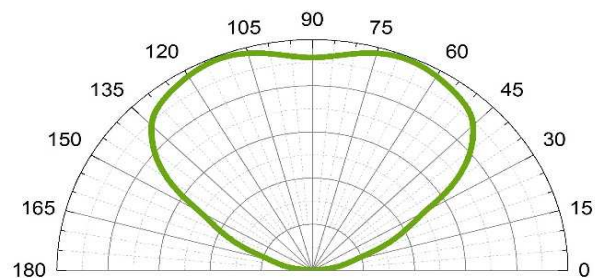
Forward current vs forward voltage
T_a=25 °C



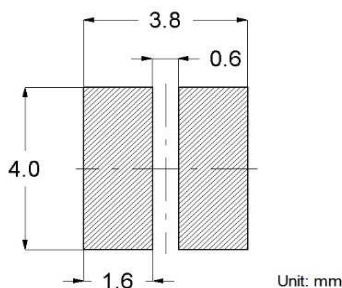
Radiant power vs forward current



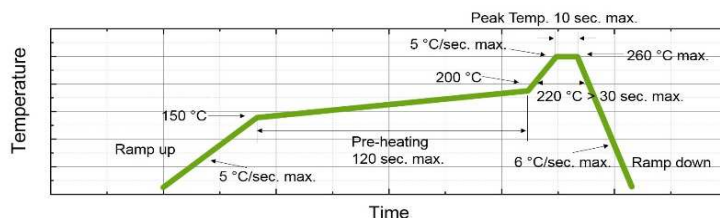
Spectrum @ 350 mA



Radiation pattern



Recommended solder pad



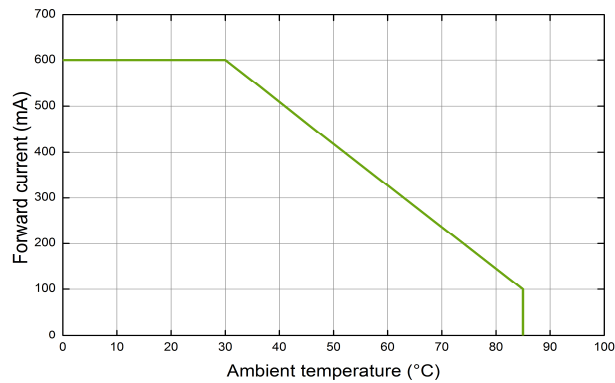
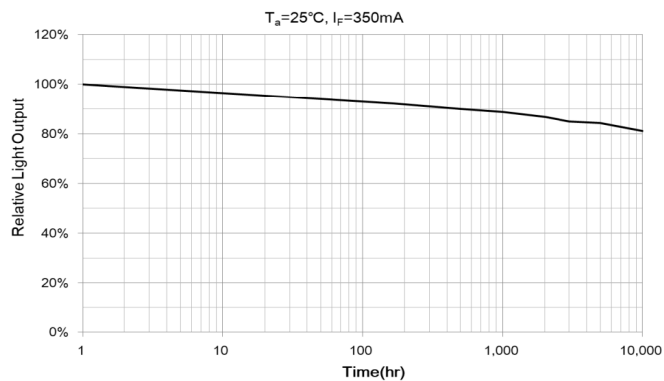
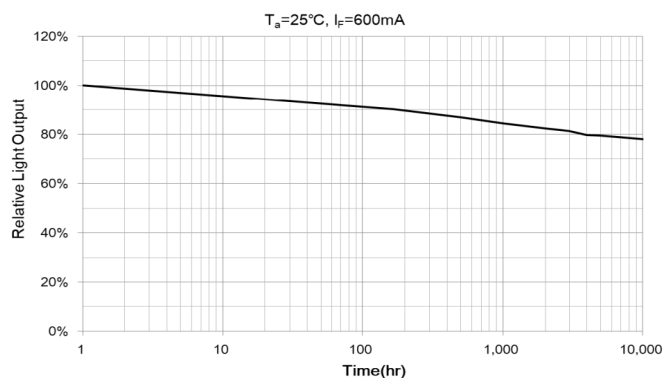
Recommended reflow soldering profile



Data Sheet**UV SMD LED****EOLS-310-697**

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Rev. 07, 2020

**Thermal derating curve****Life expectancy data @ 350 mA****Life expectancy data @ 600 mA**

Art. No. 133 232



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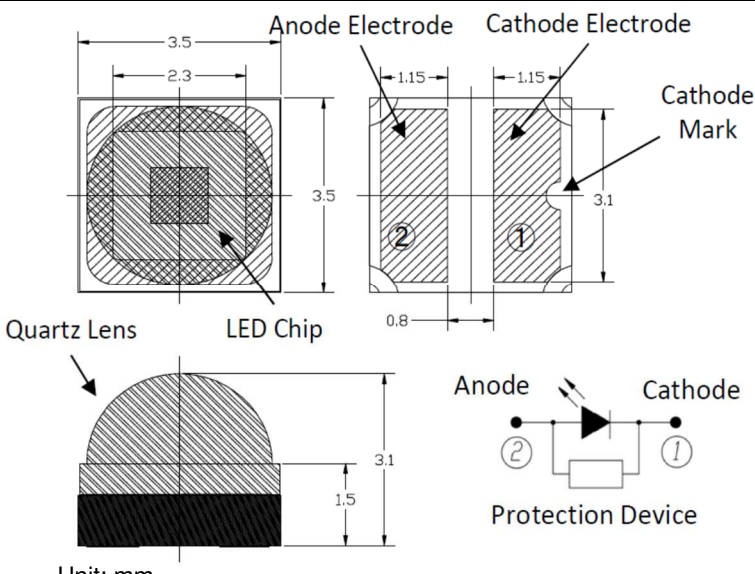
UV SMD LED

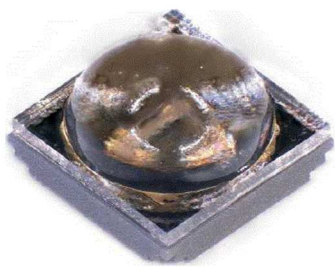
EOLS-325-637

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Rev. 02, 2020

Radiation	Type	Case
UVA	AlGaIn	Metal sealed SMD 3535 (1414), lens





Applications:

- Analytical instruments: biochemical, medical, and scientific analysis
- Photo catalyst
- Medical phototherapy
- UV curing: spot bonding, printing, film coating and general purpose

Maximum Ratings

 $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test conditions	Symbol	Value	Unit
Forward current		I_F	350	mA
Junction temperature		T_J	90	$^{\circ}\text{C}$
Operating temperature range		T_{amb}	-30 to +85	$^{\circ}\text{C}$
Storage temperature range	no condensation	T_{stg}	-40 to +85	$^{\circ}\text{C}$

Optical and Electrical Characteristics

 $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Symbol	Conditions	Min	typ	max	Unit
Forward voltage	V_F	$I_F = 350 \text{ mA}$		5.0		V
Radiant power*	Φ_e	$I_F = 350 \text{ mA}$	26	41		mW
Peak wavelength**	λ_p	$I_F = 350 \text{ mA}$	320	325	330	nm
FWHM	$\Delta\lambda_{0.5}$	$I_F = 350 \text{ mA}$		15	20	nm
Viewing angle	ϕ	$I_F = 350 \text{ mA}$		35		deg

*Radiant power measurement tolerance is $\pm 10\%$.

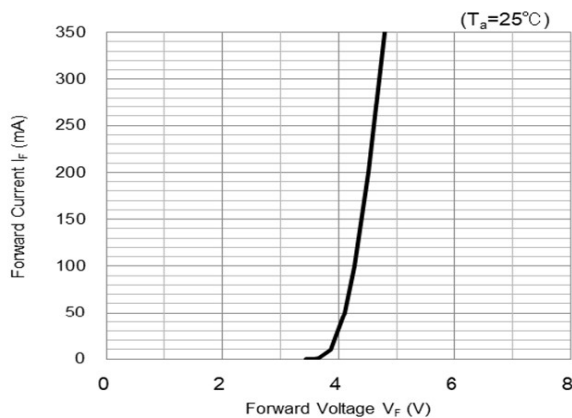
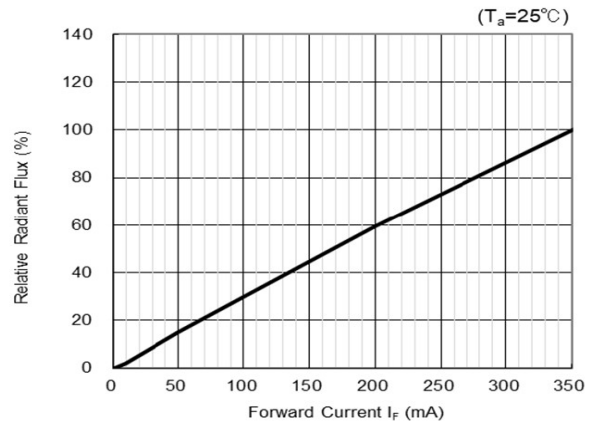
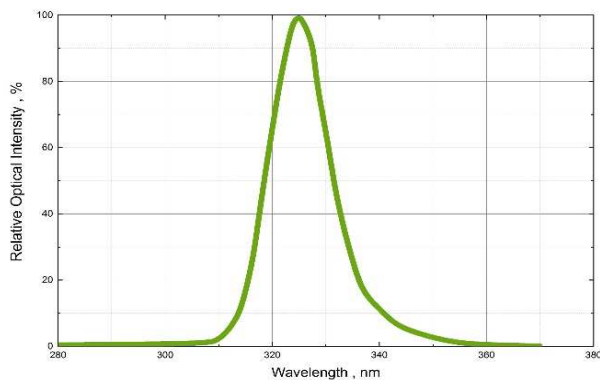
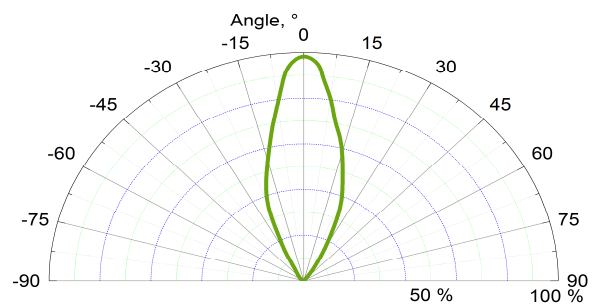
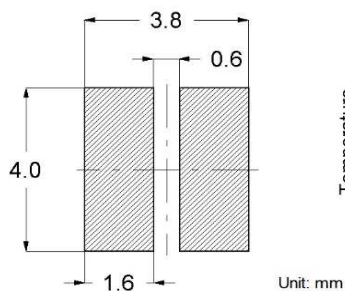
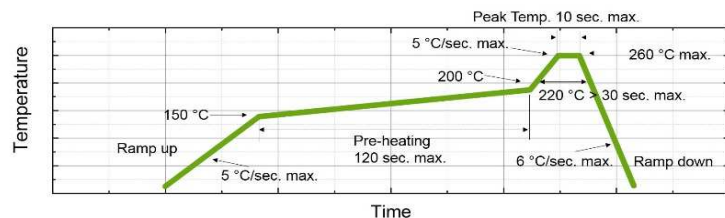
**Peak wavelength measurement tolerance is $\pm 3 \text{ nm}$.


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Data Sheet**UV SMD LED****EOLS-325-637**

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Rev. 02, 2020

**Forward current vs forward voltage****Radiant power vs forward current****Spectrum @ 350 mA****Radiation pattern****Recommended solder pad****Reflow soldering profile**

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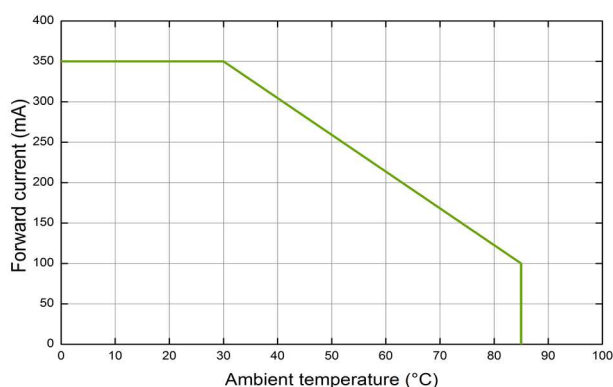
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UV SMD LED

EOLS-325-637

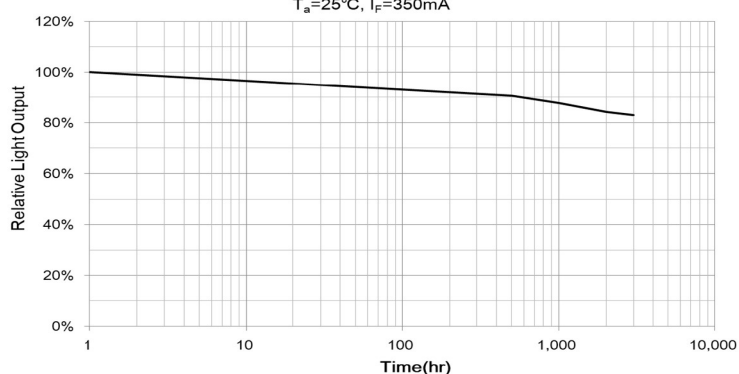
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Rev. 02, 2020



Thermal derating curve

$T_a = 25^\circ\text{C}$, $I_F = 350\text{mA}$



Life test @ 350 mA



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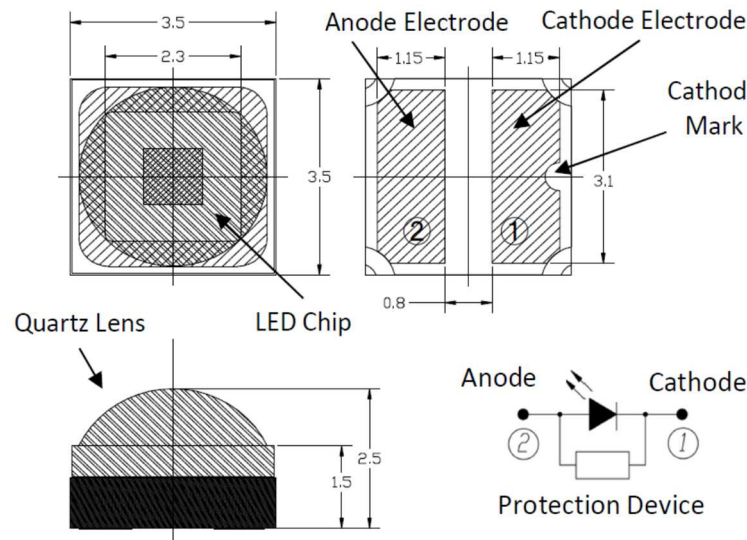
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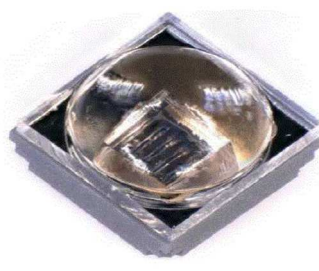
UV SMD LED**EOLS-325-667**

Rev. 02, 2020

Radiation	Type	Case
UVA	AlGaN	Metal sealed SMD 3535 (1414), lens



Unit: mm



Applications:

- Analytical instruments: biochemical, medical, and scientific analysis
- Photo catalyst
- Medical phototherapy
- UV curing: spot bonding, printing, film coating and general purpose

Maximum Ratings $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test conditions	Symbol	Value	Unit
Forward current		I_F	350	mA
Junction temperature		T_J	90	$^{\circ}\text{C}$
Operating temperature range		T_{amb}	-30 to +85	$^{\circ}\text{C}$
Storage temperature range	no condensation	T_{stg}	-40 to +85	$^{\circ}\text{C}$

Optical and Electrical Characteristics $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Symbol	Conditions	Min	typ	max	Unit
Forward voltage	V_F	$I_F = 350 \text{ mA}$		5.0		V
Radiant power*	Φ_e	$I_F = 350 \text{ mA}$	29	45		mW
Peak wavelength**	λ_p	$I_F = 350 \text{ mA}$	320	325	330	nm
FWHM	$\Delta\lambda_{0.5}$	$I_F = 350 \text{ mA}$		15	20	nm
Viewing angle	ϕ	$I_F = 350 \text{ mA}$		65		deg

*Radiant power measurement tolerance is $\pm 10\%$.**Peak wavelength measurement tolerance is $\pm 3 \text{ nm}$.

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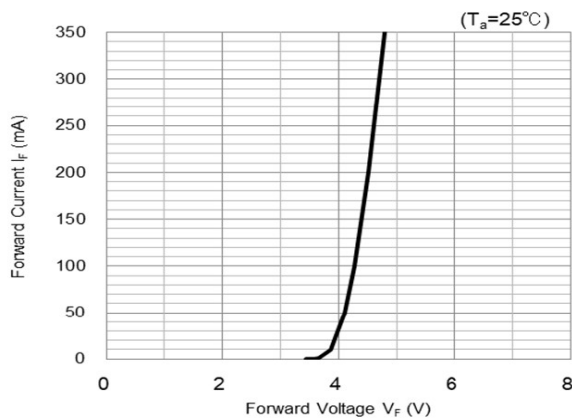
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UV SMD LED

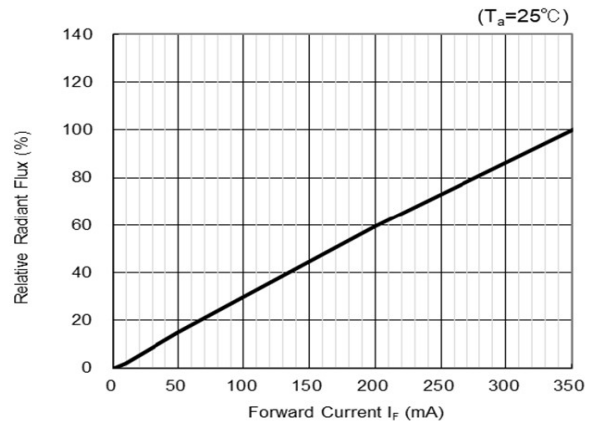
EOLS-325-667

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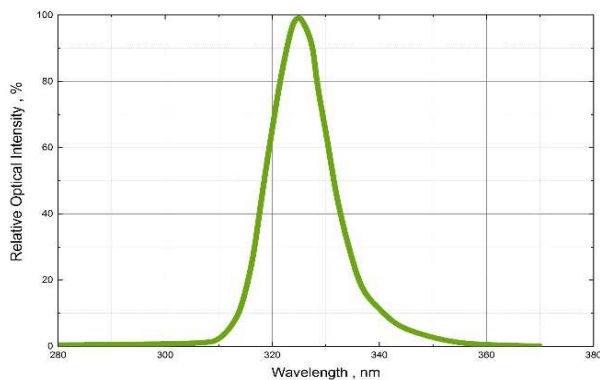
Rev. 02, 2020



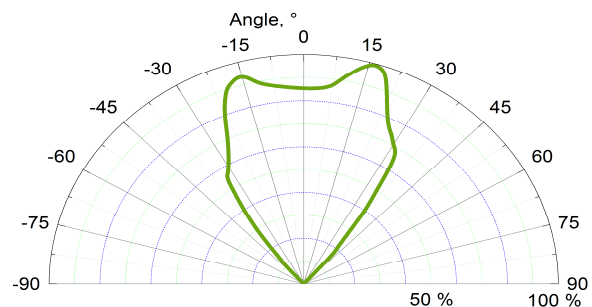
Forward current vs forward voltage



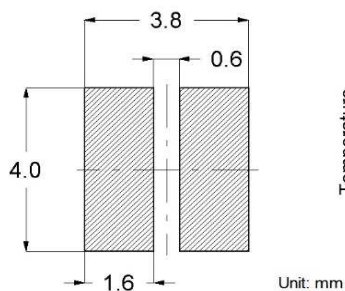
Radiant power vs forward current



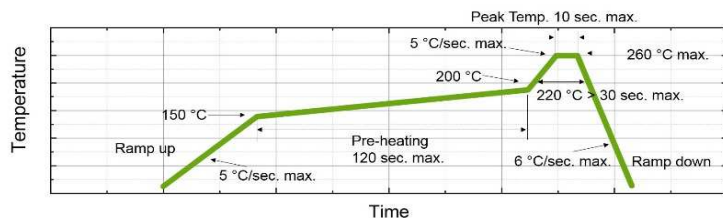
Spectrum @ 350 mA



Radiation pattern



Recommended solder pad



Reflow soldering profile



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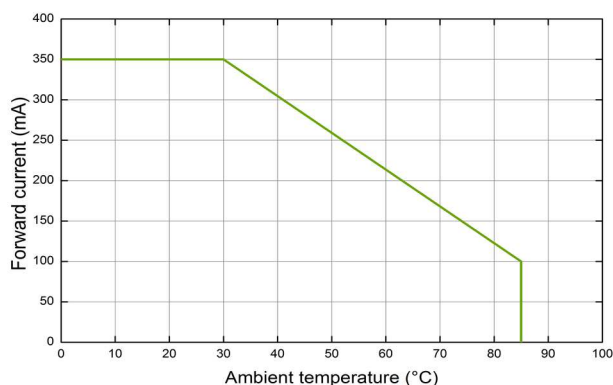
Data Sheet

UV SMD LED

EOLS-325-667

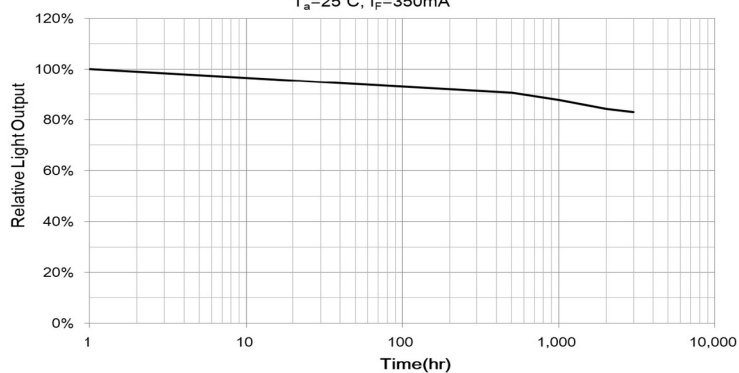
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Thermal derating curve

$T_a = 25^\circ\text{C}$, $I_F = 350\text{mA}$



Life test @ 350 mA



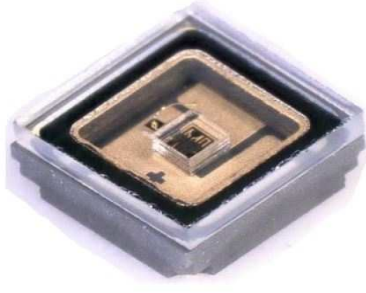
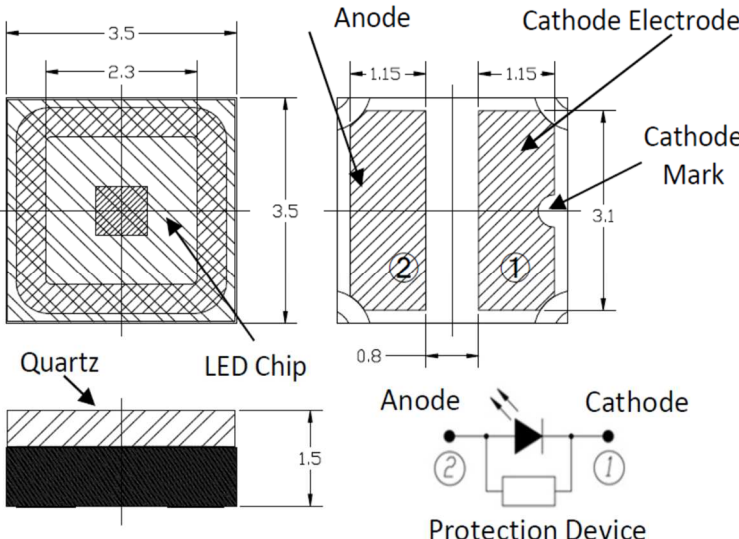
Art. No. 133 277



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Data Sheet**UV SMD LED****EOLS-325-695**page 1 of 3
Rev. 03, 2020

Radiation	Type	Case
UVA	AlGaN	Ceramic SMD 3535 (1414), flat top



Applications:

- Analytical instruments: biochemical, medical, and scientific analysis
- Photo catalyst
- Medical phototherapy
- UV curing: spot bonding, printing, film coating and general purpose

Maximum Ratings $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test conditions	Symbol	Value	Unit
Forward current		I_F	150	mA
Junction temperature		T_J	90	$^{\circ}\text{C}$
Operating temperature range		T_{amb}	-30 to +85	$^{\circ}\text{C}$
Storage temperature range	no condensation	T_{stg}	-40 to +85	$^{\circ}\text{C}$
Thermal resistance junction-ambient		R_{th}	20	K/W

Optical and Electrical Characteristics $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Symbol	Conditions	Min	typ	max	Unit
Forward voltage	V_F	$I_F = 100\text{ mA}$		4.7		V
Radiant power	Φ_e	$I_F = 100\text{ mA}$	7	12	18	mW
Peak wavelength	λ_p	$I_F = 100\text{ mA}$	320	325	330	nm
FWHM	$\Delta\lambda_{0.5}$	$I_F = 100\text{ mA}$		13		nm
Viewing half angle	φ	$I_F = 100\text{ mA}$		120		deg



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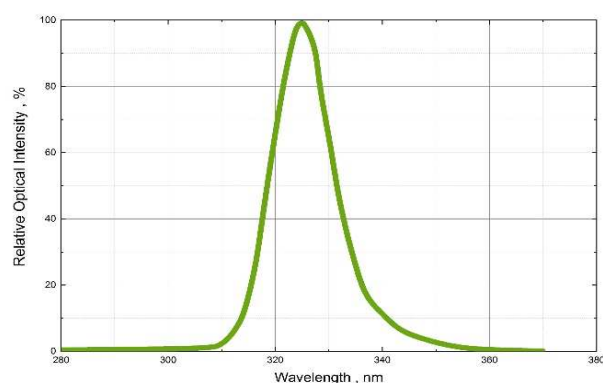
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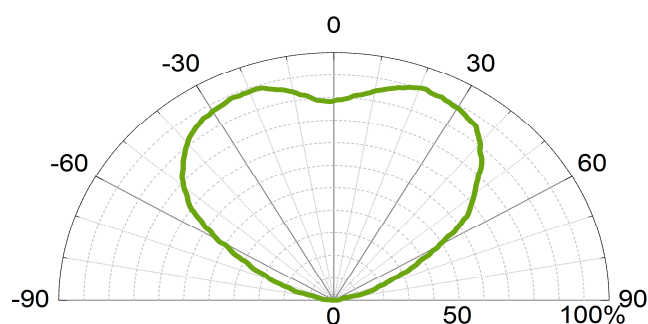
UV SMD LED

EOLS-325-695

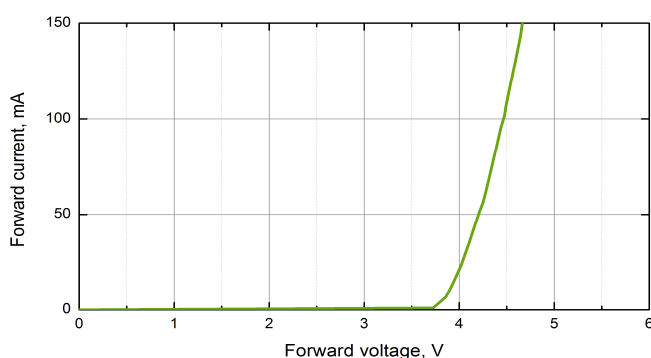
Rev. 03, 2020



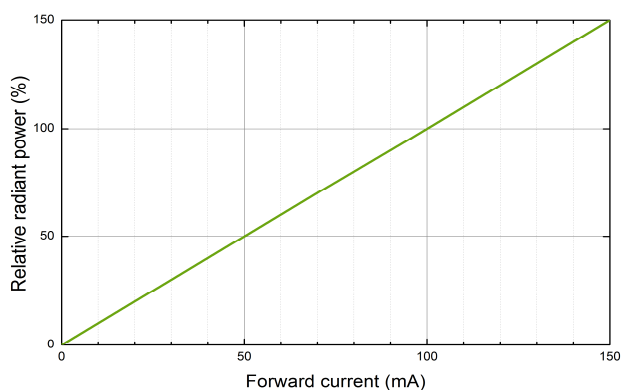
Spectrum at 100 mA



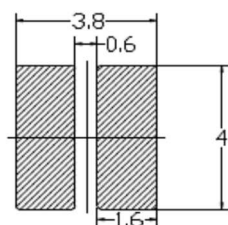
Radiation pattern



Forward current vs forward voltage

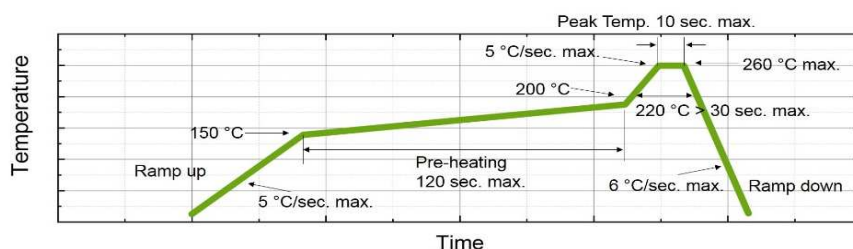


Radiant power vs forward current



Unit : mm

Recommended solder pad



Recommended reflow soldering profile



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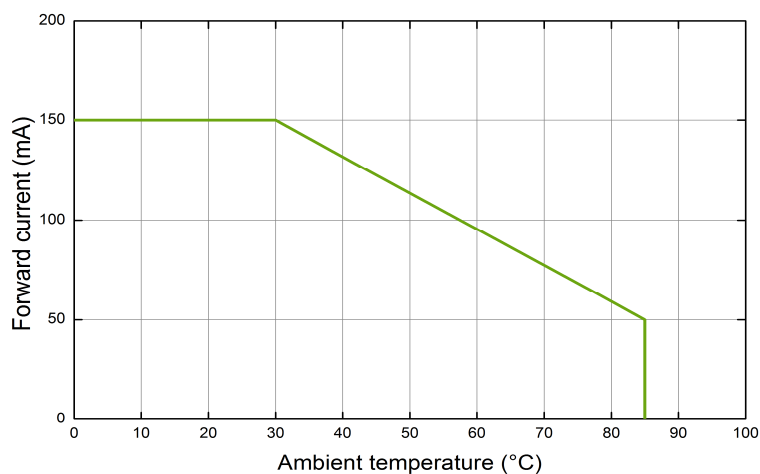
Data Sheet

UV SMD LED

EOLS-325-695

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Rev. 03, 2020



Derating curve



Art. No. 133 202



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Data Sheet

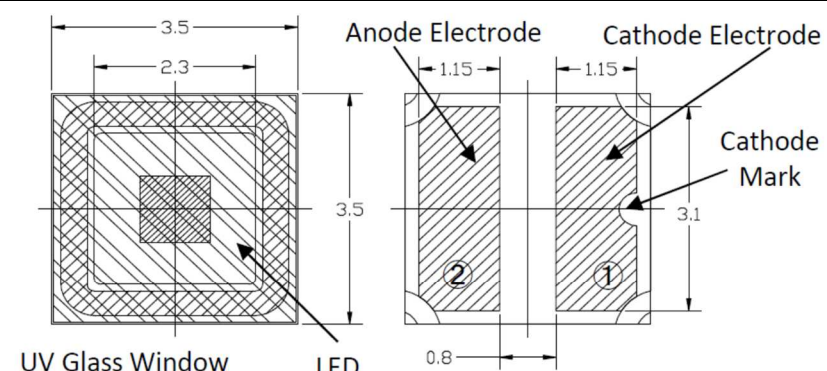
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UV SMD LED

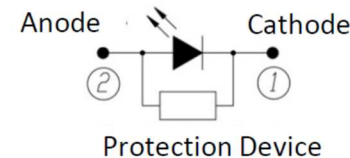
EOLS-325-697

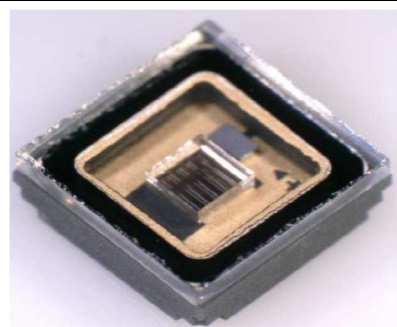
Rev. 04, 2020

Radiation	Type	Case
Deep UV (UVB)	AlGaIn	Ceramic SMD 3535 (1414), flat top



Unit: mm





Applications:

- Analytical instruments: biochemical, medical, and scientific analysis
- Photo catalyst
- Medical phototherapy
- UV curing: spot bonding, printing, film coating and general purpose

Maximum Ratings

 $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test conditions	Symbol	Value	Unit
Forward current		I_F	350	mA
Junction temperature		T_J	90	$^{\circ}\text{C}$
Operating temperature range		T_{amb}	-30 to +85	$^{\circ}\text{C}$
Storage temperature range	no condensation	T_{stg}	-40 to +85	$^{\circ}\text{C}$

Optical and Electrical Characteristics

 $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Symbol	Conditions	Min	typ	max	Unit
Forward voltage	V_F	$I_F = 350\text{ mA}$		5.0		V
Radiant power	Φ_e	$I_F = 350\text{ mA}$	30	47		mW
Peak wavelength	λ_p	$I_F = 350\text{ mA}$	320	325	330	nm
FWHM	$\Delta\lambda_{0.5}$	$I_F = 350\text{ mA}$		15	20	nm
Viewing angle	ϕ	$I_F = 350\text{ mA}$		120		deg



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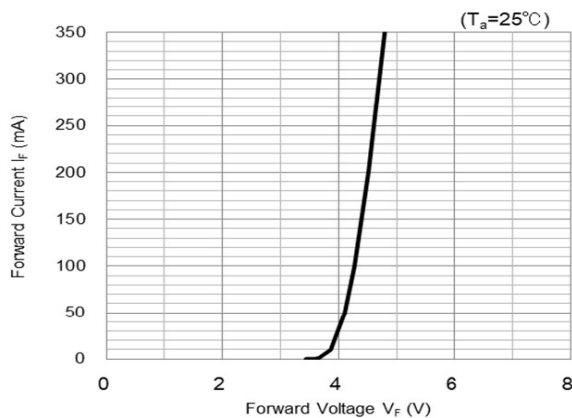
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UV SMD LED

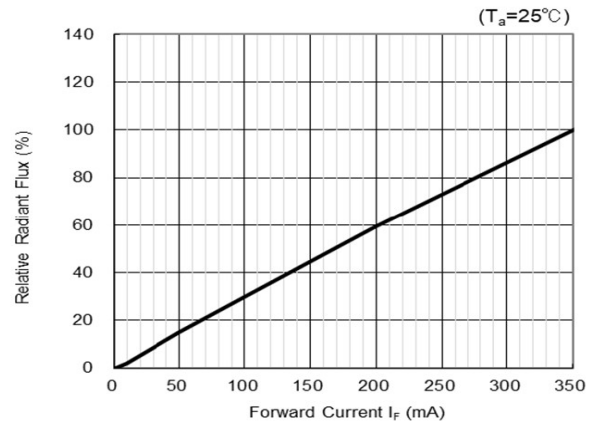
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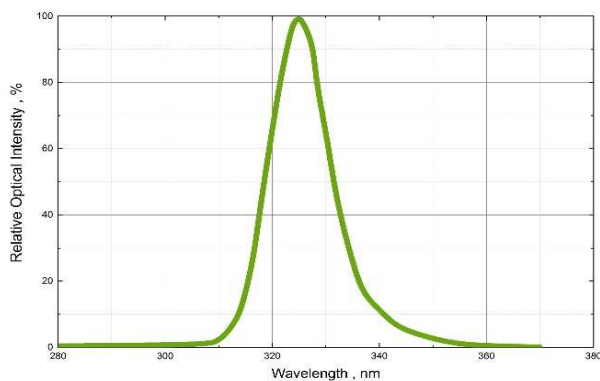
Rev. 04, 2020



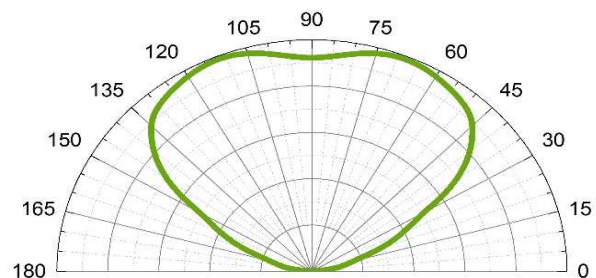
Forward current vs forward voltage



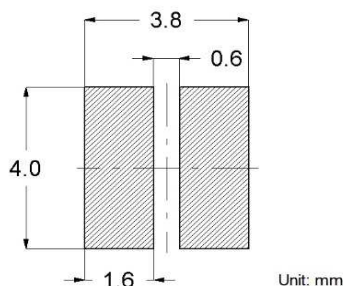
Radiant power vs forward current



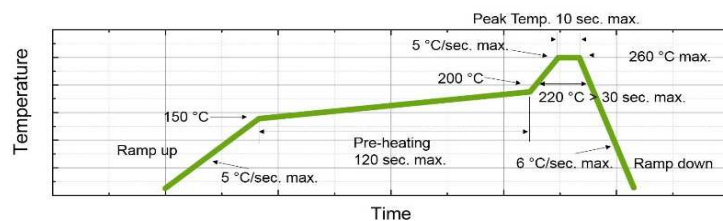
Spectrum @ 350 mA



Radiation pattern



Recommended solder pad



Reflow soldering profile



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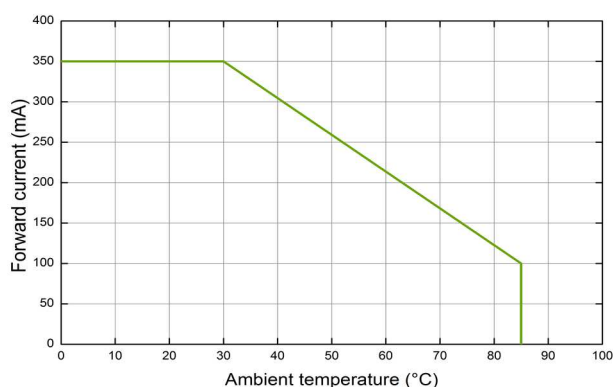
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UV SMD LED

EOLS-325-697

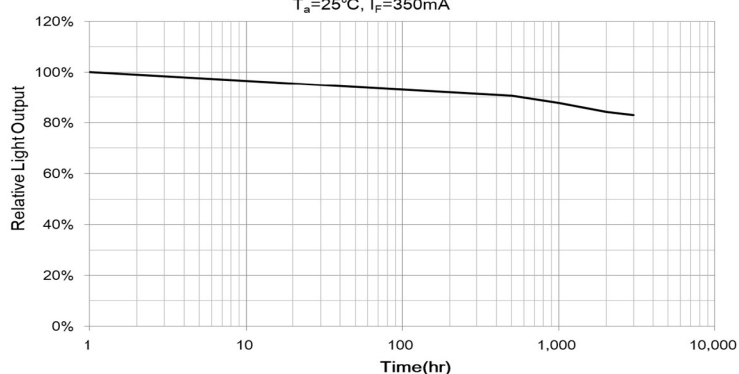
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Thermal derating curve

$T_a = 25^\circ\text{C}$, $I_F = 350\text{mA}$



Life test @ 350 mA



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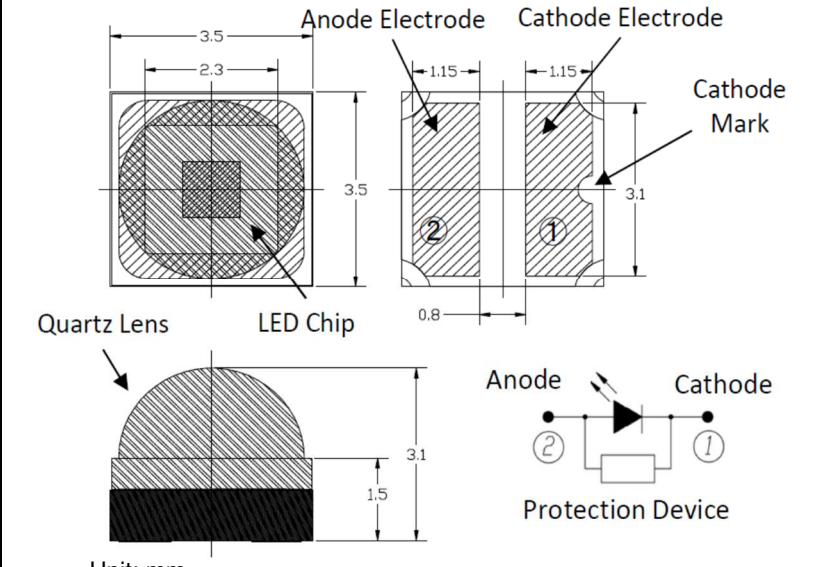
Data Sheet

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UV SMD LED**EOLS-340-637**

Rev. 02, 2020

Radiation	Type	Case
UVA	AlGaIn	Metal sealed SMD 3535 (1414), lens





Applications:

- Analytical instruments: biochemical, medical, and scientific analysis
- Photo catalyst
- Medical phototherapy
- UV curing: spot bonding, printing, film coating and general purpose

Maximum Ratings $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test conditions	Symbol	Value	Unit
Forward current		I_F	350	mA
Junction temperature		T_J	90	$^{\circ}\text{C}$
Operating temperature range		T_{amb}	-30 to +85	$^{\circ}\text{C}$
Storage temperature range	no condensation	T_{stg}	-40 to +85	$^{\circ}\text{C}$
Thermal resistance junction-ambient		R_{th}	10	K/W

Optical and Electrical Characteristics $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Symbol	Conditions	Min	typ	max	Unit
Forward voltage	V_F	$I_F = 350 \text{ mA}$		5.5	6.5	V
Radiant power*	Φ_e	$I_F = 350 \text{ mA}$	30	41		mW
Peak wavelength**	λ_p	$I_F = 350 \text{ mA}$	335	340	345	nm
FWHM	$\Delta\lambda_{0.5}$	$I_F = 350 \text{ mA}$		10	15	nm
Viewing angle	ϕ	$I_F = 350 \text{ mA}$		35		deg

*Radiant power measurement tolerance is $\pm 10\%$.**Peak wavelength measurement tolerance is $\pm 3 \text{ nm}$.

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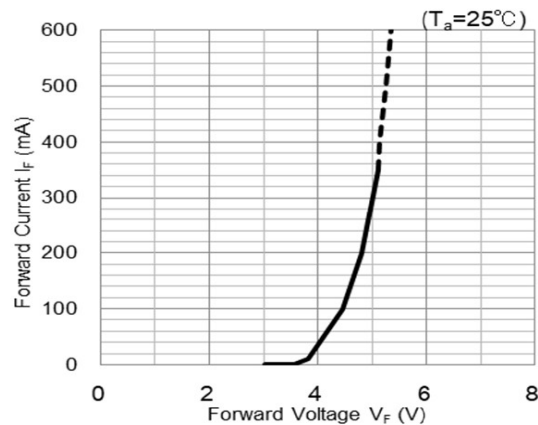
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UV SMD LED

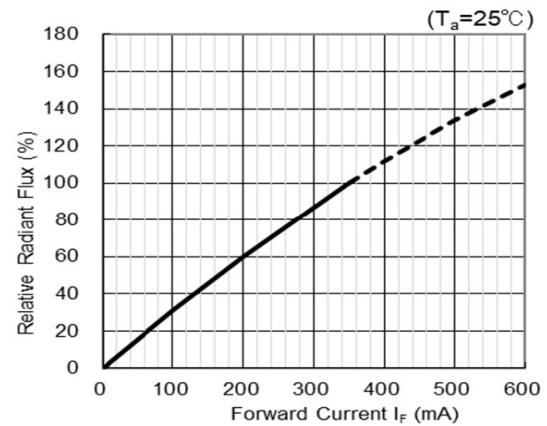
EOLS-340-637

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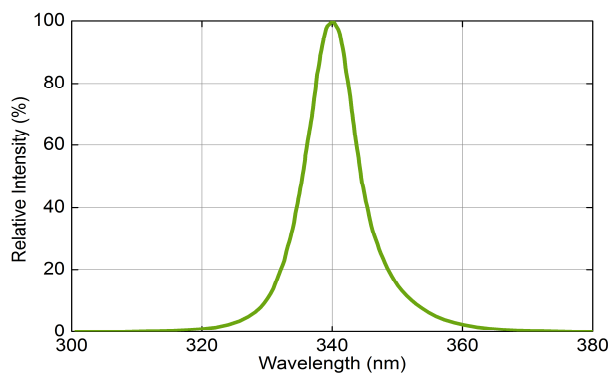
Rev. 02, 2020



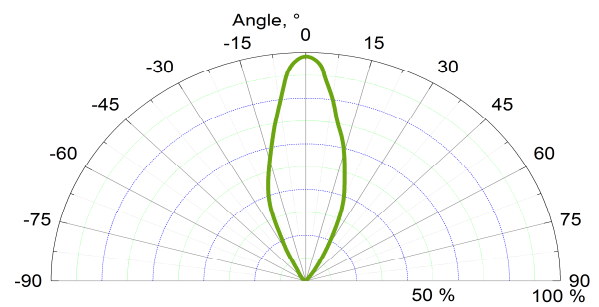
Forward current vs forward voltage

 $T_a = 25^\circ\text{C}$


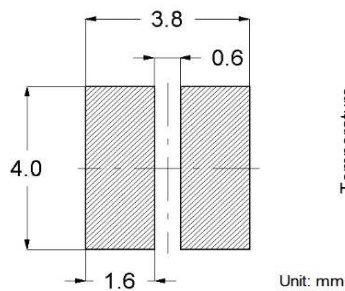
Radiant power vs forward current



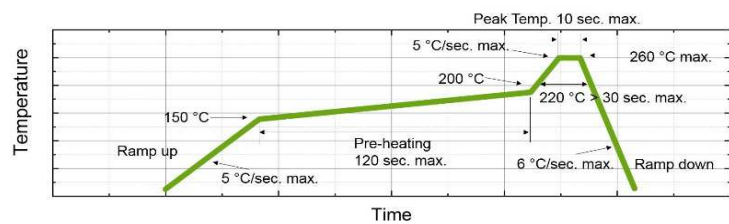
Spectrum @ 350 mA



Radiation pattern



Recommended solder pad



Reflow soldering profile



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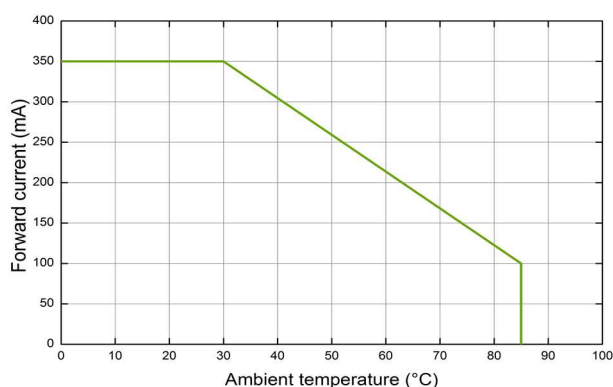
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UV SMD LED

EOLS-340-637

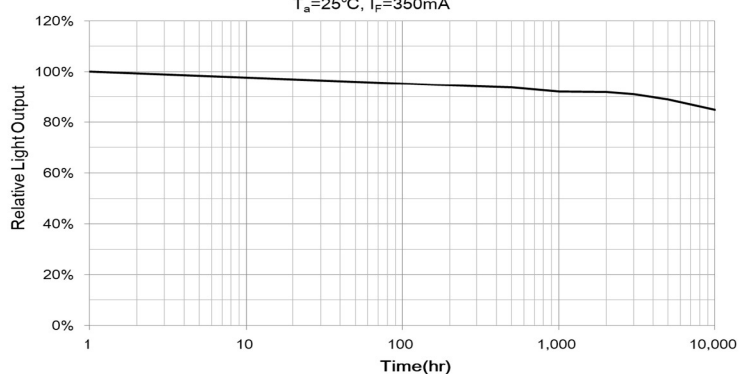
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Rev. 02, 2020



Thermal derating curve

$T_a = 25^\circ\text{C}$, $I_F = 350\text{mA}$



Life test @ 350 mA



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Data Sheet

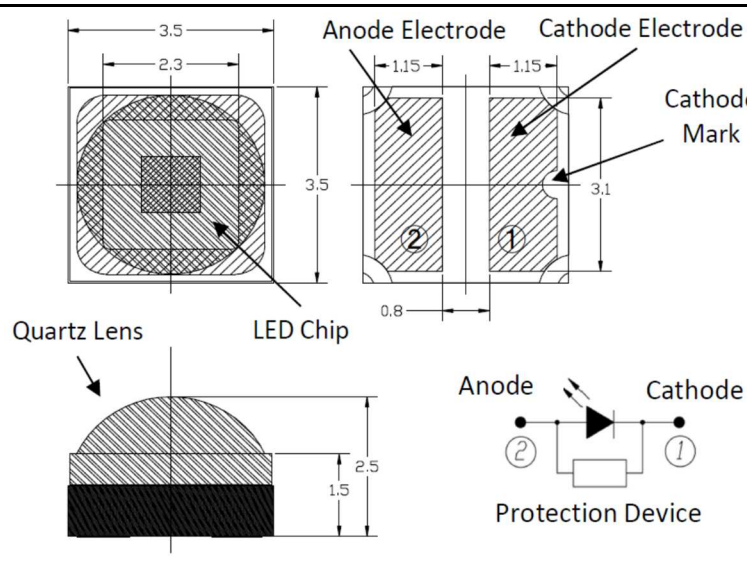
page 1 of 3

UV SMD LED

EOLS-340-667

Rev. 02, 2020

Radiation	Type	Case
UVA	AlGaIn	Metal sealed SMD 3535 (1414), lens



Unit: mm



Applications:

- Analytical instruments: biochemical, medical, and scientific analysis
- Photo catalyst
- Medical phototherapy
- UV curing: spot bonding, printing, film coating and general purpose

Maximum Ratings

 $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test conditions	Symbol	Value	Unit
Forward current		I_F	350	mA
Junction temperature		T_J	90	$^{\circ}\text{C}$
Operating temperature range		T_{amb}	-30 to +85	$^{\circ}\text{C}$
Storage temperature range	no condensation	T_{stg}	-40 to +85	$^{\circ}\text{C}$
Thermal resistance junction-ambient		R_{th}	10	K/W

Optical and Electrical Characteristics

 $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Symbol	Conditions	Min	typ	max	Unit
Forward voltage	V_F	$I_F = 350 \text{ mA}$		5.5	6.5	V
Radiant power*	Φ_e	$I_F = 350 \text{ mA}$	34	44		mW
Peak wavelength**	λ_p	$I_F = 350 \text{ mA}$	335	340	345	nm
FWHM	$\Delta\lambda_{0.5}$	$I_F = 350 \text{ mA}$		10	15	nm
Viewing angle	ϕ	$I_F = 350 \text{ mA}$		65		deg

*Radiant power measurement tolerance is $\pm 10\%$.

**Peak wavelength measurement tolerance is $\pm 3 \text{ nm}$.


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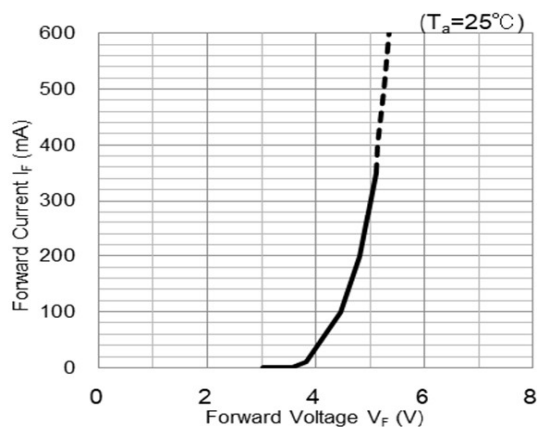
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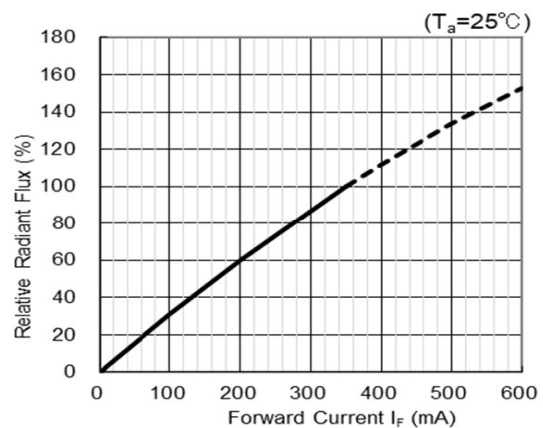
UV SMD LED

EOLS-340-667

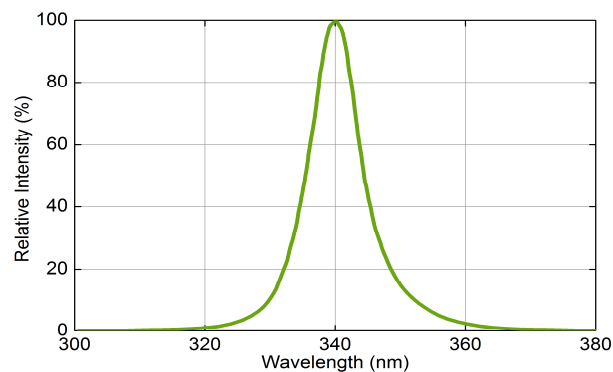
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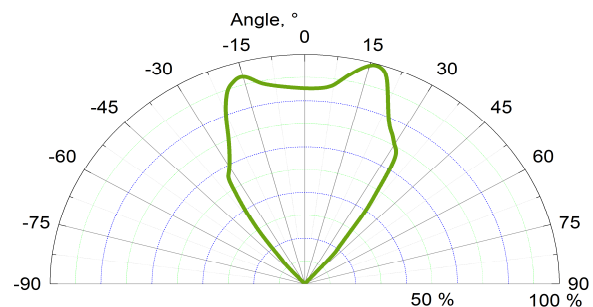
Forward current vs forward voltage



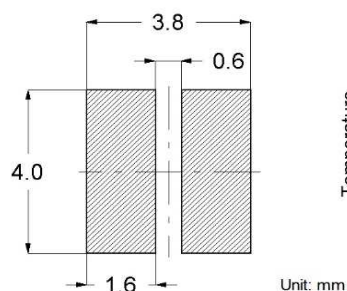
Radiant power vs forward current



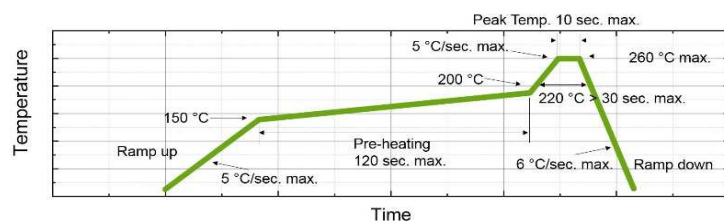
Spectrum @ 350 mA



Radiation pattern



Recommended solder pad



Reflow soldering profile



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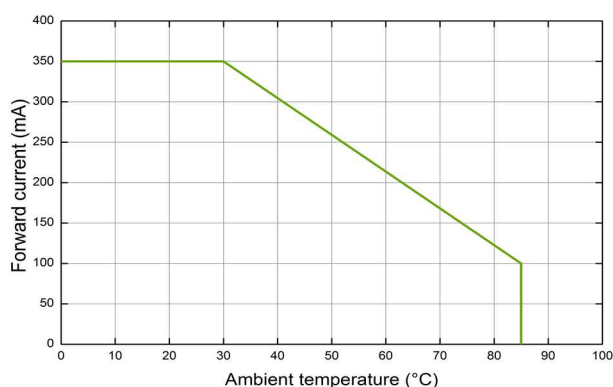
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UV SMD LED

EOLS-340-667

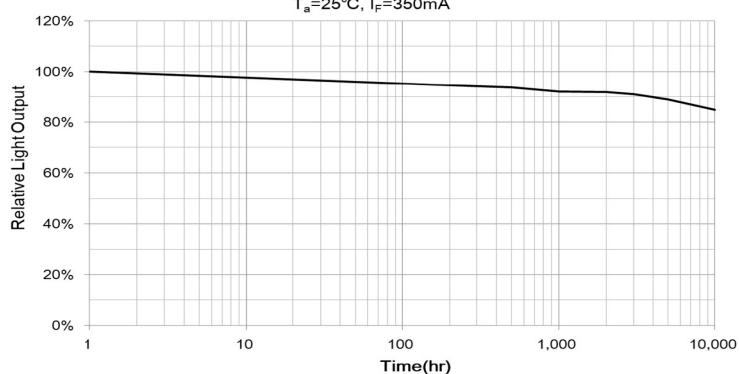
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Rev. 02, 2020



Thermal derating curve

$T_a=25^{\circ}\text{C}$, $I_F=350\text{mA}$



Life test @ 350 mA

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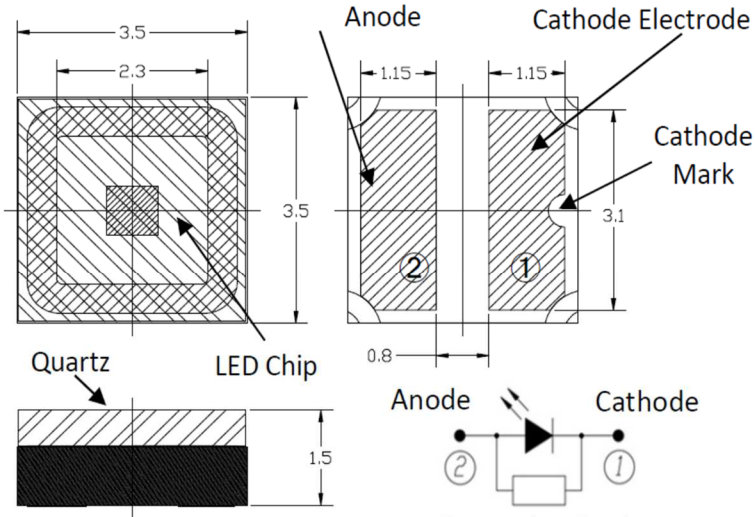
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UV SMD LED

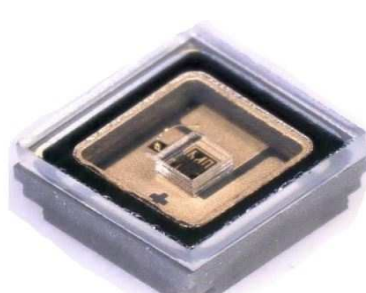
EOLS-340-695

Rev. 03, 2020

Radiation	Type	Case
UVA	AlGaIn	Ceramic SMD 3535 (1414), flat top



Unit: mm



Applications:

- Analytical instruments: biochemical, medical, and scientific analysis
- Photo catalyst
- Medical phototherapy
- UV curing: spot bonding, printing, film coating and general purpose

Maximum Ratings

 $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test conditions	Symbol	Value	Unit
Forward current		I_F	150	mA
Junction temperature		T_J	90	$^{\circ}\text{C}$
Operating temperature range		T_{amb}	-30 to +85	$^{\circ}\text{C}$
Storage temperature range	no condensation	T_{stg}	-40 to +85	$^{\circ}\text{C}$
Thermal resistance junction-ambient		R_{th}	20	K/W

Optical and Electrical Characteristics

 $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Symbol	Conditions	Min	typ	max	Unit
Forward voltage	V_F	$I_F = 100\text{ mA}$		4.5		V
Radiant power	Φ_e	$I_F = 100\text{ mA}$	7	12	18	mW
Peak wavelength	λ_p	$I_F = 100\text{ mA}$	335	340	345	nm
FWHM	$\Delta\lambda_{0.5}$	$I_F = 100\text{ mA}$		9		nm
Viewing half angle	φ	$I_F = 100\text{ mA}$		120		deg



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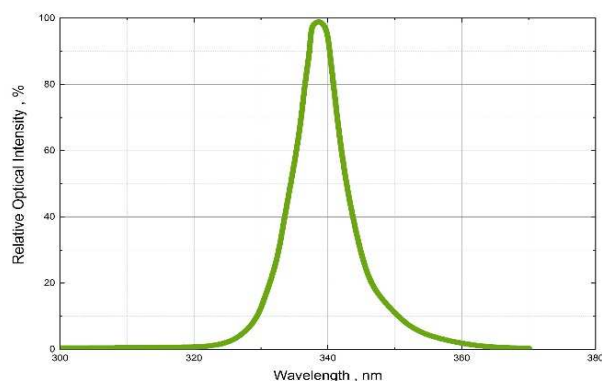
Data Sheet

UV SMD LED

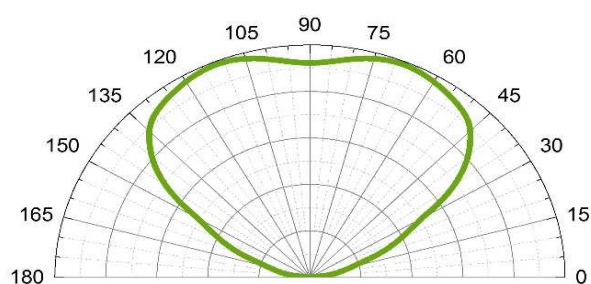
EOLS-340-695

page 2 of 3

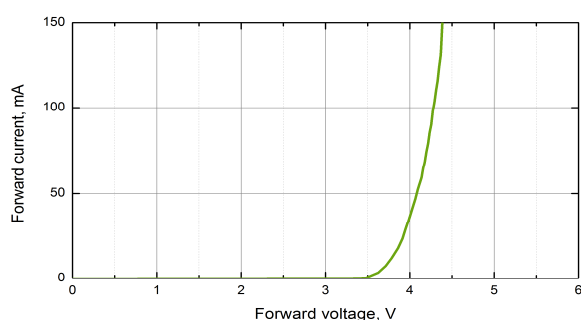
Rev. 03, 2020



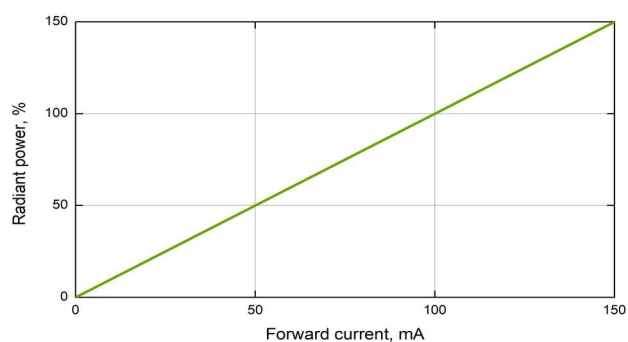
Spectrum



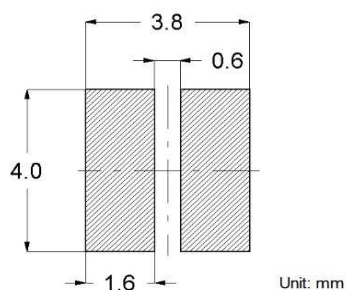
Radiation pattern



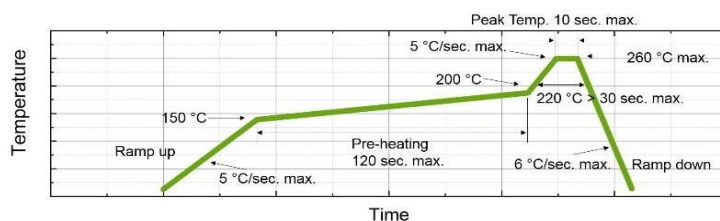
Forward current vs forward voltage



Radiant power vs forward current



Recommended solder pad



Reflow soldering profile



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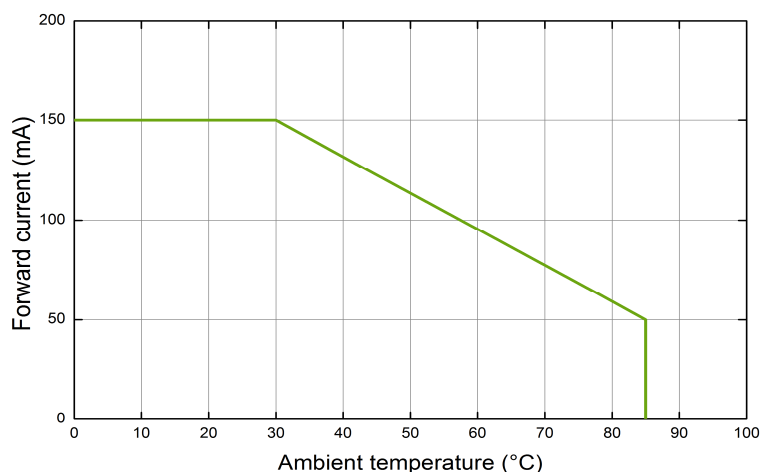
Data Sheet

UV SMD LED

EOLS-340-695

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Rev. 03, 2020



Derating curve

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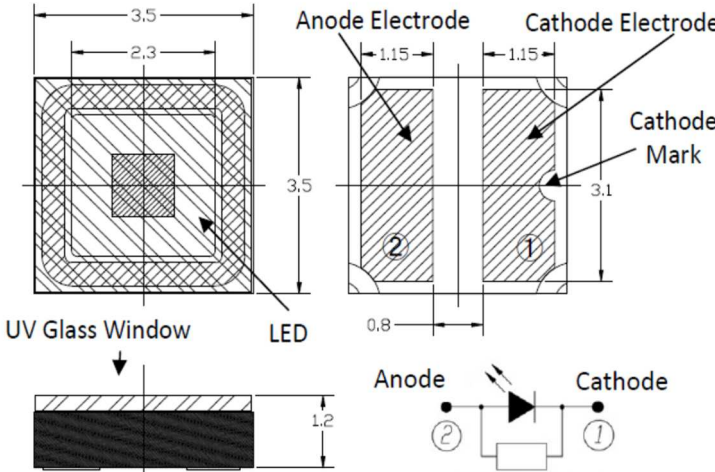
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UV SMD LED

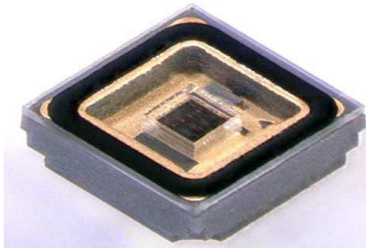
EOLS-340-697

Rev. 04, 2020

Radiation	Type	Case
UVA	AlGaIn	Ceramic SMD 3535 (1414), flat top



Unit: mm



Applications:

- Analytical instruments: biochemical, medical, and scientific analysis
- Photo catalyst
- Medical phototherapy
- UV curing: spot bonding, printing, film coating and general purpose

Maximum Ratings

 $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test conditions	Symbol	Value	Unit
Forward current		I_F	350	mA
Operating temperature range		T_{amb}	-30 to +85	$^{\circ}\text{C}$
Storage temperature range	no condensation	T_{stg}	-40 to +85	$^{\circ}\text{C}$
Junction temperature		T_J	260	$^{\circ}\text{C}$
Thermal resistance junction-ambient		R_{th}	10	K/W

Optical and Electrical Characteristics

 $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Symbol	Conditions	Min	typ	max	Unit
Forward voltage	V_F	$I_F = 350\text{ mA}$		5.5	6.5	V
Radiant power	Φ_e	$I_F = 350\text{ mA}$	32	44		mW
Peak wavelength	λ_p	$I_F = 350\text{ mA}$	335	340	345	nm
FWHM	$\Delta\lambda_{0.5}$	$I_F = 350\text{ mA}$		10	15	nm
Viewing angle	ϕ	$I_F = 350\text{ mA}$		120		deg

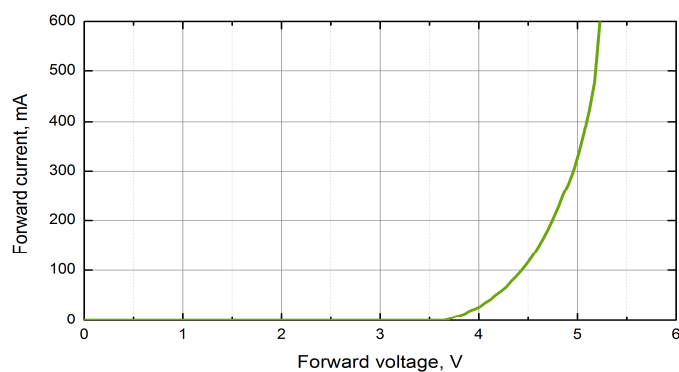
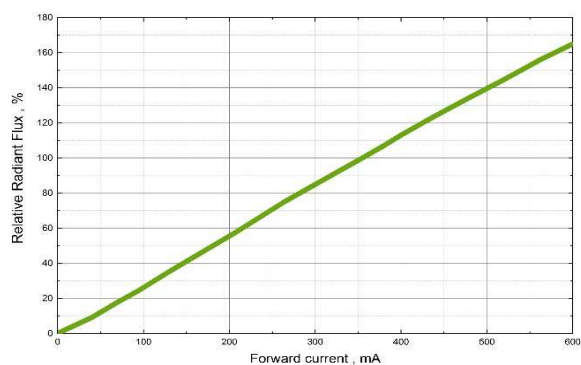
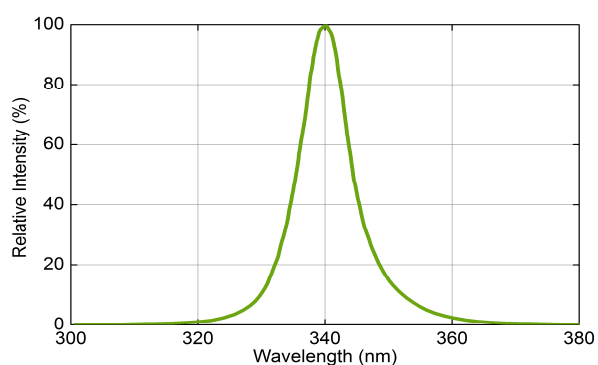


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Data Sheet**UV SMD LED****EOLS-340-697**

page 2 of 4

Rev. 04, 2020

**Forward current vs forward voltage****Radiant power vs forward current****Spectrum @ 350 mA**

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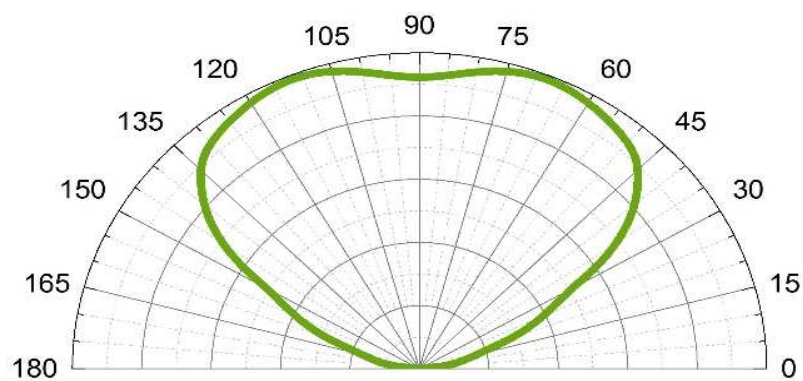
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UV SMD LED

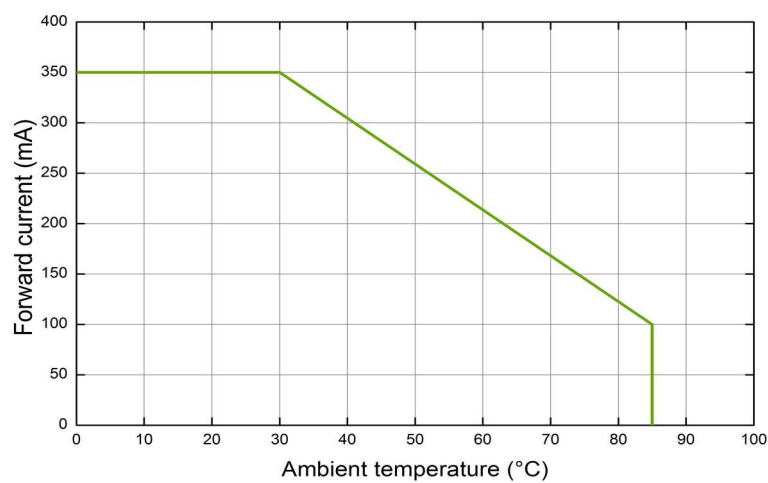
EOLS-340-697

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Rev. 04, 2020



Radiation pattern



Thermal derating curve



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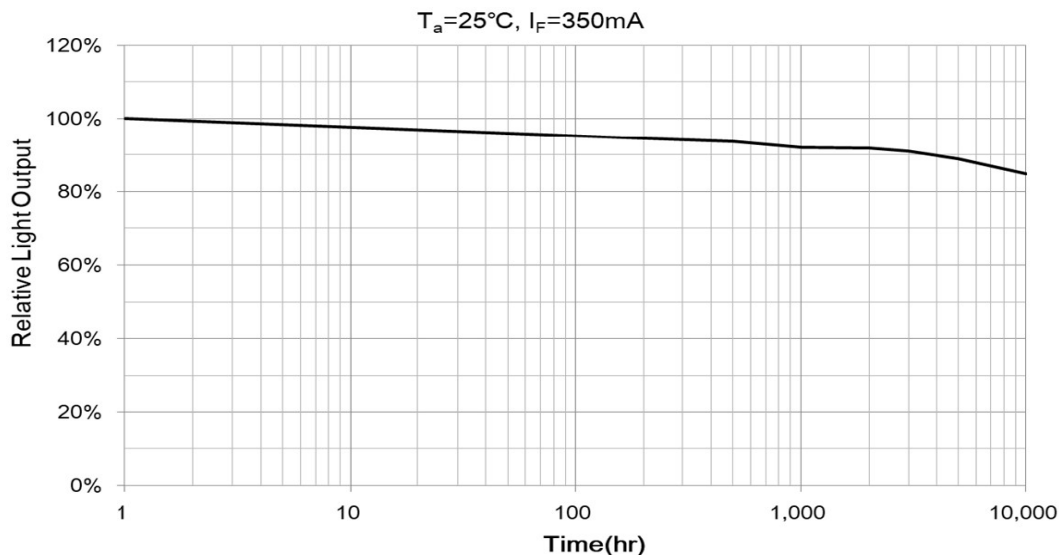
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UV SMD LED

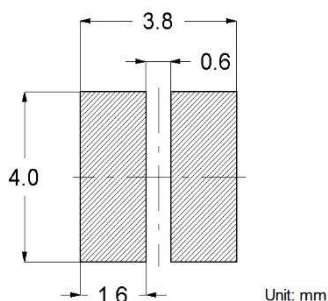
EOLS-340-697

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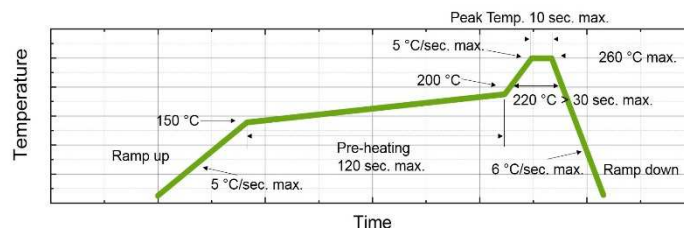
Rev. 04, 2020



Life expectancy data (LED on Al heatsink with fan)



Recommended solder pad



Reflow soldering profile

Art. No. 133 234



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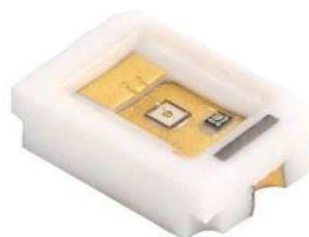
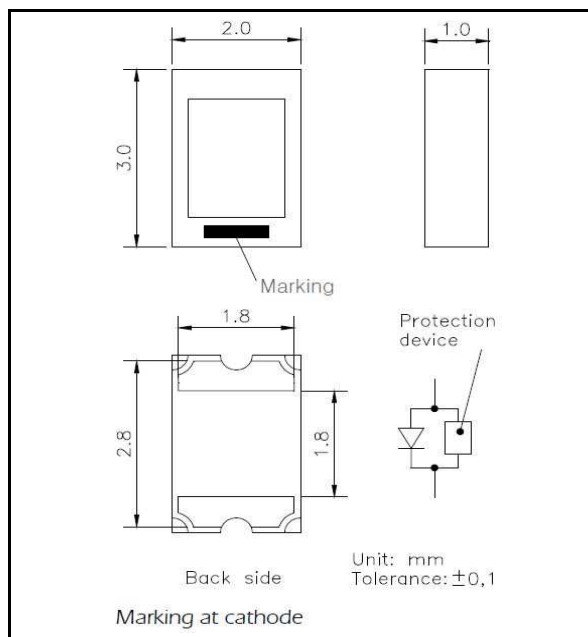
Data Sheet

page 1 of 3

UV SMD-LED**EOLS-360-393**

Rev. 04, 2017

Radiation	Type	Case
UVA	AlGaIn	Ceramic SMD 3020 (1208)

**Description:**

- Size 3.0 (W) x 2.0 (L) x 1.0 (H) mm
- Circuit substrate: Al₂O₃ ceramics
- Devices are RoHS conform
- Lead free solderable, soldering pads: gold plated
- Taped in 8 mm blister tape, cathode to transporting perforation
- All devices are sorted into radiant intensity classes
- Taping: face up (T)

Maximum RatingsT_{amb} = 25°C, unless otherwise specified

Parameter	Test conditions	Symbol	Value	Unit
Forward current		I _F	20	mA
Peak forward current	tp ≤ 100 μs, τ=1/10	I _{FM}	30	mA
Operating temperature range		T _{amb}	-40 to +85	°C
Storage temperature range		T _{stg}	-40 to +85	°C

Optical and Electrical CharacteristicsT_{amb} = 25°C, unless otherwise specified

Parameter	Symbol	Conditions	Min	typ	max	Unit
Forward voltage	V _F	I _F = 20 mA		3.6	4.2	V
Reverse current	I _R	V _R = 5 V			100	μA
Radiant power	Φ _e	I _F = 20 mA		1.1		mW
Radiant intensity	I _e	I _F = 20 mA	0.28	0.45		mW/sr
Peak wavelength	λ _p	I _F = 20 mA	353		360	nm
FWHM	Δλ _{0.5}	I _F = 20 mA		15		nm



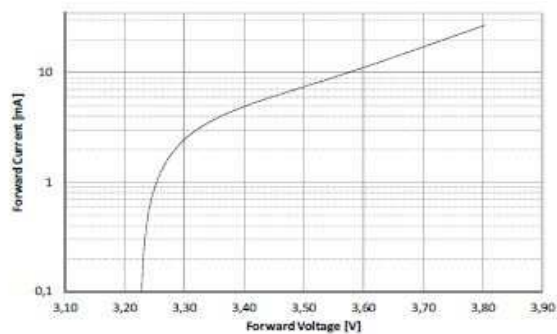
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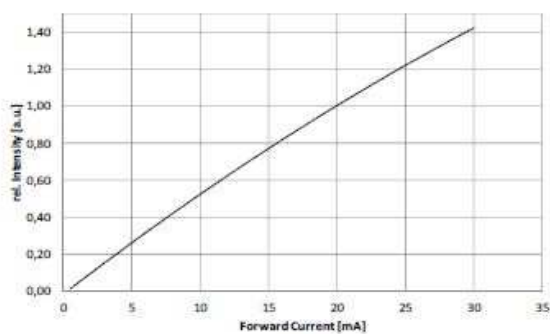
Data Sheet**UV SMD-LED****EOLS-360-393**

page 2 of 3

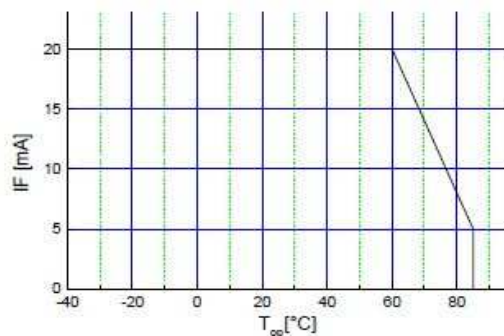
Rev. 04, 2017



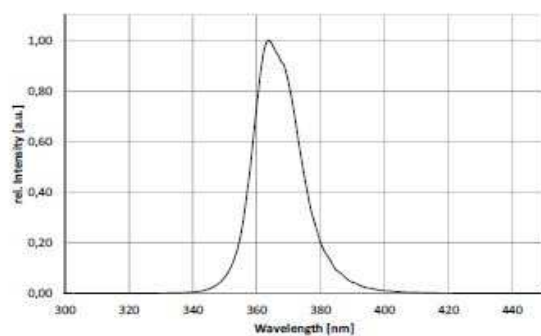
Forward Current vs. Forward Voltage



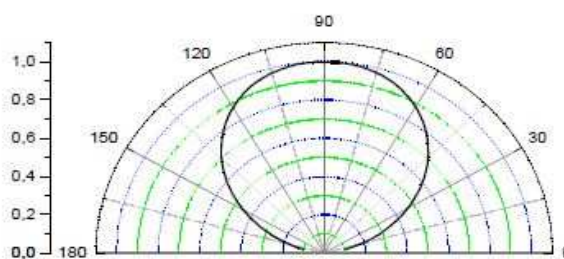
Intensity vs. Forward Current



Maximum Forward Current vs. Ambient Temperature



Spectrum @ 20mA

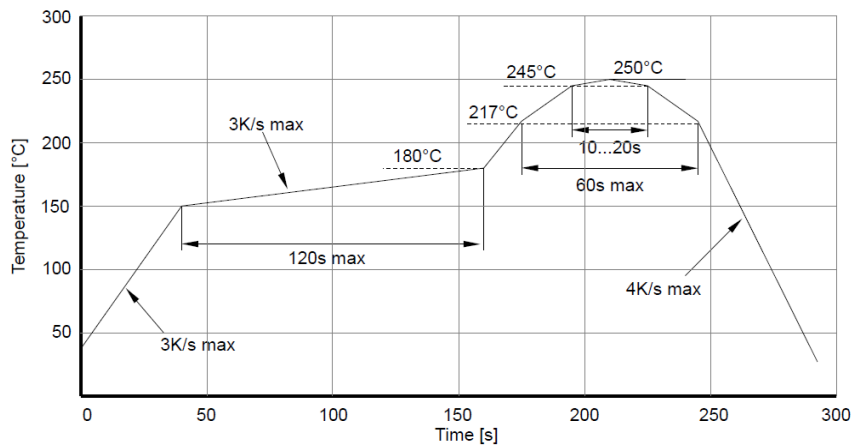


View Angle

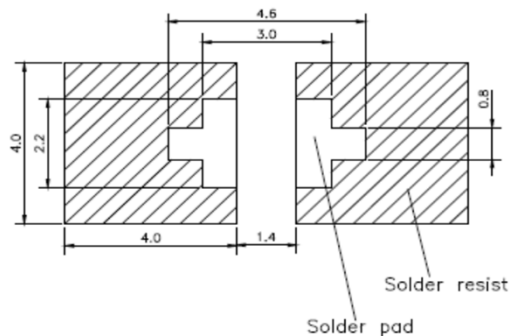


Data Sheet**page 3 of 3****UV SMD-LED****EOLS-360-393**

Rev. 04, 2017



IR reflow soldering
profile for lead free
soldering



Recommended soldering pad

Manual soldering: max power of iron 25 W / 300 °C for 3 s.



Art. No. 133 206

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Data Sheet

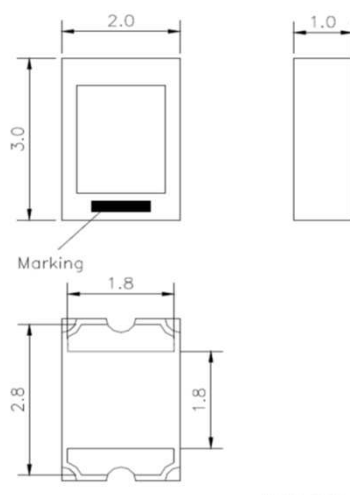
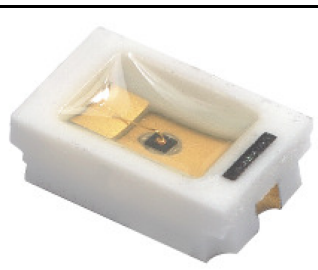
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UV SMD-LED

EOLS-400-393

Rev. 05, 2017

Radiation	Type	Case
UV	InGaN	Ceramic SMD 3020 (1208)

 Unit: mm Tolerance: $\pm 0,1$ Back side Marking at anode Markierung an der Anode	 Description: - Size 3.0 (W) x 2.0 (L) x 1.0 (H) mm - Circuit substrate: Al₂O₃ ceramics, silicone encapsulation - Devices are RoHS and REACH conform - Lead free solderable, soldering pads: gold plated - Taped in 8 mm blister tape, cathode to transporting perforation - All devices are sorted into radiant intensity classes - Taping: face up (T) - Electrostatic discharge classification (MIL-STD-883): class 1
---	---

Maximum Ratings

T_{amb} = 25°C, unless otherwise specified

Parameter	Test conditions	Symbol	Value	Unit
Forward current		I _F	30	mA
Peak forward current	t _p ≤ 100 μs, τ=1/10	I _{FM}	50	mA
Thermal resistance		R _{th_JC}	60	K/W
Operating temperature range		T _{amb}	-40 to +85	°C
Storage temperature range		T _{stg}	-40 to +85	°C

Optical and Electrical Characteristics

T_{amb} = 25°C, unless otherwise specified

Parameter	Symbol	Conditions	Min	typ	max	Unit
Forward voltage	V _F	I _F = 20 mA		3.2	3.6	V
Reverse current	I _R	V _R = 5 V			100	μA
Radiant power	Φ _e	I _F = 20 mA		16		mW
Radiant intensity	I _e	I _F = 20 mA	3.55	6		mW/sr
Peak wavelength	λ _p	I _F = 20 mA	400		405	nm
FWHM	Δλ _{0,5}	I _F = 20 mA		14		nm



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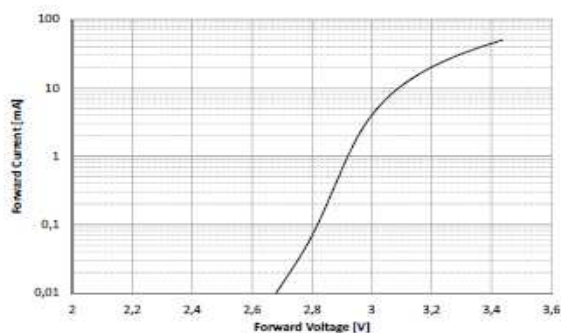
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UV SMD-LED

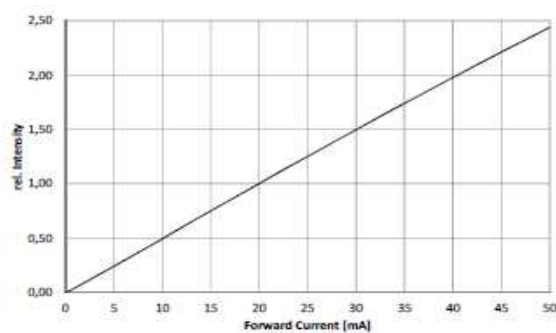
EOLS-400-393

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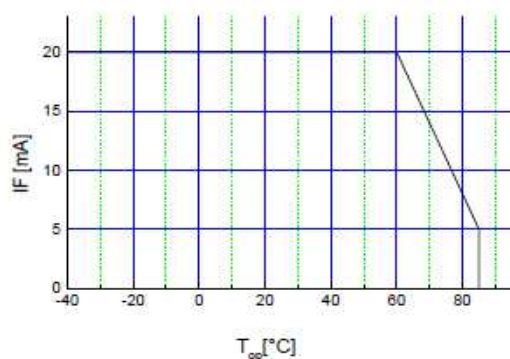
Rev. 05, 2017



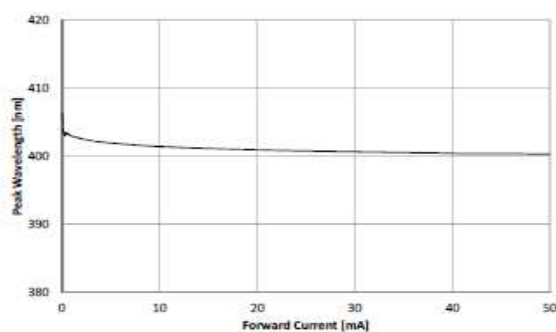
Forward current vs. forward voltage



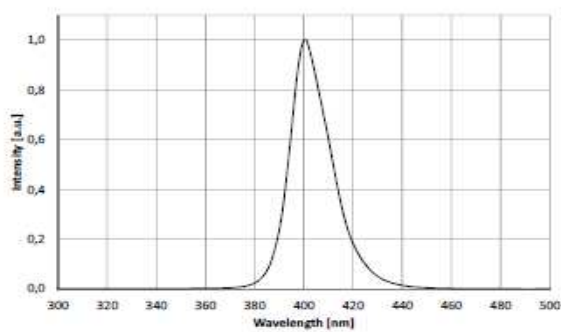
Relative intensity vs. forward current



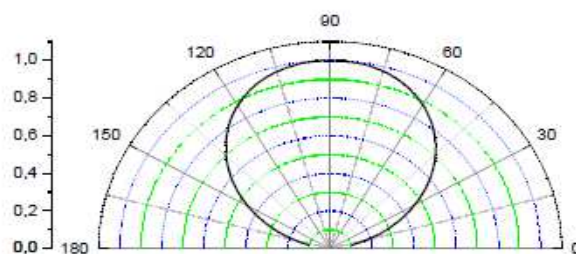
Max. forward current vs. ambient temperature



Peak wavelength vs. forward current



Spectrum



Radiation pattern



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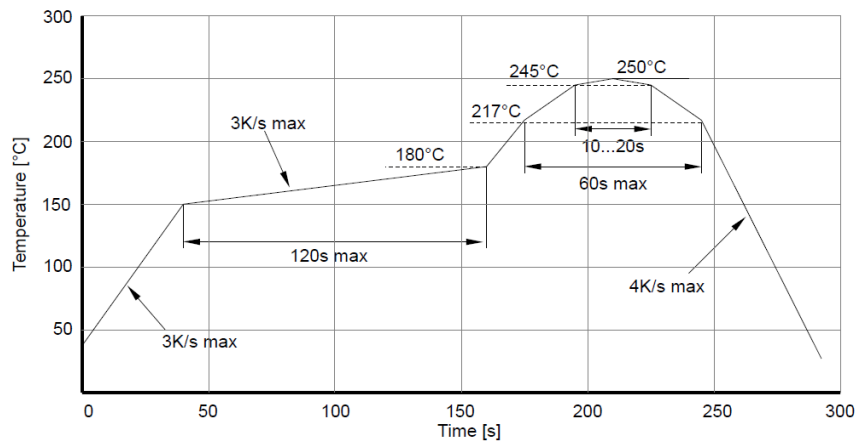
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UV SMD-LED

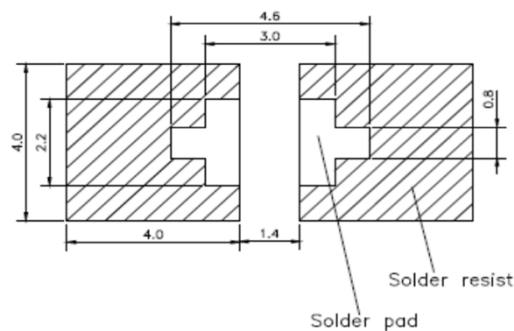
EOLS-400-393

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Rev. 05, 2017



IR reflow soldering
profile for lead free
soldering



Recommended soldering pad

Manual soldering: max power of iron 25 W / 300 °C for 3 s.

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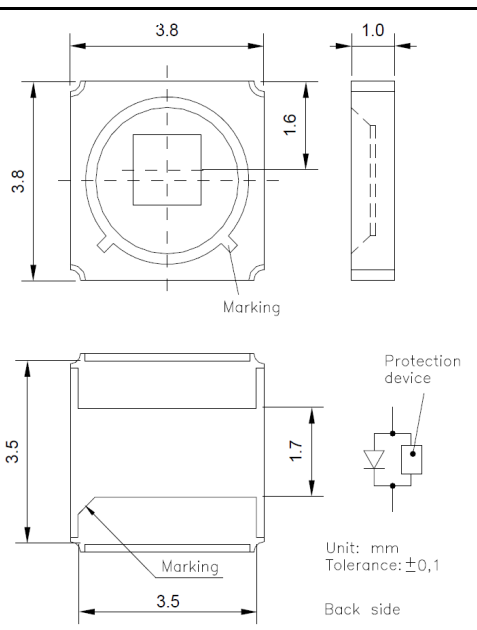
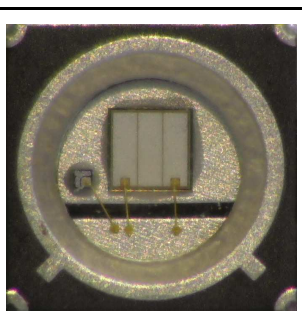
page 1 of 3

SMD LED

EOLS-405-496

Rev. 08, 2019

Radiation	Type	Case
violet, UV	InAlGaN	SMD 3838 (1515)

	 The picture shown is for illustration purpose only. Actual product may vary due to product enhancement. Description: - Size 3.8 (W) x 3.8 (L) x 1.0 (H) mm - Circuit substrate: AlN ceramics - Marking at cathode - Lead free solderable, soldering pads: silver plated - Distance from bottom of SMD to chip top surface: 450±70 µm
--	--

Maximum Ratings

 $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test conditions	Symbol	Value	Unit
Forward current		I_F	350	mA
Peak forward current	$t_p \leq 80 \text{ ms}, T=1 \text{ s}$	I_{FM}	1000	mA
Operating temperature range		T_{amb}	-40 to +85	$^{\circ}\text{C}$
Storage temperature range		T_{sig}	-40 to +85	$^{\circ}\text{C}$

Optical and Electrical Characteristics

 $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Symbol	Conditions	Min	typ	max	Unit
Forward voltage	V_F	$I_F = 350 \text{ mA}$		3.3	3.6	V
Forward voltage	V_F	$I_F = 700 \text{ mA}$		3.8		V
Forward voltage	V_F	$I_F = 1000 \text{ mA}$			4.0	V
Radiant power*	Φ_e	$I_F = 1000 \text{ mA}$	1150			mW
Peak wavelength	λ_p	$I_F = 350 \text{ mA}$	400	405	410	nm
Central wavelength	λ_C	$I_F = 350 \text{ mA}$	400	405	408	nm
FWHM	$\Delta\lambda_{0.5}$	$I_F = 350 \text{ mA}$		19	25	nm

* $d\Phi_e / dI_F > 0$ at $I_F = 0 \dots I_{FM}$. LEDs should never be operated with reverse bias!



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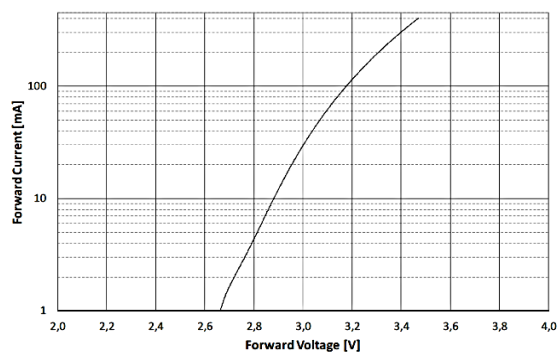
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SMD LED

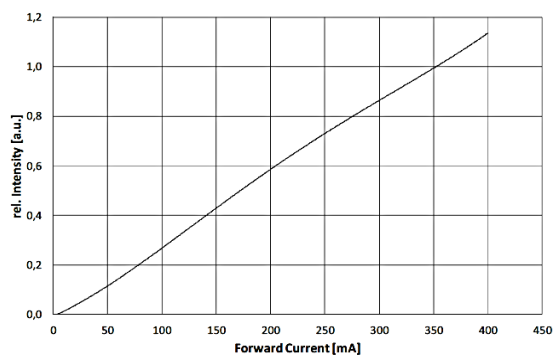
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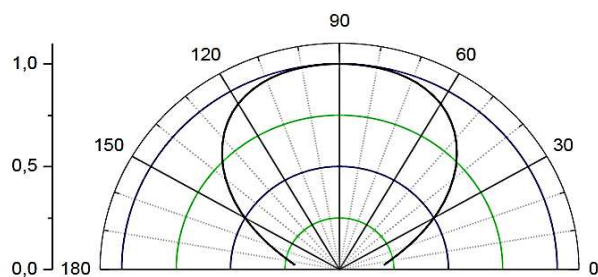
Rev. 08, 2019



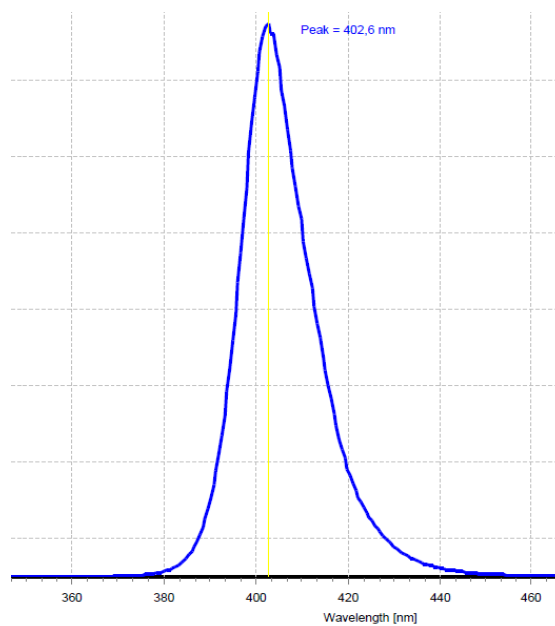
Forward Current vs. Forward Voltage



Intensity vs. Forward Current



View Angle



Typical spectrum at 350 mA



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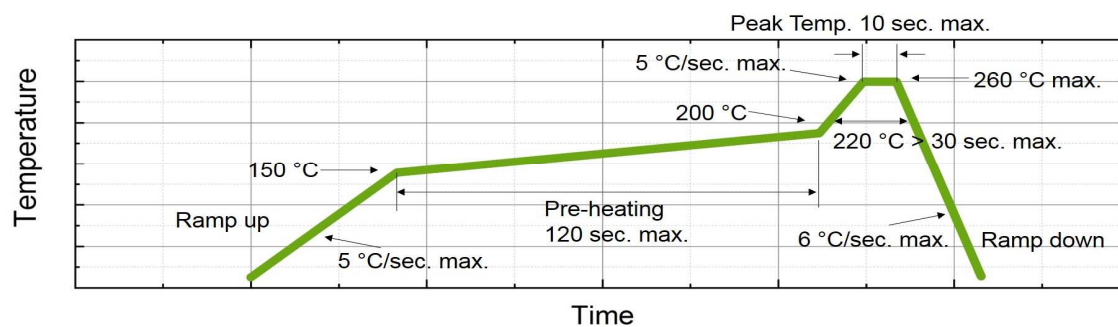


Data Sheet

SMD LED

EOLS-405-496

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Rev. 08, 2019



Recommended reflow soldering profile



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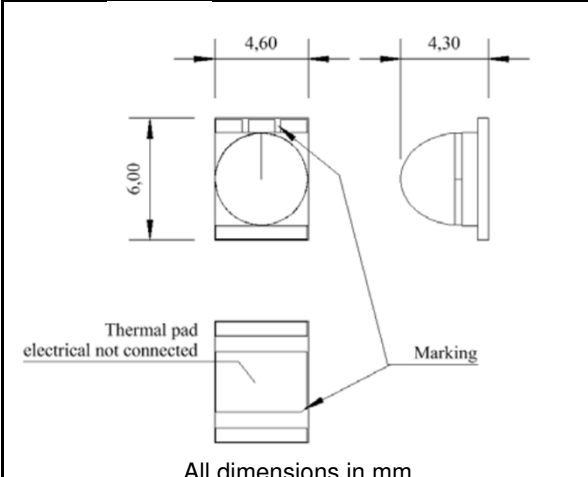
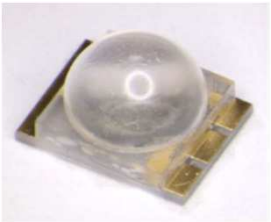


Data Sheet**High Power LED****EOLS-420-227**

page 1 of 3

Rev. 02, 2017

Radiation	Type	Case
Violet	InGaN	SMD 6046 (2418), ceramics

 The drawing shows three views of the LED package: a top view with dimensions 4.60 mm (width) and 6.00 mm (length), a side view with a height of 4.30 mm, and a bottom view showing the thermal pad and marking. A note indicates the thermal pad is electrical not connected. A label 'Marking' points to a specific location on the bottom view. A caption below reads 'All dimensions in mm'.	 A photograph of the EOLS-420-227 LED package, showing its square shape, gold-plated soldering pads, and a clear lens.
	Description: - size: 6.0(L) x 4.6(W) x 4.3(H) mm - high pulse current up to 1000 mA - with lens, view angle 20° - soldering pads: gold plated; only for reflow soldering - marking at anode

Maximum Ratings $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test conditions	Symbol	Value	Unit
Forward current		I_F	700	mA
Peak forward current	$t_p \leq 100 \mu\text{s}$, $\tau = 1:10$	I_{FM}	1000	mA
Reverse voltage		V_R	5	V
Thermal resistance		R_{th_JA}	5	K/W
Operating temperature range		T_{amb}	-40 to +85	$^{\circ}\text{C}$
Storage temperature range		T_{stg}	-40 to +85	$^{\circ}\text{C}$

Electrostatic discharge classification (MIL-STD-883) - class 1

Optical and Electrical Characteristics $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Symbol	Conditions	Min	typ	max	Unit
Forward voltage	V_F	$I_F = 350 \text{ mA}$		3.05	3.6	V
Radiant power*	Φ_e	$I_F = 350 \text{ mA}$		265		mW
Radiant intensity*	I_e	$I_F = 350 \text{ mA}$		700		mW/sr
Peak wavelength	λ_p	$I_F = 350 \text{ mA}$	420	423	426	nm
FWHM	$\Delta\lambda_{0.5}$	$I_F = 350 \text{ mA}$		19		nm
Reverse current	I_R	$I_R = 5 \text{ V}$			100	μA

*measured on star board



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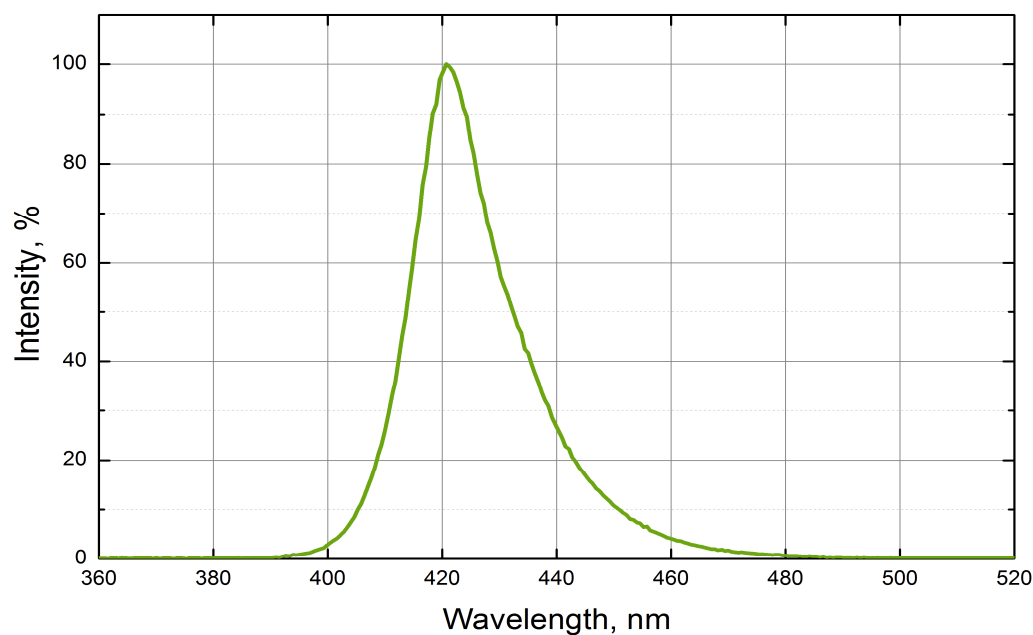
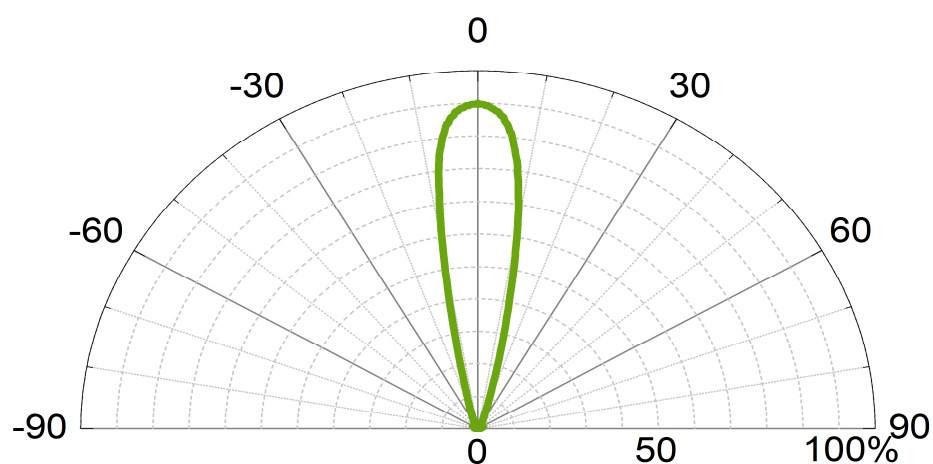
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Data Sheet**High Power LED****EOLS-420-227**

page 2 of 3

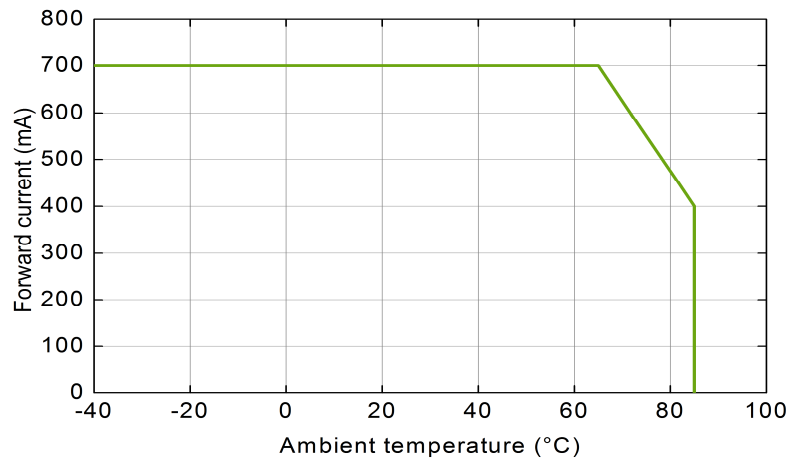
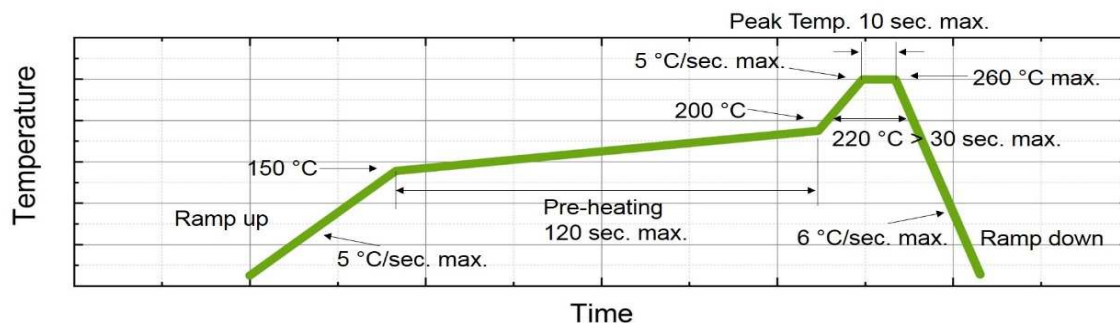
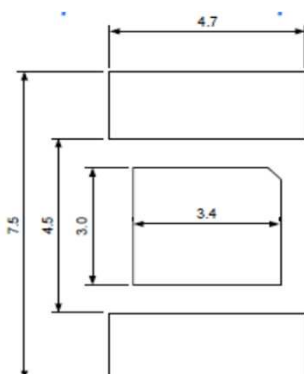
Rev. 02, 2017

**Typical radiation spectrum at 350 mA****Radiation pattern**

Data Sheet**High Power LED****EOLS-420-227**

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Rev. 02, 2017

**Max. forward current vs. ambient temperature****Recommended reflow soldering profile****Recommended soldering pad**

Thermal pad needs to be connected to a heat sink with less than 10 K/W thermal resistance.

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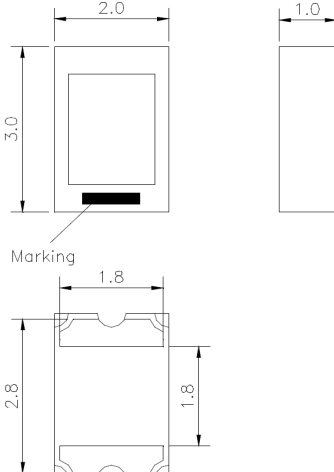
Data Sheet

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Violet SMD-LED**EOLS-430-392**

Rev. 02, 2017

Radiation	Type	Case
Violet	GaN / sapphire	SMD 3020 (1208)

 The drawing shows three views of the LED: a top view with dimensions 2.0 mm width and 1.0 mm height, a side view showing a height of 3.0 mm, and a bottom view showing a width of 1.8 mm and a height of 2.8 mm. A marking is indicated on the top view.  A photograph of the LED component, showing its yellow sapphire substrate and gold-plated solder pads.	Description: - Size 3.0 (W) x 2.0 (L) x 1.0 (H) mm - Circuit substrate: Al₂O₃ ceramics, silicone encapsulation - Devices are RoHS conform - Lead free solderable, soldering pads: gold plated
---	--

Maximum Ratings $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test conditions	Symbol	Value	Unit
Forward current		I_F	20	mA
Peak forward current	$t_p \leq 100 \mu\text{s}$, $\tau=1/10$	I_{FM}	100	mA
Reverse voltage		V_R	5	V
Thermal resistance		R_{thJA}	60	K/W
Operating temperature range		T_{amb}	-40 to +85	$^{\circ}\text{C}$
Storage temperature range		T_{stg}	-40 to +100	$^{\circ}\text{C}$

Optical and Electrical Characteristics $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test cond.	Symbol	Min	Typ	Max	Unit
Forward voltage	$I_F=20 \text{ mA}$	V_F		3.5	3.8	V
Reverse current	$V_R=5 \text{ V}$	I_R			1	μA
Radiant power	$I_F=20 \text{ mA}$	Φ_e		16	32	mW
Radiant intensity	$I_F=20 \text{ mA}$	I_e		3.35	6.7	mW/sr
Luminous flux	$I_F=20 \text{ mA}$	Φ_v		0.12	0.24	lm
Luminous intensity	$I_F=20 \text{ mA}$	I_v		32	64	mcd
Peak wavelength	$I_F=20 \text{ mA}$	λ_p	425	428	430	nm
FWHM	$I_F=20 \text{ mA}$	$\Delta\lambda$		15	30	nm

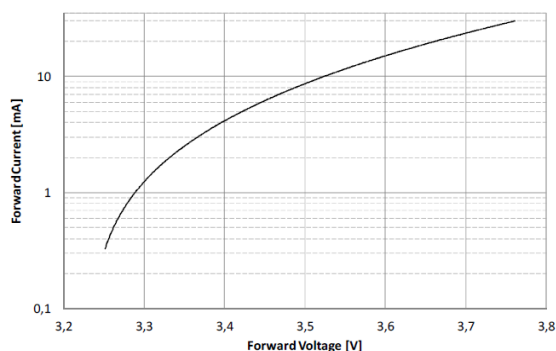


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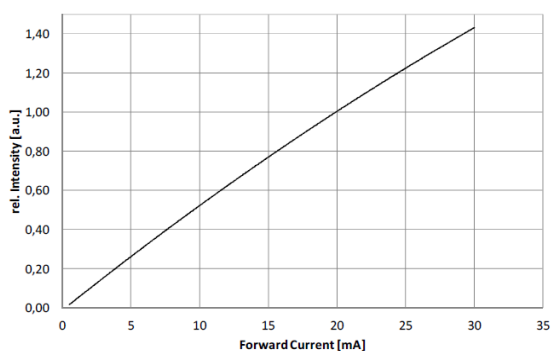
Data Sheet**Violet SMD-LED****EOLS-430-392**

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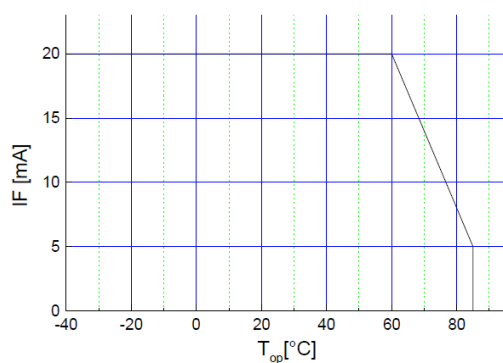
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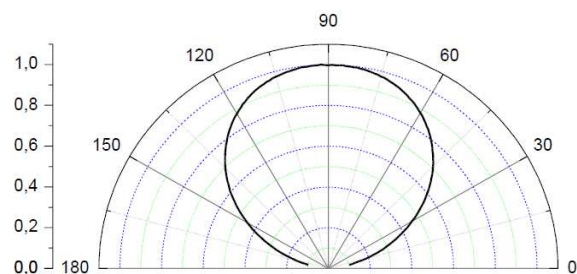
Forward Current vs. Forward Voltage
Flussstrom über Flussspannung



Intensity vs. Forward Current
Strahlstärke über Flussstrom



Maximum Forward Current vs. Ambient Temperature
Max. Flussstrom über Umgebungstemperatur



View Angle
Abstrahlung



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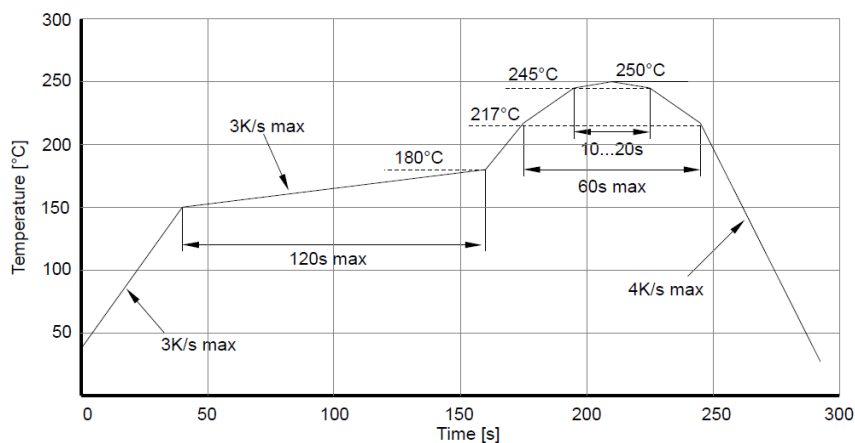
Data Sheet

Violet SMD-LED

EOLS-430-392

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Rev. 02, 2017



IR reflow soldering
profile for lead free
soldering

IR Reflow
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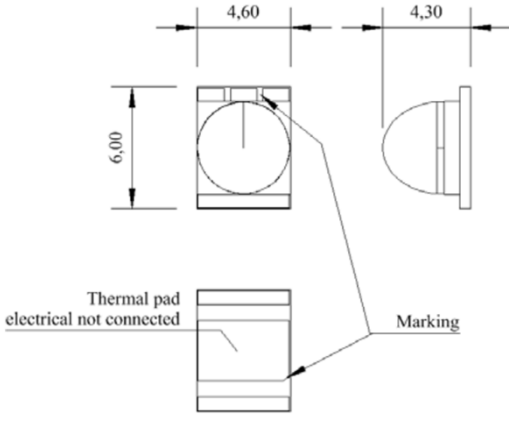
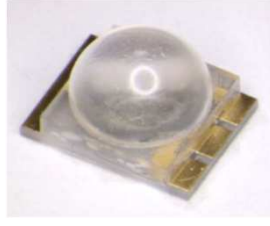
Data Sheet

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High Power LED**EOLS-440-227**

Rev. 02, 2017

Radiation	Type	Case
Blue	InGaN	SMD 6046 (2418), ceramics

 Thermal pad electrical not connected Marking All dimensions in mm	 Description: - size: 6.0(L) x 4.6(W) x 4.3(H) mm - high pulse current up to 1000 mA - with lens, view angle 20° - soldering pads: gold plated; only for reflow soldering - marking at cathode
---	--

Maximum RatingsT_{amb} = 25°C, unless otherwise specified

Parameter	Test conditions	Symbol	Value	Unit
Forward current		I _F	700	mA
Peak forward current	t _p ≤ 100 μs, τ=1:10	I _{FM}	1000	mA
Reverse voltage		V _R	5	V
Thermal resistance		R _{th_JA}	5	K/W
Operating temperature range		T _{amb}	-40 to +85	°C
Storage temperature range		T _{stg}	-40 to +85	°C

Electrostatic discharge classification (MIL-STD-883) - class 1

Optical and Electrical CharacteristicsT_{amb} = 25°C, unless otherwise specified

Parameter	Symbol	Conditions	Min	typ	max	Unit
Forward voltage	V _F	I _F = 350 mA		2.85	3.4	V
Radiant power*	Φ _e	I _F = 350 mA		380		mW
Radiant intensity*	I _e	I _F = 350 mA		1300		mW/sr
Peak wavelength	λ _p	I _F = 350 mA	435	440	445	nm
FWHM	Δλ _{0.5}	I _F = 350 mA		17		nm
Reverse current	I _R	I _R = 5 V			100	μA

*measured on star board

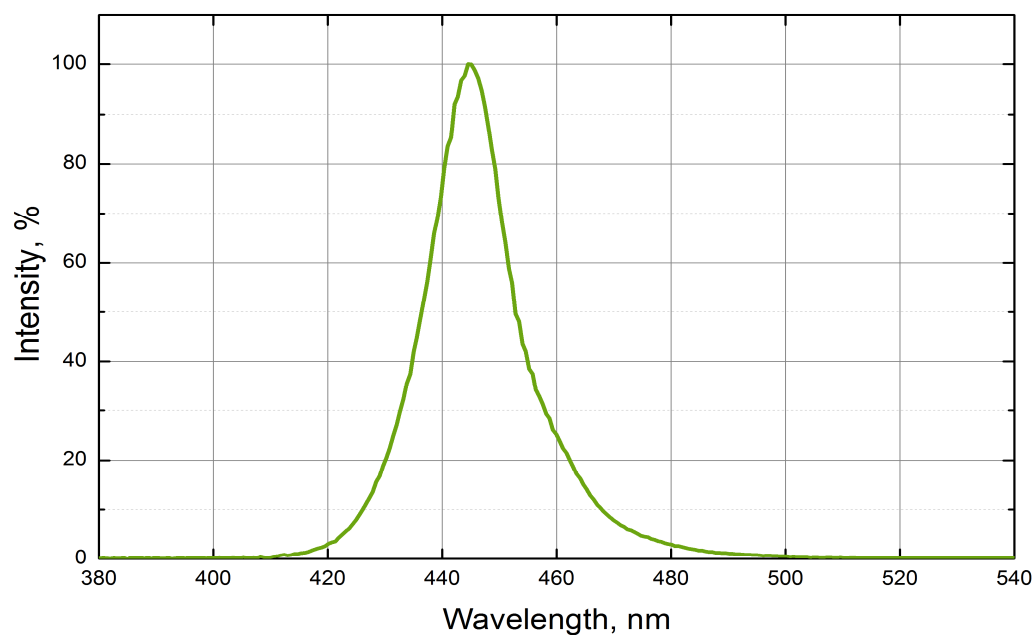
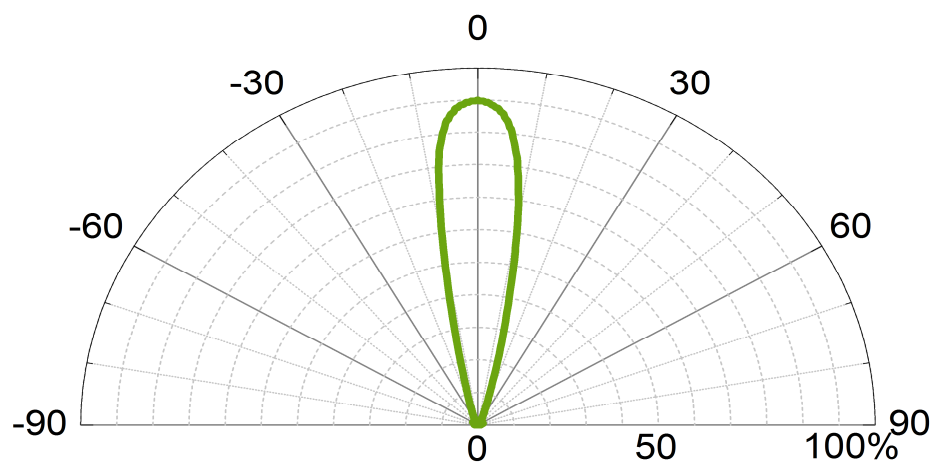


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Data Sheet**High Power LED****EOLS-440-227**

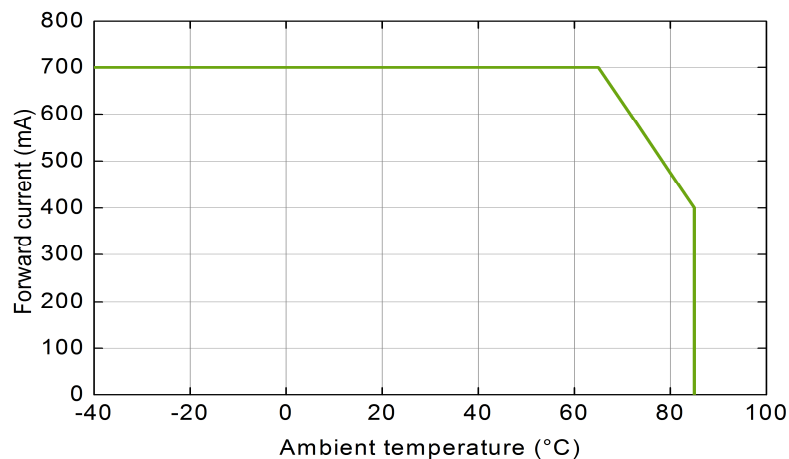
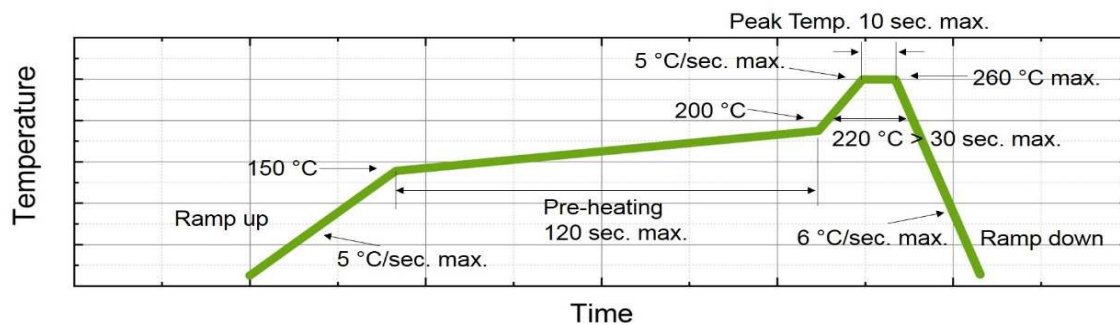
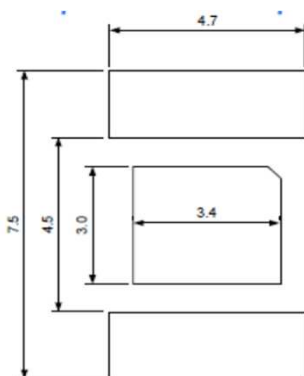
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Rev. 02, 2017

**Typical radiation spectrum at 350 mA****Radiation pattern**

Data Sheet**page 3 of 3****High Power LED****EOLS-440-227**

Rev. 02, 2017

**Max. forward current vs. ambient temperature****Recommended reflow soldering profile****Recommended soldering pad**

Thermal pad needs to be connected to a heat sink with less than 10 K/W thermal resistance.

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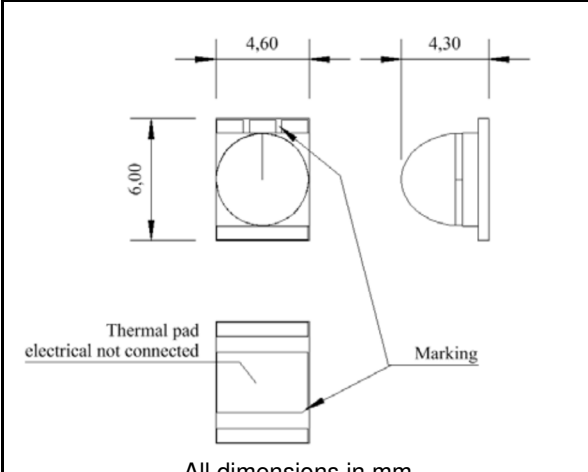
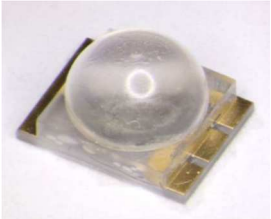
Data Sheet

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High Power LED**EOLS-460-227**

Rev. 05, 2020

Radiation	Type	Case
Blue	InGaN	SMD 6046 (2418), ceramics

 All dimensions in mm	
	Description: - size: 6.0(L) x 4.6(W) x 4.3(H) mm - high pulse current up to 1000 mA - with lens, view angle 20° - soldering pads: gold plated; only for reflow soldering - marking at anode

Maximum Ratings $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test conditions	Symbol	Value	Unit
Forward current		I_F	700	mA
Peak forward current	$t_p \leq 100 \mu\text{s}$, $\tau = 1:10$	I_{FM}	1000	mA
Reverse voltage		V_R	5	V
Thermal resistance		R_{th_JA}	5	K/W
Operating temperature range		T_{amb}	-40 to +85	$^{\circ}\text{C}$
Storage temperature range		T_{stg}	-40 to +85	$^{\circ}\text{C}$

Electrostatic discharge classification (MIL-STD-883) - class 1

Optical and Electrical Characteristics $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Symbol	Conditions	Min	typ	max	Unit
Forward voltage	V_F	$I_F = 350 \text{ mA}$		3.1	3.4	V
Radiant power*	Φ_e	$I_F = 350 \text{ mA}$		310		mW
Radiant intensity*	I_e	$I_F = 350 \text{ mA}$		915		mW/sr
Peak wavelength	λ_p	$I_F = 350 \text{ mA}$	455	460	465	nm
FWHM	$\Delta\lambda_{0.5}$	$I_F = 350 \text{ mA}$		22		nm
Reverse current	I_R	$I_R = 5 \text{ V}$			100	μA

*measured on star board

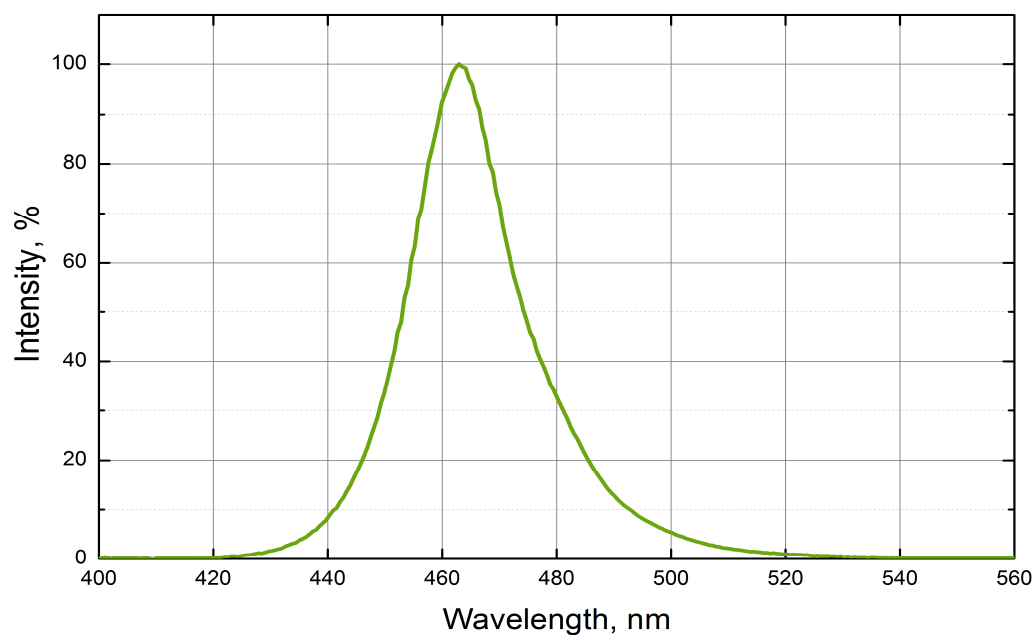
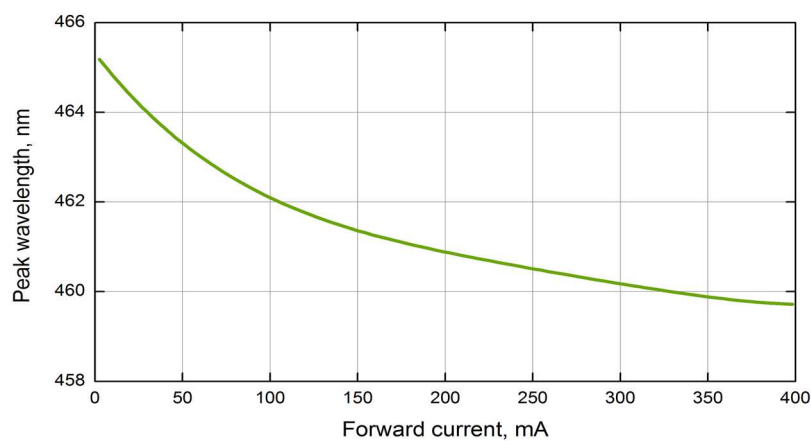


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Data Sheet**High Power LED****EOLS-460-227**

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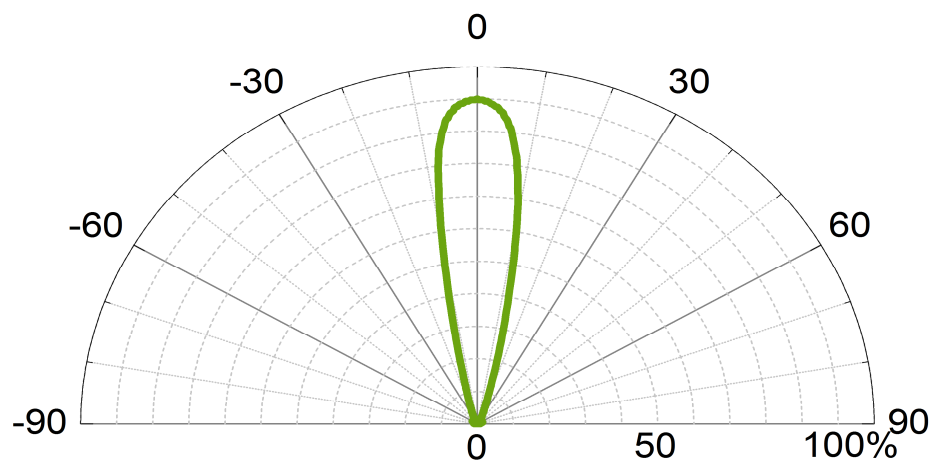
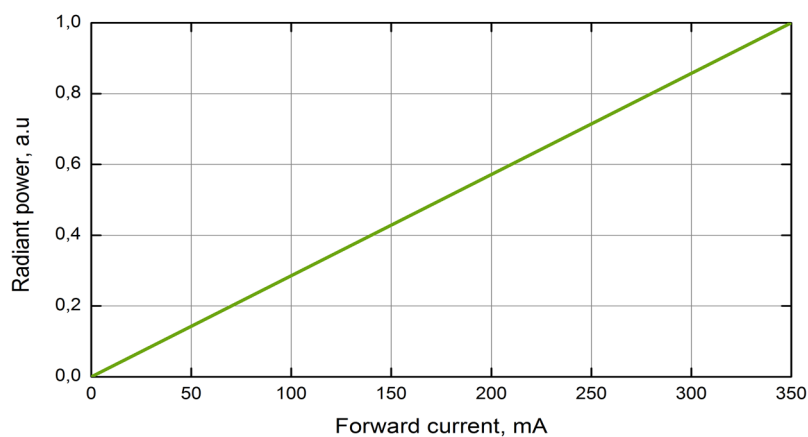
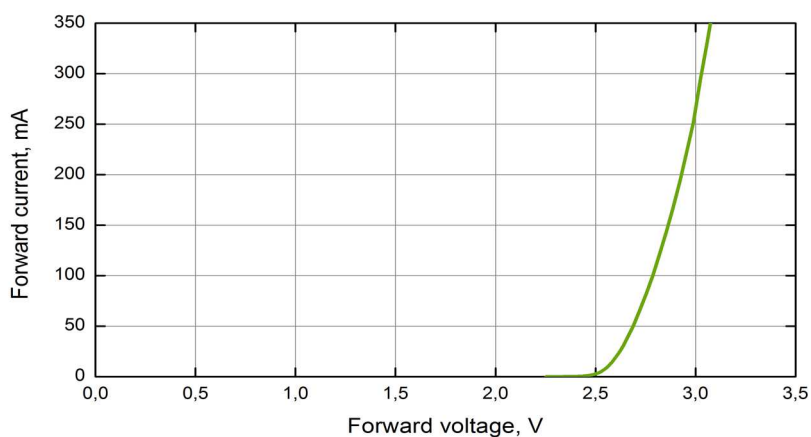
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**Typical radiation spectrum at 350 mA****Peak wavelength vs. forward current**

Data Sheet**High Power LED****EOLS-460-227**

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Rev. 05, 2020

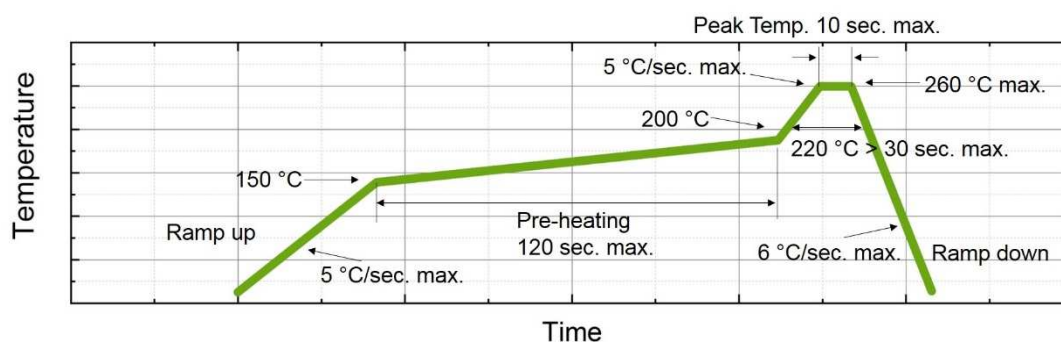
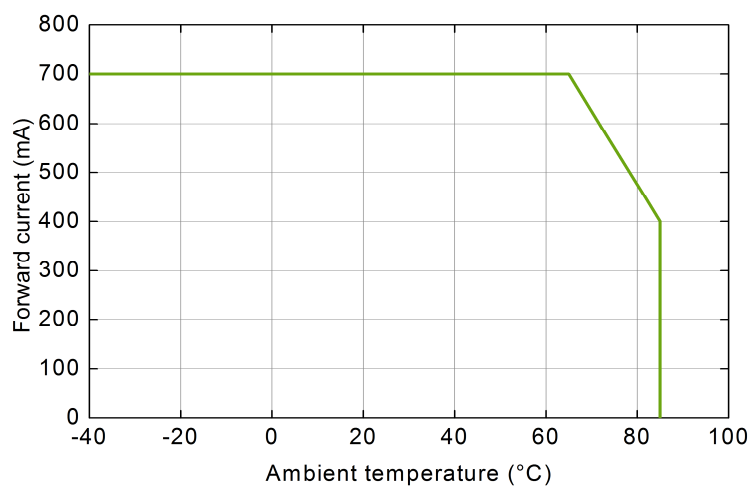
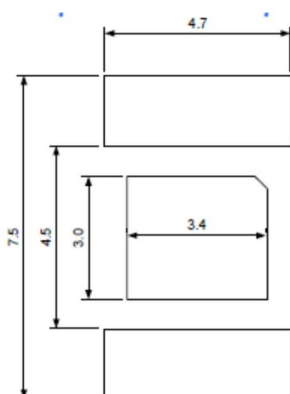
**Radiation pattern**

Data Sheet

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High Power LED**EOLS-460-227**

Rev. 05, 2020

**Recommended reflow soldering profile****Recommended soldering pad**

Thermal pad needs to be connected to a heat sink with less than 10 K/W thermal resistance.

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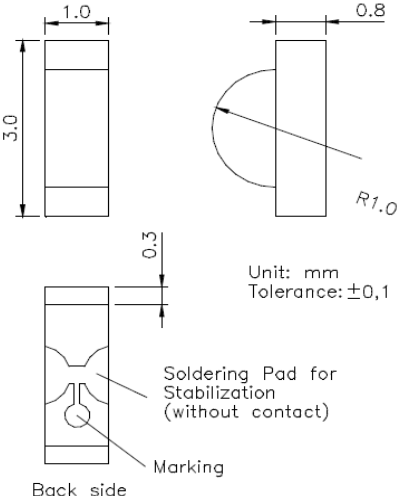
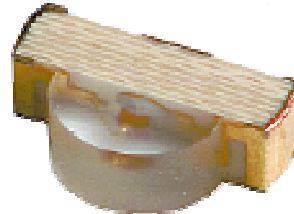
Data Sheet

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SMD-LED side view**EOLS-460-590**

Rev. 02, 2017

Radiation	Type	Case
blue	InGaN	SMD 3018 (1008), side view

 Technical drawing of the SMD-LED side view. The drawing shows the dimensions of the component: a length of 1.0 mm, a width of 0.8 mm, and a height of 3.0 mm. A fillet radius of R1.0 is indicated. A soldering pad for stabilization (without contact) is shown with a diameter of 0.3 mm. The back side of the component is also shown with a marking. The unit is mm and the tolerance is ±0.1.	 3D model of the SMD-LED side view, showing the component's profile and the soldering pad.
Description: - Size 1008: 3.0 (L) x 1.8 (W) x 1.0 (H) mm - Circuit substrate: glass laminated epoxy - Devices are RoHS conform - Lead free solderable, soldering pads: gold plated - Marking at cathode - ESD classification (MIL-STD-883E) - class 1	

Maximum Ratings

Parameter	Test conditions	Symbol	Value	Unit
Forward current		I_F	20	mA
Peak forward current	$t_p \leq 100 \mu s, \tau=1:10$	I_{FM}	100	mA
Reverse voltage		V_R	5	V
Reverse current		I_R	100	μA
Operating temperature range		T_{amb}	-40 to +85	$^{\circ}C$
Storage temperature range		T_{stg}	-40 to +85	$^{\circ}C$
Thermal resistance		R_{thJA}	500	K/W

Optical and Electrical Characteristics

Parameter	Symbol	Conditions	Min	typ	max	Unit
Forward voltage	V_F	$I_F = 20 \text{ mA}$		3.3	3.5	V
Luminous intensity	I_v	$I_F = 20 \text{ mA}$	150	180		mcd
Dominant wavelength	λ_d	$I_F = 20 \text{ mA}$		460		nm



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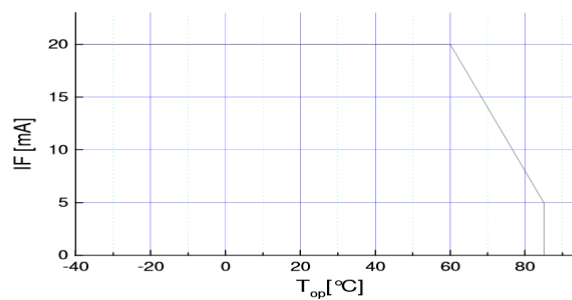
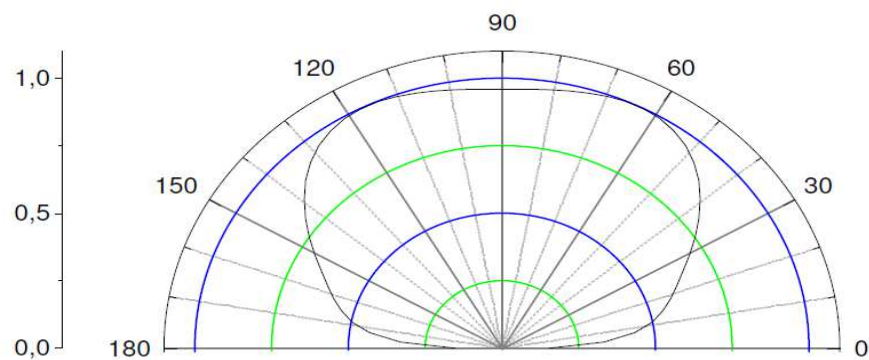
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Data Sheet**SMD-LED side view****EOLS-460-590****page 2 of 3**

Rev. 02, 2017

**Maximal
forward
current (DC)
characteristic****View angle**

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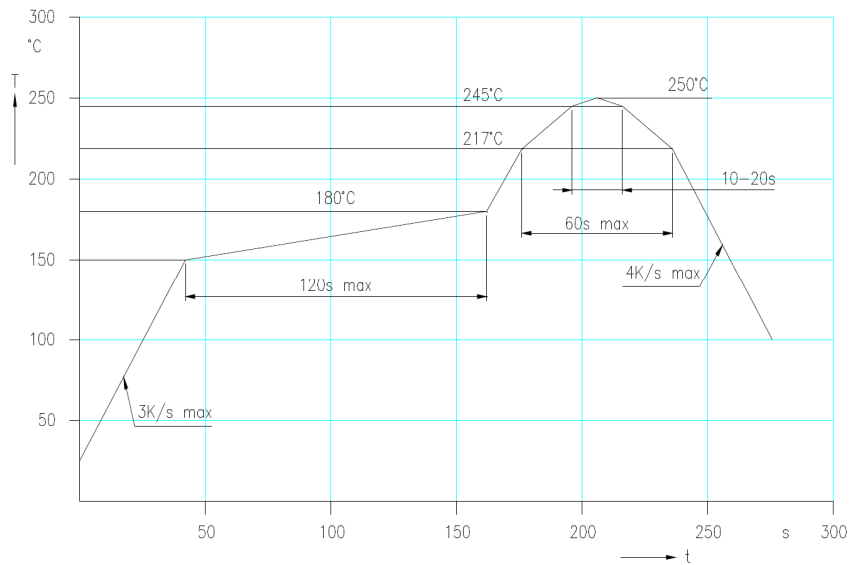
Data Sheet

SMD-LED side view

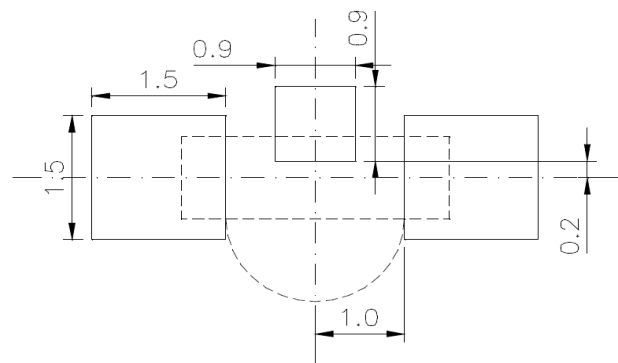
EOLS-460-590

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Rev. 02, 2017

IR reflow soldering profile for lead free soldering



Recommended Soldering Patterns



Manual soldering:
max power of iron 25 W / 3 s / 300°C

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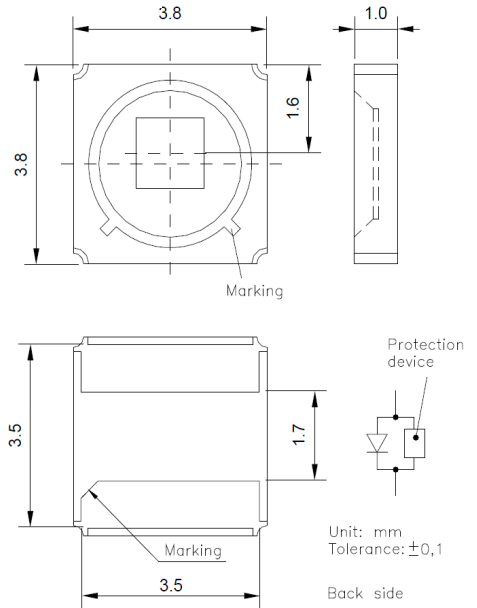
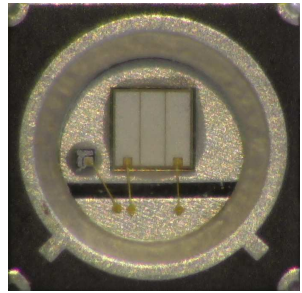
Data Sheet

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High Power LED**EOLS-470-496**

Rev. 08, 2019

Radiation	Type	Case
Blue	InAlGaN	SMD 3838 (1515)

 Unit: mm Tolerance: ±0,1 Back side	 The picture shown is for illustration purpose only. Actual product may vary due to product enhancement. Description: - Size 3.8 (W) x 3.8 (L) x 1.0 (H) mm - Circuit substrate: AlN ceramics - Marking at cathode - Lead free solderable, soldering pads: silver plated - Distance from bottom of SMD to chip top surface: 450±70 µm
---	--

Maximum Ratings $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test conditions	Symbol	Value	Unit
Forward current		I_F	350	mA
Peak forward current	$t_p \leq 80 \text{ ms}, T = 1 \text{ s}$	I_{FM}	1000	mA
Operating temperature range		T_{amb}	-40 to +85	$^{\circ}\text{C}$
Storage temperature range		T_{stg}	-40 to +85	$^{\circ}\text{C}$

Optical and Electrical Characteristics $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Symbol	Conditions	Min	typ	max	Unit
Forward voltage	V_F	$I_F = 350 \text{ mA}$	2.9	3.2	3.8	V
Forward voltage	V_F	$I_F = 700 \text{ mA}$		3.8		V
Forward voltage	V_F	$I_F = 1000 \text{ mA}$			4.0	V
Radiant power*	Φ_e	$I_F = 350 \text{ mA}$	600			mW
Peak wavelength	λ_p	$I_F = 350 \text{ mA}$		470		nm
Central wavelength	λ_c	$I_F = 350 \text{ mA}$	465	470	475	nm
FWHM	$\Delta\lambda_{0.5}$	$I_F = 350 \text{ mA}$		21		nm

* $d\Phi_e / dI_F > 0$ at $I_F = 0 \dots I_{FM}$. LEDs should never be operated with reverse bias!

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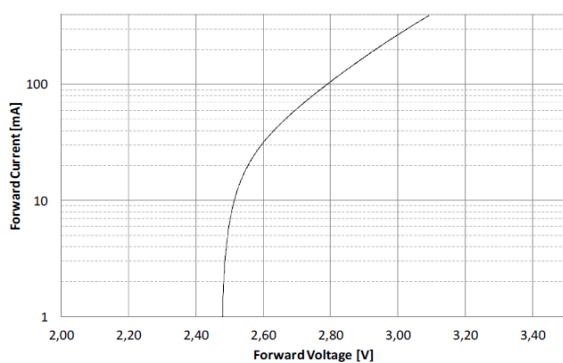
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High Power LED

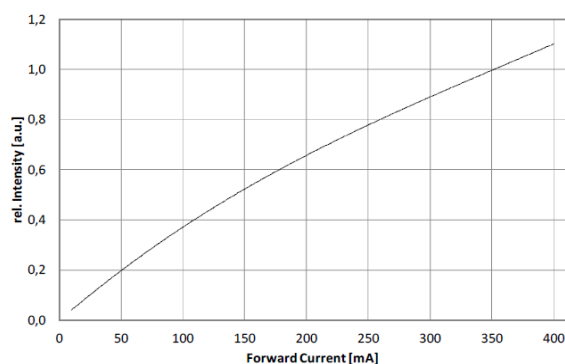
EOLS-470-496

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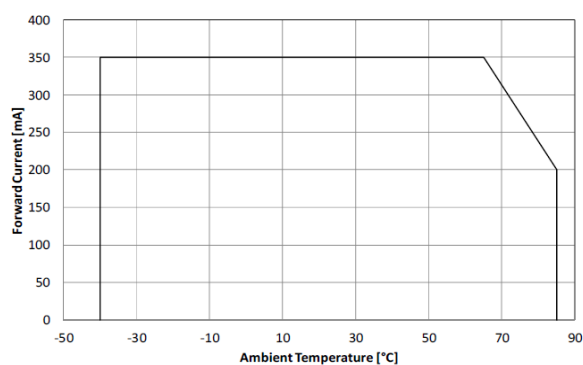
Rev. 08, 2019



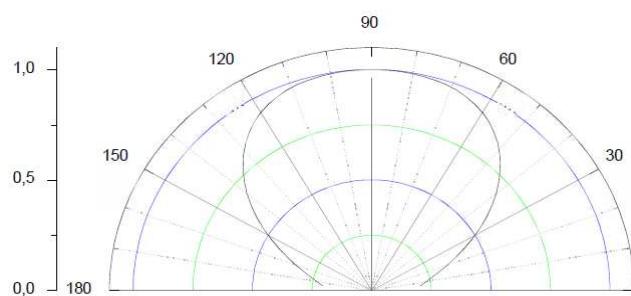
Forward Current vs. Forward Voltage



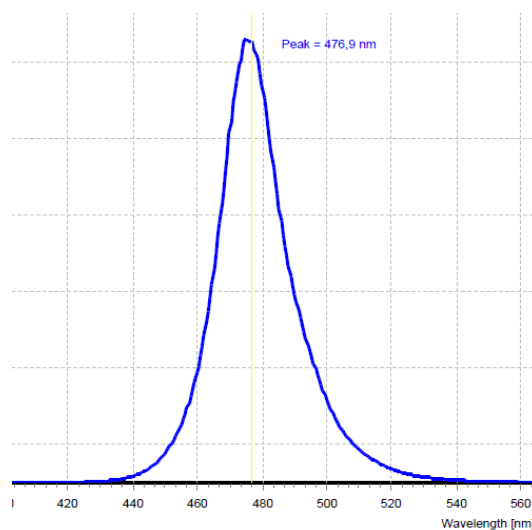
Intensity vs. Forward Current



Maximum Forward Current vs. Ambient Temperature



View Angle



Typical spectrum at 350 mA



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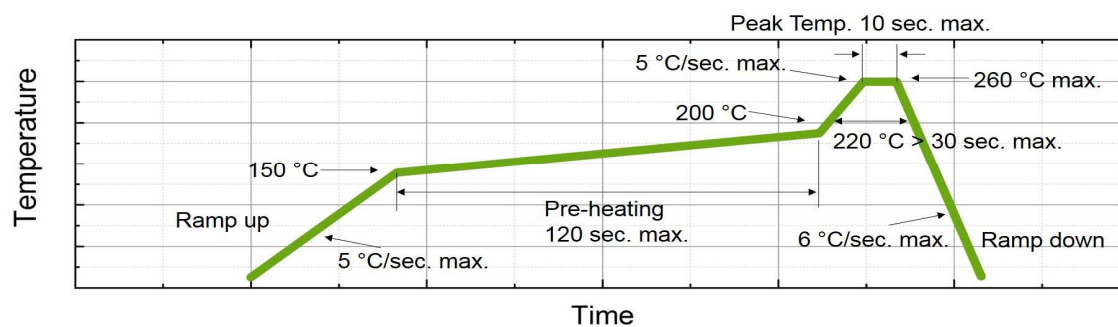
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Recommended reflow soldering profile



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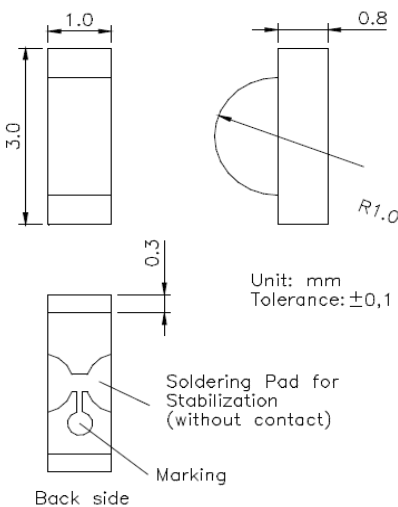
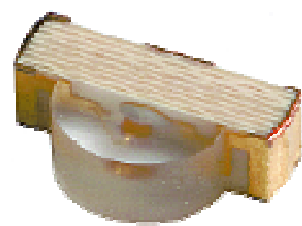
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SMD-LED side view**EOLS-470-590**

Rev. 02, 2017

Radiation	Type	Case
blue	InGaN	SMD 3018 (1008), side view

 Technical drawing of the SMD-LED side view. The drawing shows the dimensions of the component: a length of 3.0 mm, a width of 1.0 mm, and a height of 0.8 mm. A fillet radius of R1.0 is indicated. A soldering pad for stabilization (without contact) is shown with a diameter of 0.3 mm. The back side of the component is also shown with a marking. The unit is mm and the tolerance is ±0.1.	 3D model of the SMD-LED side view, showing the component's profile and the soldering pad.
Description: - Size 1008: 3.0 (L) x 1.8 (W) x 1.0 (H) mm - Circuit substrate: glass laminated epoxy - Devices are RoHS conform - Lead free solderable, soldering pads: gold plated - Marking at cathode - ESD classification (MIL-STD-883E) - class 1	

Maximum Ratings

Parameter	Test conditions	Symbol	Value	Unit
Forward current		I_F	20	mA
Peak forward current	$t_p \leq 100 \mu s, \tau=1:10$	I_{FM}	100	mA
Reverse voltage		V_R	5	V
Reverse current		I_R	100	μA
Operating temperature range		T_{amb}	-40 to +85	$^{\circ}C$
Storage temperature range		T_{stg}	-40 to +85	$^{\circ}C$
Thermal resistance		R_{thJA}	500	K/W

Optical and Electrical Characteristics

Parameter	Symbol	Conditions	Min	typ	max	Unit
Forward voltage	V_F	$I_F = 20 \text{ mA}$		3.3	3.5	V
Luminous intensity	I_v	$I_F = 20 \text{ mA}$	180	240		mcd
Dominant wavelength	λ_d	$I_F = 20 \text{ mA}$		470		nm



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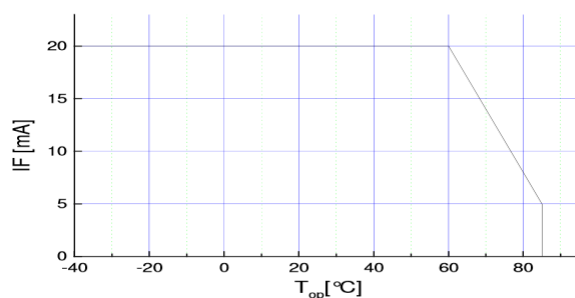
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SMD-LED side view

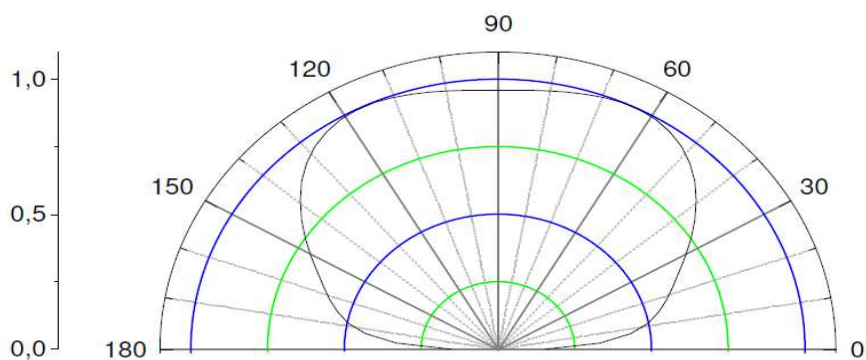
EOLS-470-590

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Rev. 02, 2017

**Maximal
forward
current (DC)
characteristic**



View angle

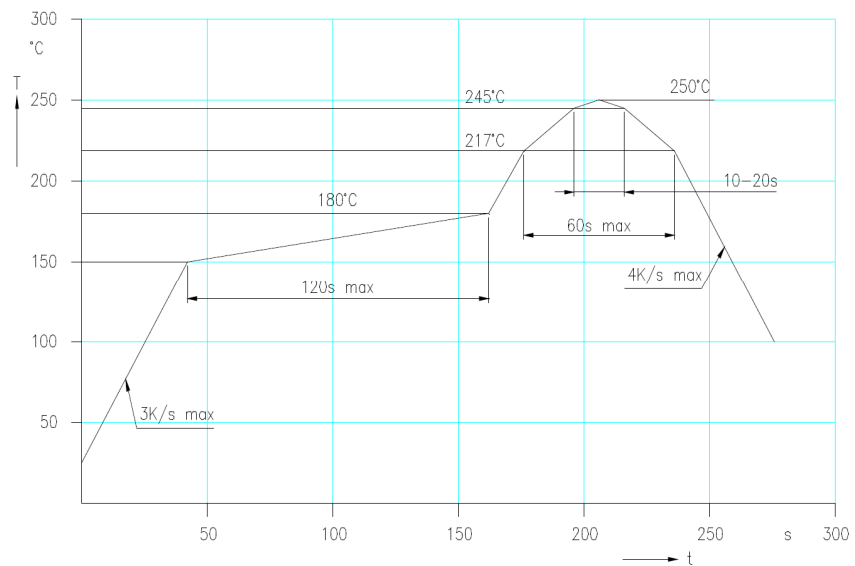
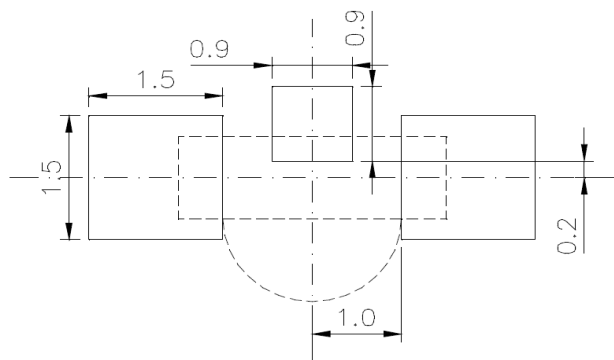


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Data Sheet**SMD-LED side view****EOLS-470-590**

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Rev. 02, 2017

**IR reflow
soldering
profile for lead
free soldering****Recommended Soldering Patterns**

Manual soldering:
max power of iron 25 W / 3 s / 300°C

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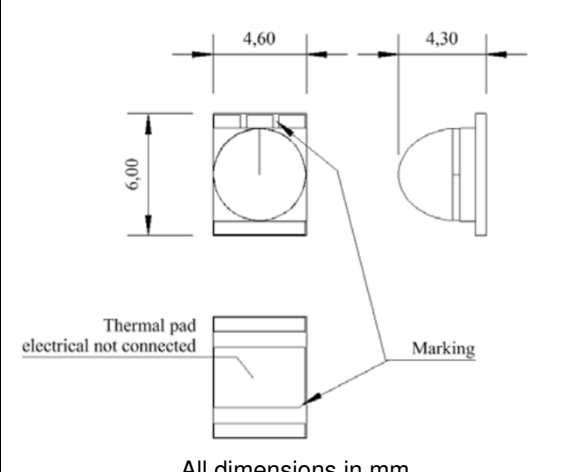
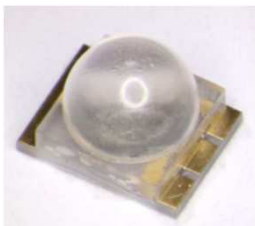
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High Power LED**EOLS-480-227**

Rev. 05, 2020

Radiation	Type	Case
Blue-green	InGaN	SMD 6046 (2418), ceramics

 All dimensions in mm	
	Description: - size: 6.0(L) x 4.6(W) x 4.3(H) mm - high pulse current up to 1000 mA - with lens, view angle 20° - soldering pads: gold plated; only for reflow soldering - marking at anode

Maximum Ratings $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test conditions	Symbol	Value	Unit
Forward current		I_F	700	mA
Peak forward current	$t_p \leq 100 \mu\text{s}$, $\tau=1:10$	I_{FM}	1000	mA
Reverse voltage		V_R	5	V
Thermal resistance		R_{th_JA}	5	K/W
Operating temperature range		T_{amb}	-40 to +85	$^{\circ}\text{C}$
Storage temperature range		T_{stg}	-40 to +85	$^{\circ}\text{C}$

Electrostatic discharge classification (MIL-STD-883) - class 1

Optical and Electrical Characteristics $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Symbol	Conditions	Min	typ	max	Unit
Forward voltage	V_F	$I_F = 350 \text{ mA}$		3.05	3.4	V
Radiant power*	Φ_e	$I_F = 350 \text{ mA}$		255		mW
Radiant intensity*	I_e	$I_F = 350 \text{ mA}$		565		mW/sr
Peak wavelength	λ_p	$I_F = 350 \text{ mA}$	472	480	488	nm
FWHM	$\Delta\lambda_{0.5}$	$I_F = 350 \text{ mA}$		27		nm
Reverse current	I_R	$I_R = 5 \text{ V}$			100	μA

*measured on star board

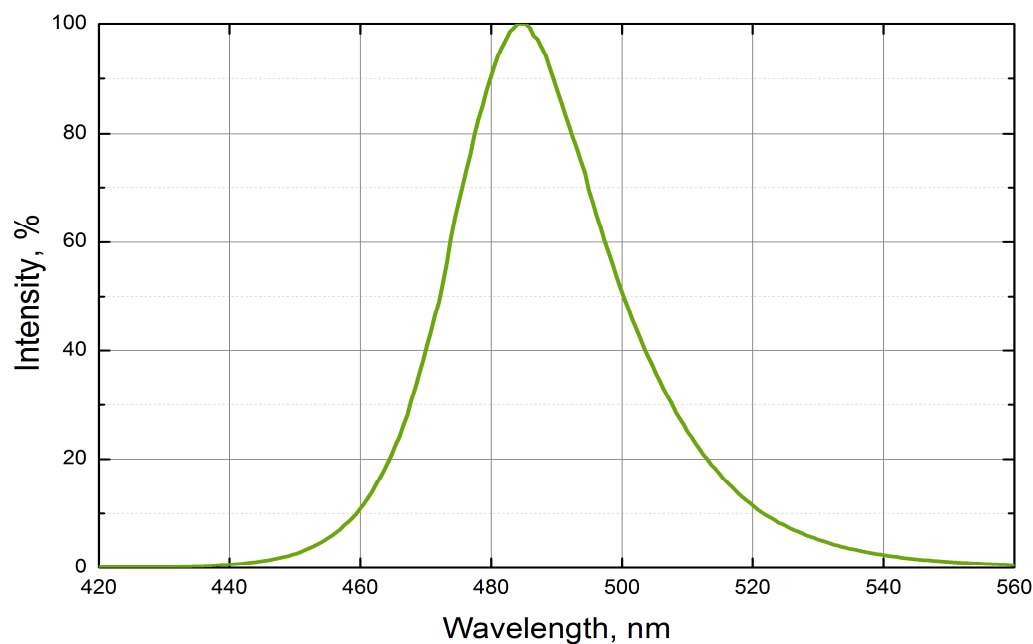
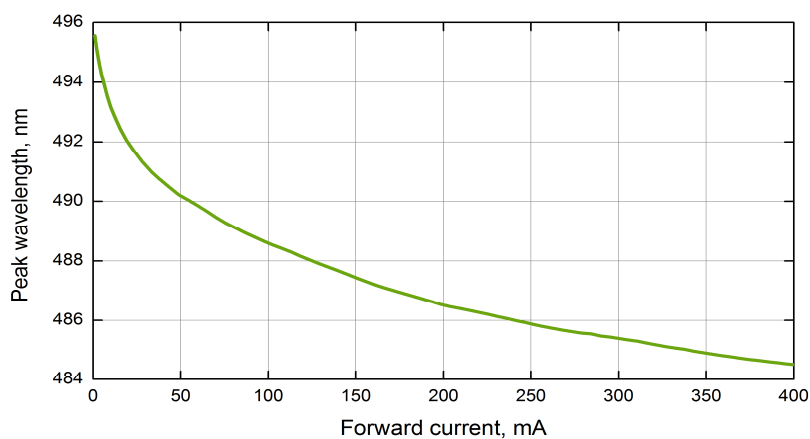


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Data Sheet**High Power LED****EOLS-480-227**

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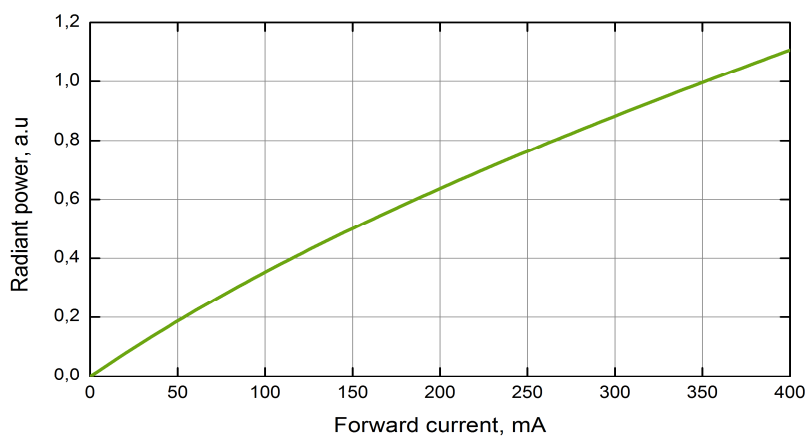
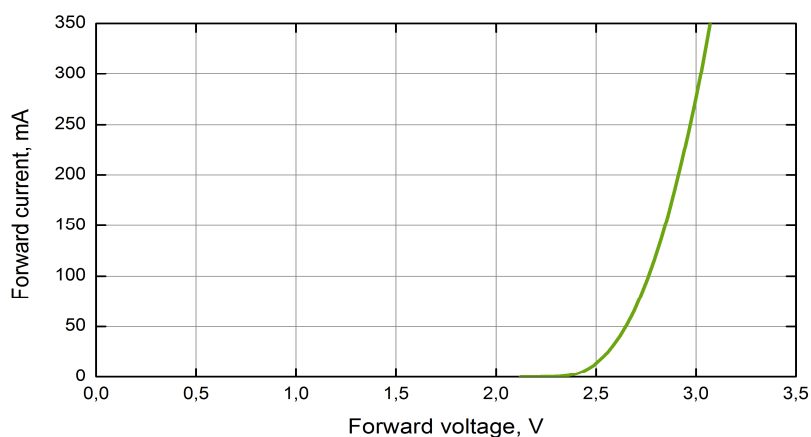
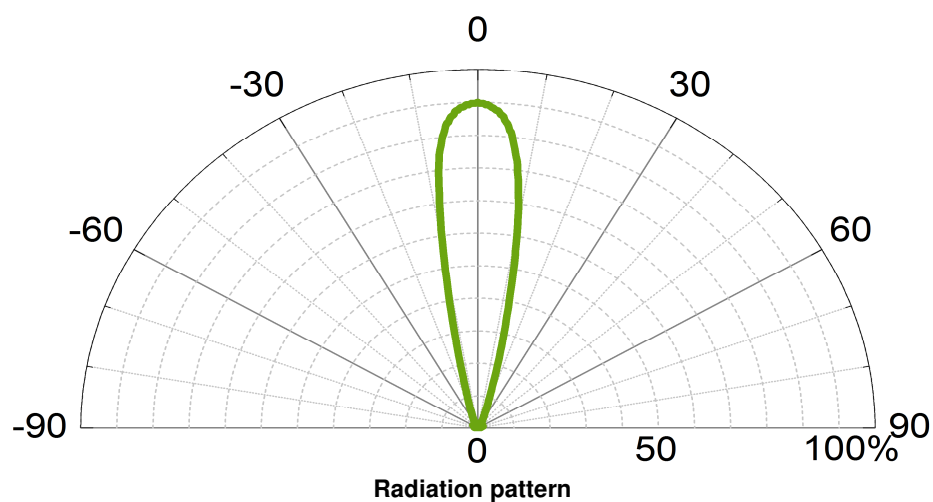
Rev. 05, 2020

**Typical radiation spectrum at 350 mA****Peak wavelength vs. forward current**

Data Sheet**High Power LED****EOLS-480-227**

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Rev. 05, 2020

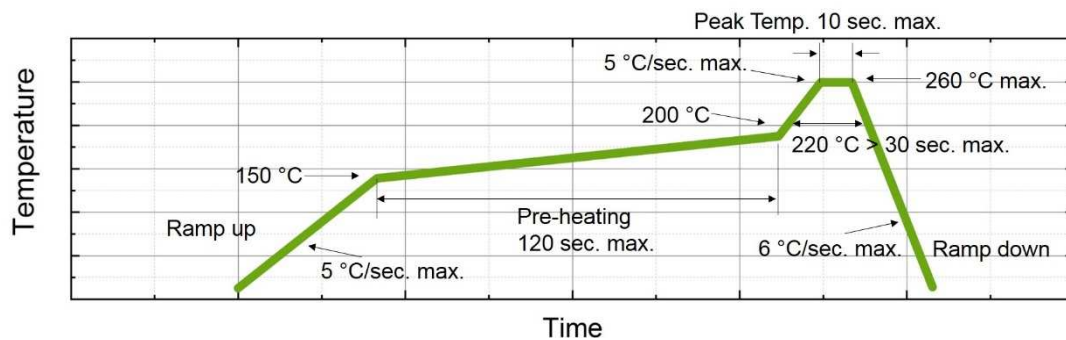
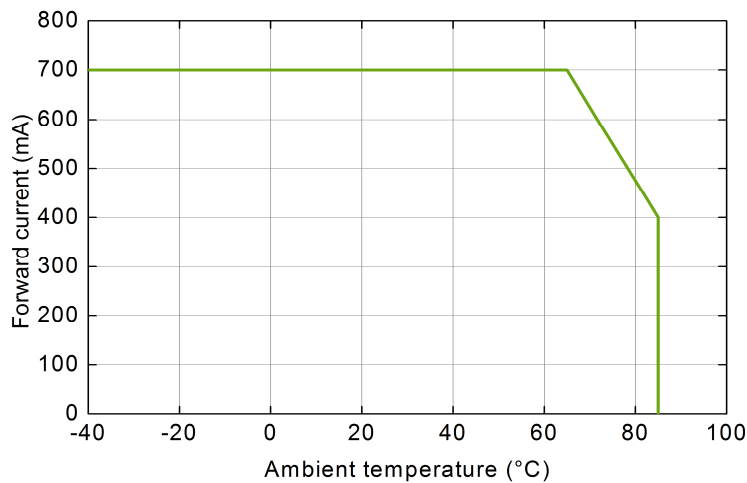
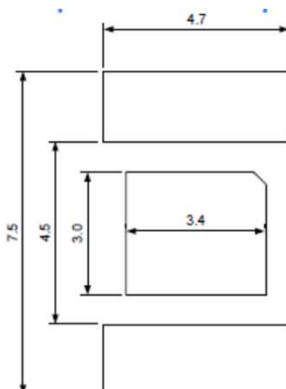


Data Sheet

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High Power LED**EOLS-480-227**

Rev. 05, 2020

**Recommended reflow soldering profile****Recommended soldering pad**

Thermal pad needs to be connected to a heat sink with less than 10 K/W thermal resistance.

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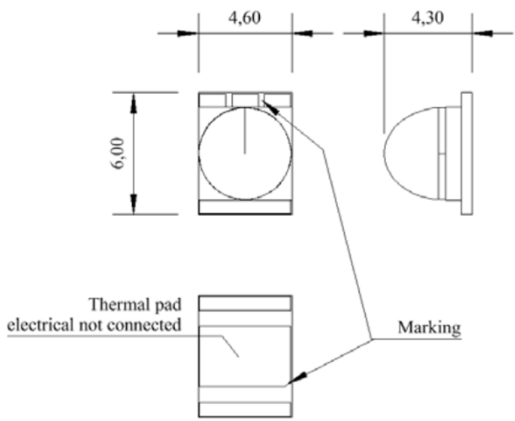
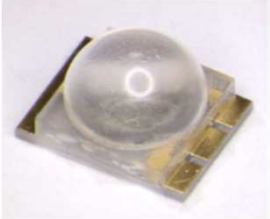
Data Sheet

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High Power LED**EOLS-490-227**

Rev. 03, 2017

Radiation	Type	Case
Blue-green	InGaN	SMD 6046 (2418), ceramics

 Thermal pad electrical not connected Marking All dimensions in mm	 Description: - size: 6.0(L) x 4.6(W) x 4.3(H) mm - high pulse current up to 1000 mA - with lens, view angle 20° - soldering pads: gold plated; only for reflow soldering - marking at cathode
---	---

Maximum Ratings $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test conditions	Symbol	Value	Unit
Forward current		I_F	700	mA
Peak forward current	$t_p \leq 100 \mu\text{s}$, $\tau = 1:10$	I_{FM}	1000	mA
Reverse voltage		V_R	5	V
Thermal resistance		R_{th_JA}	5	K/W
Operating temperature range		T_{amb}	-40 to +85	$^{\circ}\text{C}$
Storage temperature range		T_{stg}	-40 to +85	$^{\circ}\text{C}$

Electrostatic discharge classification (MIL-STD-883) - class 1

Optical and Electrical Characteristics $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Symbol	Conditions	Min	typ	max	Unit
Forward voltage	V_F	$I_F = 350 \text{ mA}$		3.25	3.6	V
Radiant power*	Φ_e	$I_F = 350 \text{ mA}$		190		mW
Radiant intensity*	I_e	$I_F = 350 \text{ mA}$		580		mW/sr
Luminous flux*	Φ_v	$I_F = 350 \text{ mA}$		25		lm
Luminous intensity*	I_v	$I_F = 350 \text{ mA}$		115		cd
Peak wavelength	λ_p	$I_F = 350 \text{ mA}$	480	490	500	nm
FWHM	$\Delta\lambda_{0.5}$	$I_F = 350 \text{ mA}$		35		nm
Reverse current	I_R	$I_R = 5 \text{ V}$			100	μA

*measured on star board

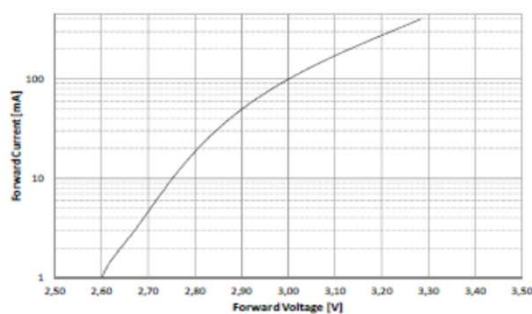


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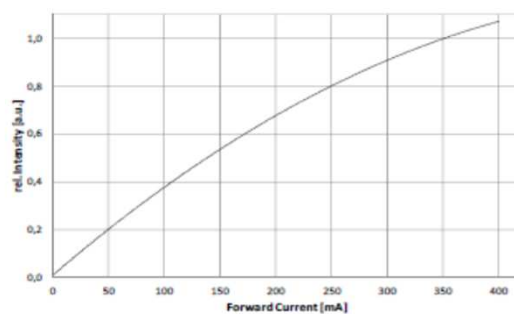
Data Sheet**High Power LED****EOLS-490-227**

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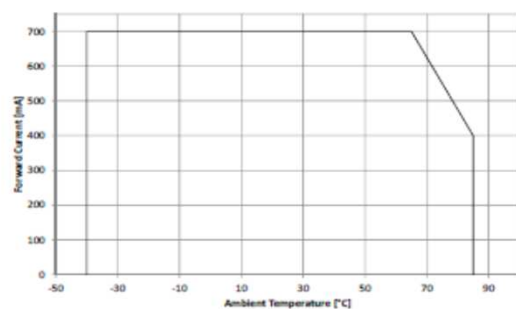
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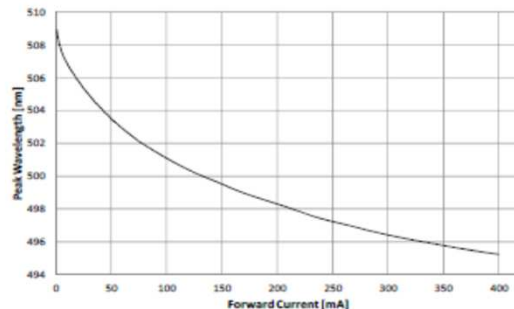
Forward Current vs. Forward Voltage
Flussstrom über Flussspannung



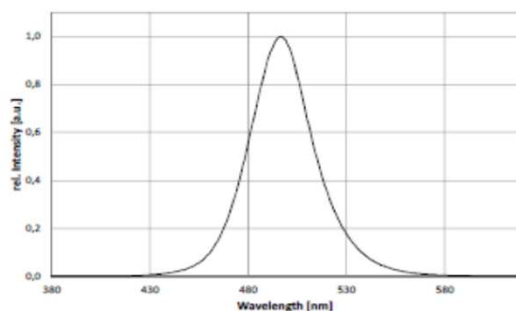
Intensity vs. Forward Current
Strahlstärke über Flussstrom



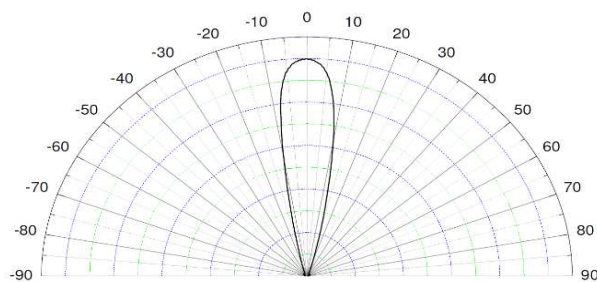
Max. Forward Current vs. Ambient Temperature
Max. Flussstrom über Umgebungstemperatur



Forward Current vs. Shift Peak Wavelength
Flussstrom gegen Verschiebung der Wellenlänge



Spectrum @ 350mA
Spektrum



View Angle
Abstrahlung



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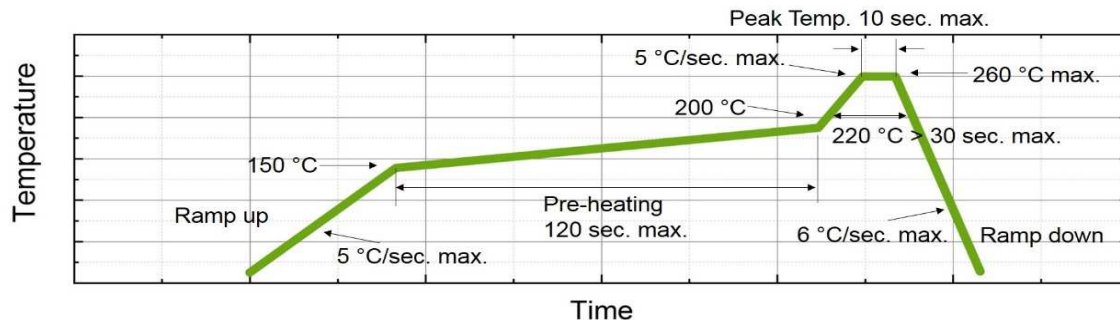
Data Sheet

High Power LED

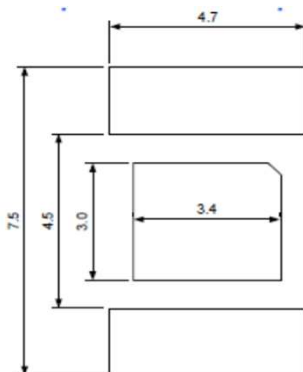
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Rev. 03, 2017



Recommended reflow soldering profile



Recommended soldering pad

Thermal pad needs to be connected to a heat sink with less than 10 K/W thermal resistance.



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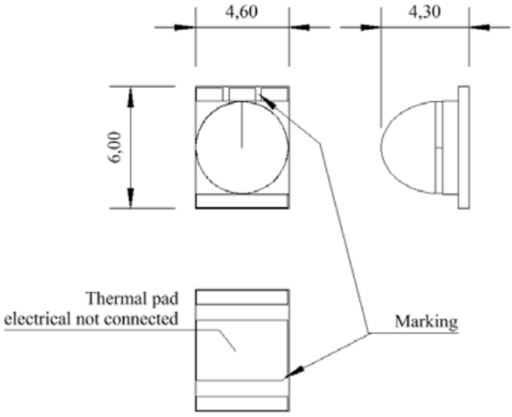
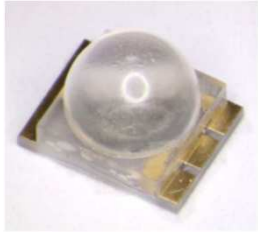
Data Sheet

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High Power LED**EOLS-505-227**

Rev. 04, 2018

Radiation	Type	Case
Blue-green	InGaN	SMD 6046 (2418), ceramics

 Thermal pad electrical not connected Marking All dimensions in mm	 Description: - size: 6.0(L) x 4.6(W) x 4.3(H) mm - high pulse current up to 1000 mA - with lens, view angle 20° - soldering pads: gold plated; only for reflow soldering - marking at anode
---	--

Maximum RatingsT_{amb} = 25°C, unless otherwise specified

Parameter	Test conditions	Symbol	Value	Unit
Forward current		I _F	700	mA
Peak forward current	t _p ≤ 100 μs, τ=1:10	I _{FM}	1000	mA
Reverse voltage		V _R	5	V
Thermal resistance		R _{th_JA}	5	K/W
Operating temperature range		T _{amb}	-40 to +85	°C
Storage temperature range		T _{stg}	-40 to +85	°C

Electrostatic discharge classification (MIL-STD-883) - class 1

Optical and Electrical CharacteristicsT_{amb} = 25°C, unless otherwise specified

Parameter	Symbol	Conditions	Min	typ	max	Unit
Forward voltage	V _F	I _F = 350 mA		3.45	3.7	V
Radiant power*	Φ _e	I _F = 350 mA		170		mW
Radiant intensity*	I _e	I _F = 350 mA		610		mW/sr
Peak wavelength	λ _p	I _F = 350 mA	497	505	513	nm
FWHM	Δλ _{0,5}	I _F = 350 mA		32		nm
Reverse current	I _R	I _R = 5 V			100	μA

*measured on star board



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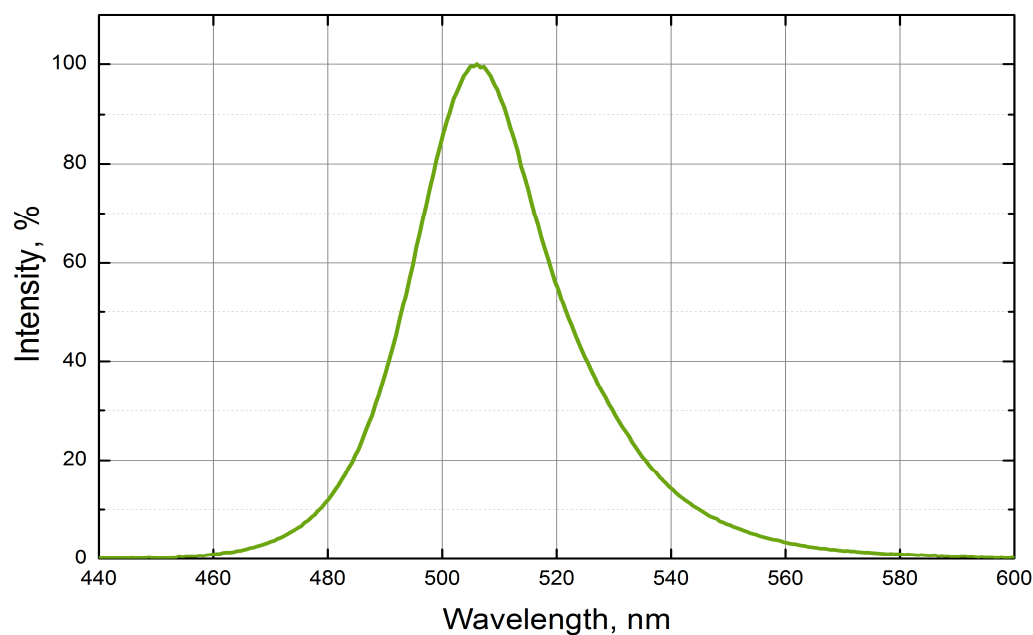
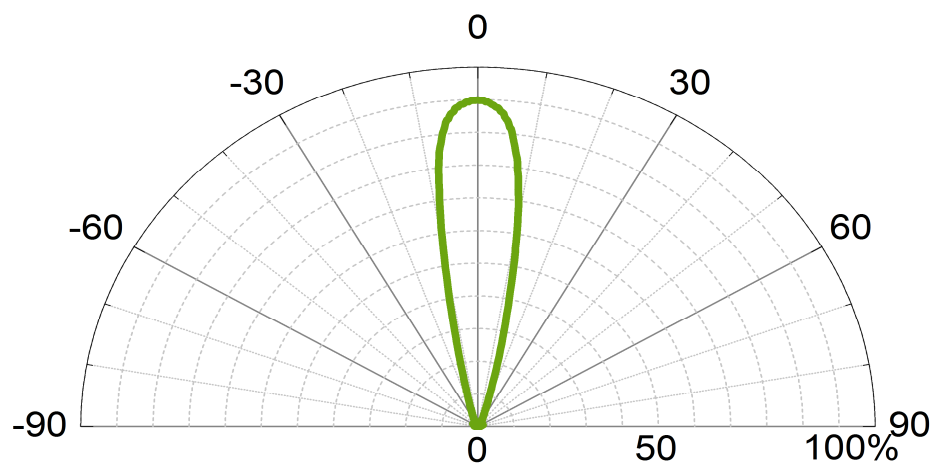
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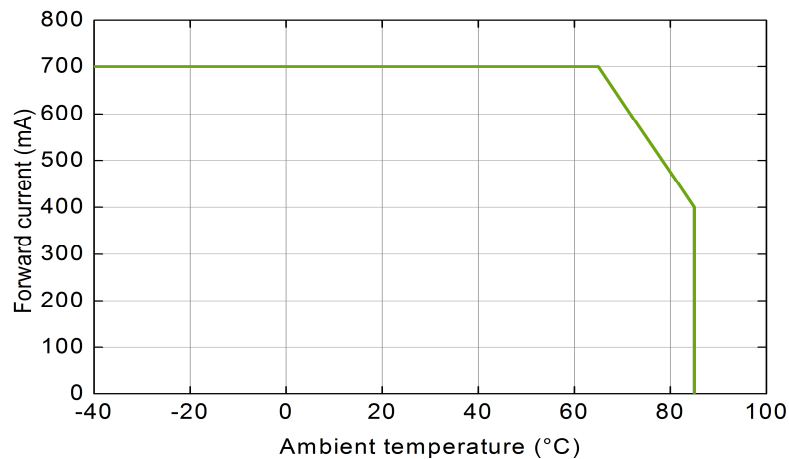
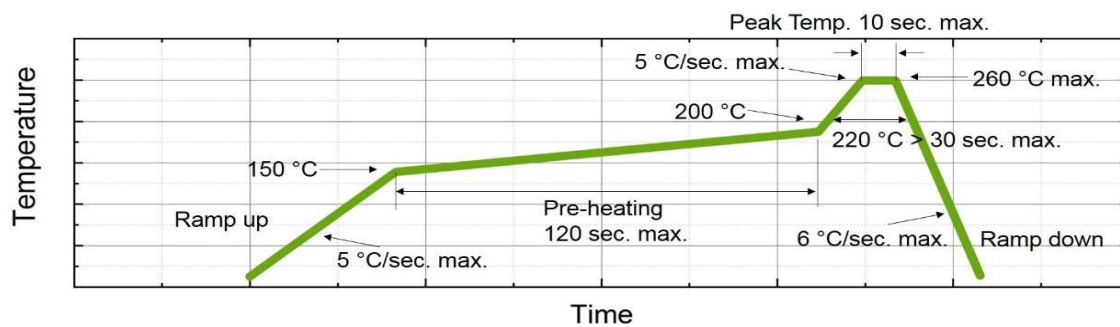
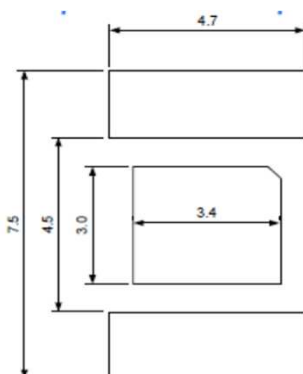
Rev. 04, 2018

**Typical radiation spectrum at 350 mA****Radiation pattern**

Data Sheet**High Power LED****EOLS-505-227**

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Rev. 04, 2018

**Max. forward current vs. ambient temperature****Recommended reflow soldering profile****Recommended soldering pad**

Thermal pad needs to be connected to a heat sink with less than 10 K/W thermal resistance.

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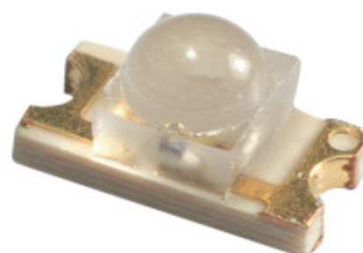
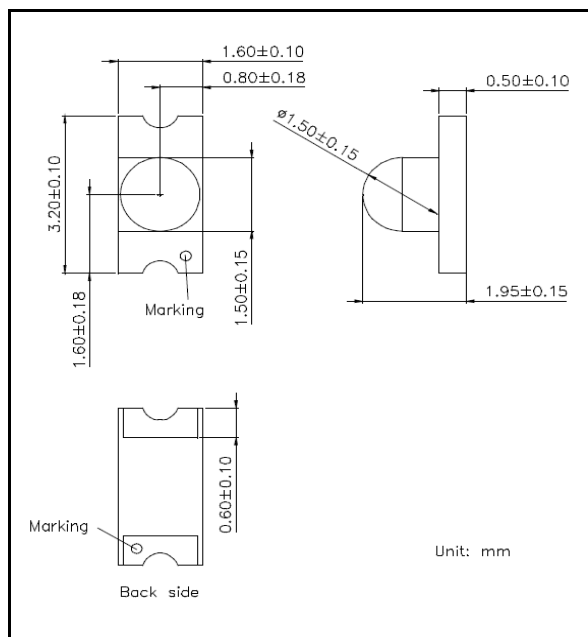
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Green SMD-LED**EOLS-525-843**

Rev. 02, 2017

Radiation	Type	Case
green	InGaN	SMD 3216 (1206), with lens

**Description:**

- Size 1206: 3.2 (L) x 1.6 (W) x 1.95 (H) mm
- Circuit substrate: glass laminated epoxy
- Devices are RoHS conform
- Lead free solderable, soldering pads: gold plated
- Marking at cathode

Maximum Ratings

Parameter	Test conditions	Symbol	Value	Unit
Forward current		I_F	20	mA
Peak forward current	$t_p \leq 100 \mu s, \tau=1:10$	I_{FM}	100	mA
Reverse voltage		V_R	5	V
Reverse current		I_R	100	μA
Operating temperature range		T_{amb}	-40 to +85	$^{\circ}C$
Storage temperature range		T_{stg}	-40 to +85	$^{\circ}C$
Thermal resistance		R_{thJA}	450	K/W

Optical and Electrical Characteristics

Parameter	Symbol	Conditions	Min	typ	max	Unit
Forward voltage	V_F	$I_F = 20 \text{ mA}$		3.25	3.8	V
Luminous intensity	I_v	$I_F = 20 \text{ mA}$	1800	3550		mcd
Dominant wavelength	λ_d	$I_F = 20 \text{ mA}$	520	525	530	nm



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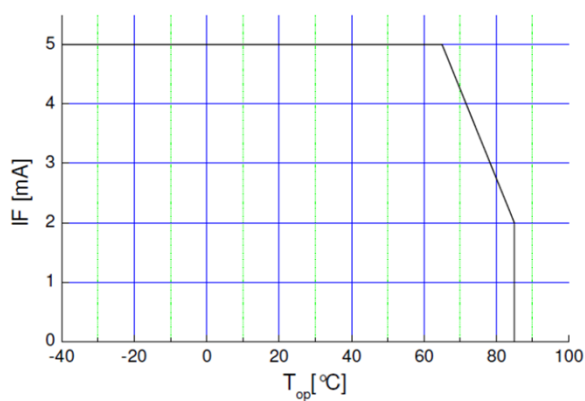
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Green SMD-LED

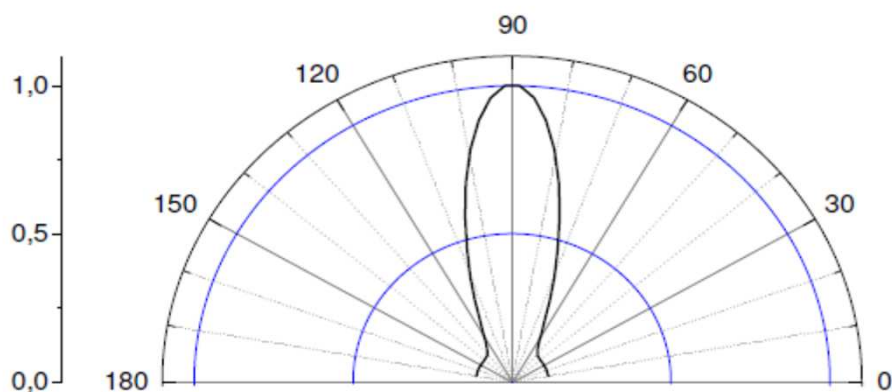
EOLS-525-843

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Rev. 02, 2017

**Maximal
forward
current (DC)
characteristic**



View angle

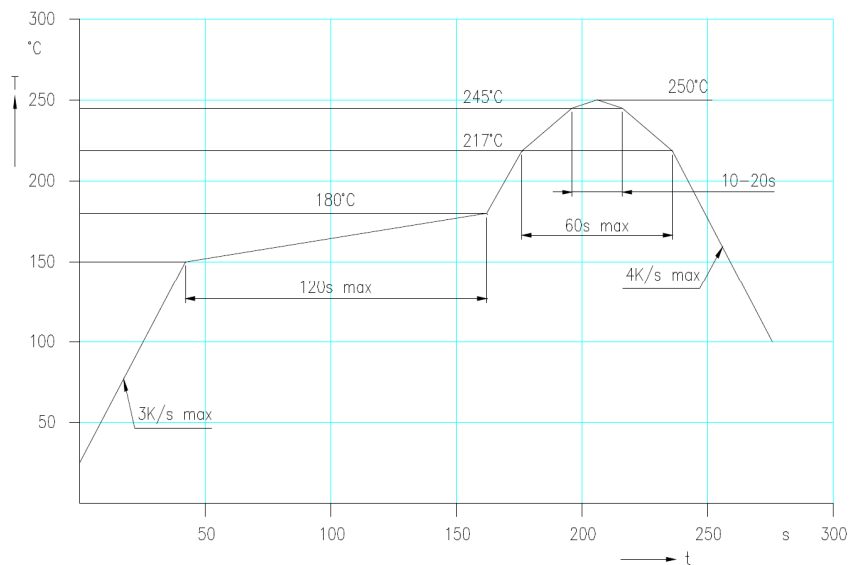
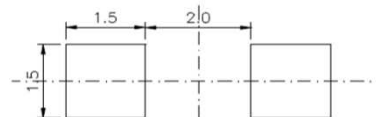


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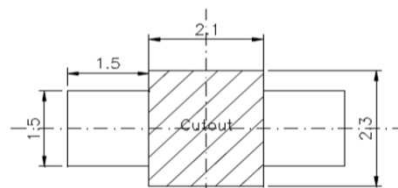
Data Sheet**Green SMD-LED****EOLS-525-843**

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Rev. 02, 2017

**IR reflow
soldering
profile for lead
free soldering****Recommended Soldering Patterns**

Pad TU



Pad TD

Manual soldering:

max power of iron 25 W / 3 s / 300°C



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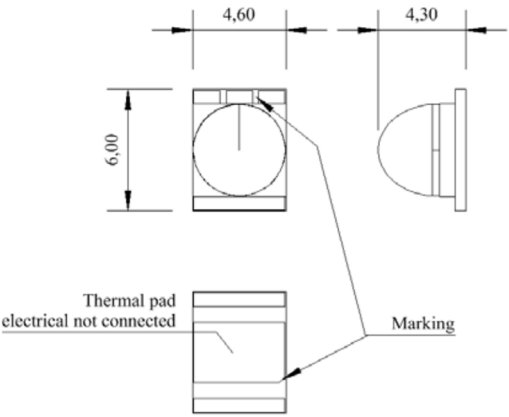
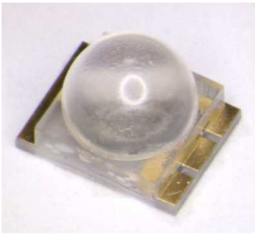
Data Sheet

page 1 of 3

High Power LED**EOLS-528-227**

Rev. 03, 2017

Radiation	Type	Case
Green	InGaN	SMD 6046 (2418), ceramics

 Thermal pad electrical not connected Marking All dimensions in mm	 Description: - size: 6.0(L) x 4.6(W) x 4.3(H) mm - high pulse current up to 1000 mA - with lens, view angle 20° - soldering pads: gold plated; only for reflow soldering - marking at anode
---	--

Maximum Ratings $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test conditions	Symbol	Value	Unit
Forward current		I_F	700	mA
Peak forward current	$t_p \leq 100 \mu\text{s}$, $\tau = 1:10$	I_{FM}	1000	mA
Reverse voltage		V_R	5	V
Thermal resistance		R_{th_JA}	5	K/W
Operating temperature range		T_{amb}	-40 to +85	$^{\circ}\text{C}$
Storage temperature range		T_{stg}	-40 to +85	$^{\circ}\text{C}$

Electrostatic discharge classification (MIL-STD-883) - class 1

Optical and Electrical Characteristics $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Symbol	Conditions	Min	typ	max	Unit
Forward voltage	V_F	$I_F = 350 \text{ mA}$		3.45	3.6	V
Radiant power*	Φ_e	$I_F = 350 \text{ mA}$		110		mW
Radiant intensity*	I_e	$I_F = 350 \text{ mA}$		360		mW/sr
Peak wavelength	λ_p	$I_F = 350 \text{ mA}$	520	528	536	nm
FWHM	$\Delta\lambda_{0.5}$	$I_F = 350 \text{ mA}$		35		nm
Reverse current	I_R	$I_R = 5 \text{ V}$			100	μA

*measured on star board

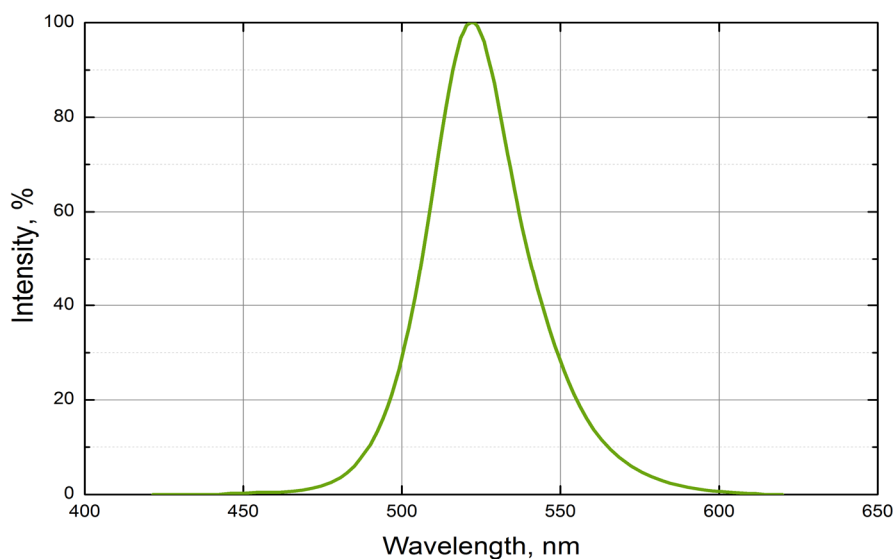
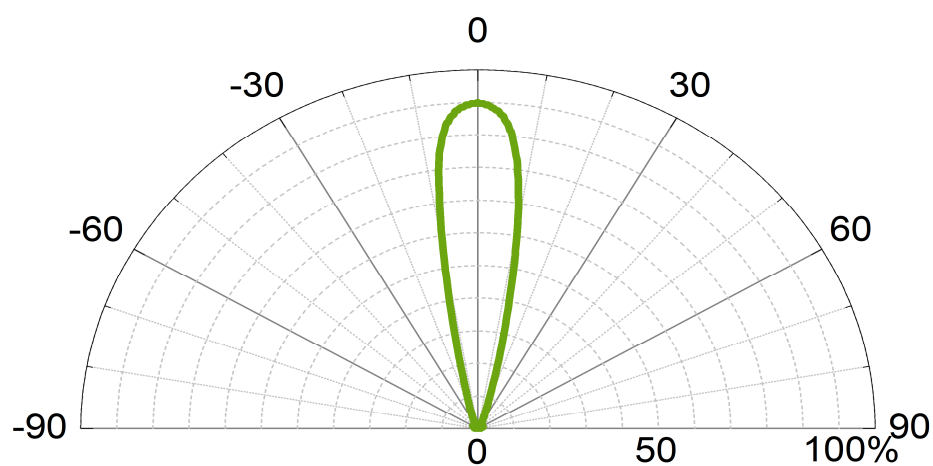


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Data Sheet**High Power LED****EOLS-528-227**

page 2 of 3

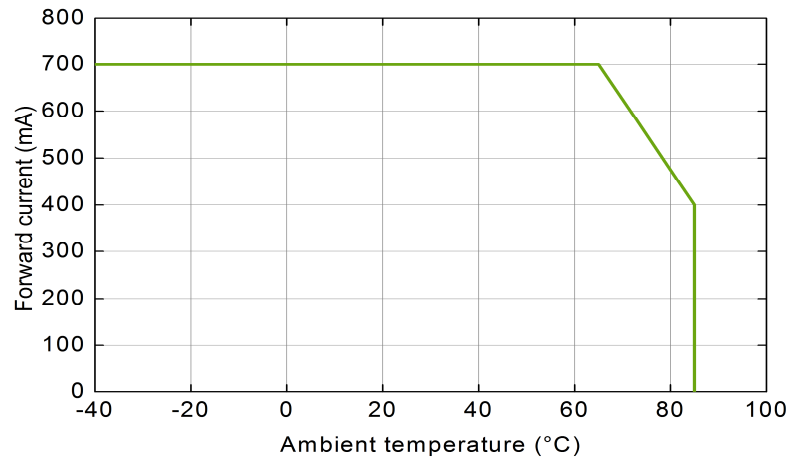
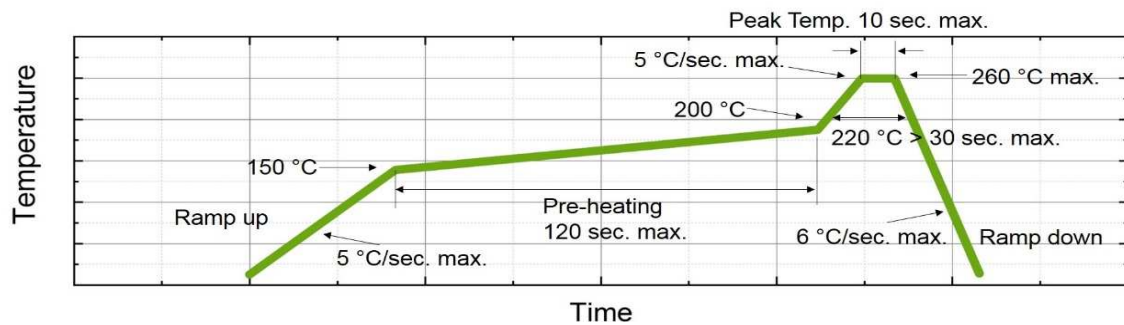
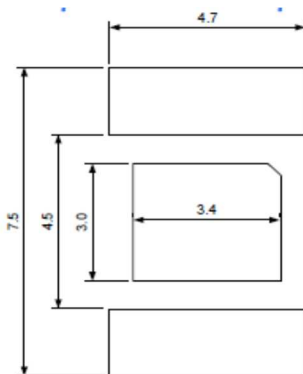
Rev. 03, 2017

**Typical radiation spectrum at 350 mA****Radiation pattern**

Data Sheet**High Power LED****EOLS-528-227**

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Rev. 03, 2017

**Max. forward current vs. ambient temperature****Recommended reflow soldering profile****Recommended soldering pad**

Thermal pad needs to be connected to a heat sink with less than 10 K/W thermal resistance.

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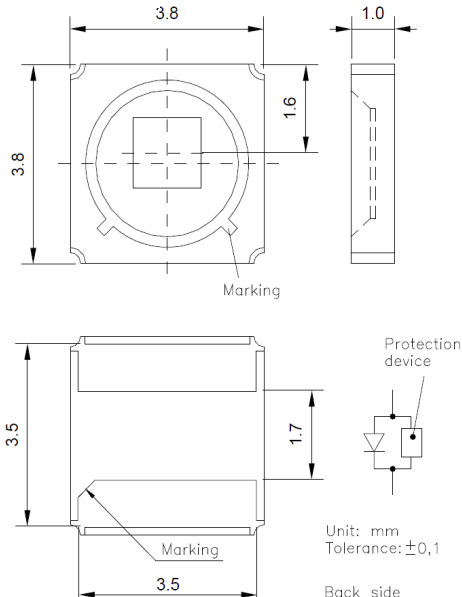
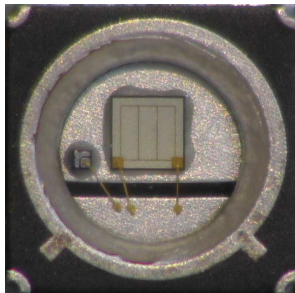
Data Sheet

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High Power LED**EOLS-533-496**

Rev. 09, 2019

Radiation	Type	Case
Green	InGaN	SMD 3838 (1515)

 Unit: mm Tolerance: $\pm 0,1$ Back side	 The picture shown is for illustration purpose only. Actual product may vary due to product enhancement. Description: - Size 3.8 (W) x 3.8 (L) x 1.0 (H) mm - Circuit substrate: AlN ceramics - Marking at cathode - Lead free solderable, soldering pads: silver plated - Distance from bottom of SMD to chip top surface: $450 \pm 70 \mu\text{m}$
---	--

Maximum Ratings $T_{\text{amb}} = 25^\circ\text{C}$, unless otherwise specified

Parameter	Test conditions	Symbol	Value	Unit
Forward current		I_F	350	mA
Peak forward current	$t_p \leq 50 \text{ ms}$, $T = 6 \text{ s}$	I_{FM}	1600	mA
Operating temperature range		T_{amb}	-40 to +85	$^\circ\text{C}$
Storage temperature range		T_{stg}	-40 to +85	$^\circ\text{C}$

Optical and Electrical Characteristics $T_{\text{amb}} = 25^\circ\text{C}$, unless otherwise specified

Parameter	Symbol	Conditions	Min	typ	max	Unit
Forward voltage	V_F	$I_F = 350 \text{ mA}$	3.0	3.4	4.0	V
Forward voltage	V_F	$I_F = 700 \text{ mA}$		3.5		V
Forward voltage	V_F	$I_F = 1000 \text{ mA}$			4.3	V
Radiant power*	Φ_e	$I_F = 1000 \text{ mA}$	280			mW
Peak wavelength	λ_p	$I_F = 350 \text{ mA}$	526	533	540	nm
Central wavelength	λ_c	$I_F = 1000 \text{ mA}$	522	535	538	nm
FWHM	$\Delta\lambda_{0,5}$	$I_F = 350 \text{ mA}$		35		nm

* $d\Phi_e / dI_F > 0$ at $I_F = 0 \dots I_{FM}$. LEDs should never be operated with reverse bias!info@amstechnologies.com
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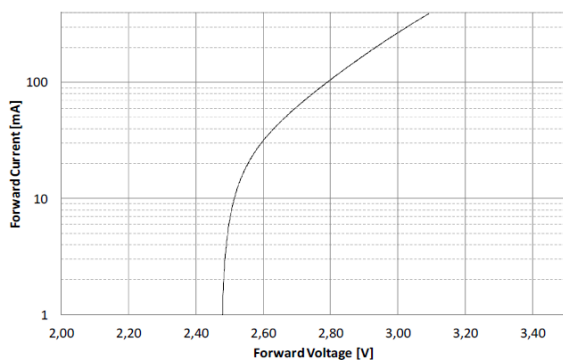
Data Sheet

High Power LED

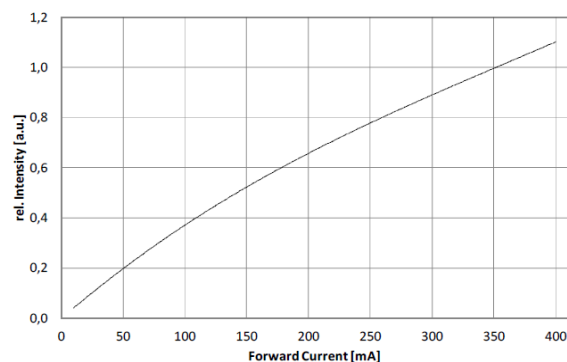
EOLS-533-496

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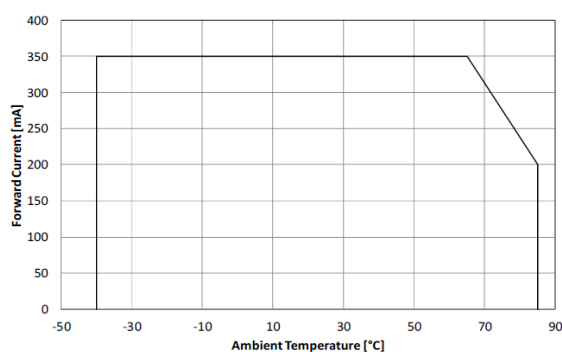
Rev. 09, 2019



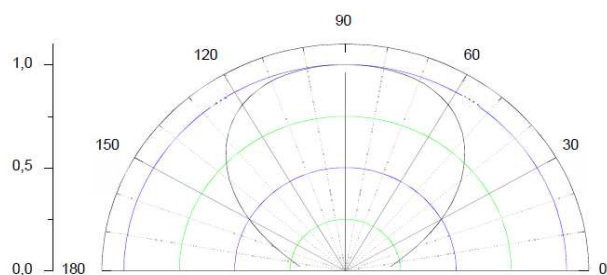
Forward Current vs. Forward Voltage



Intensity vs. Forward Current

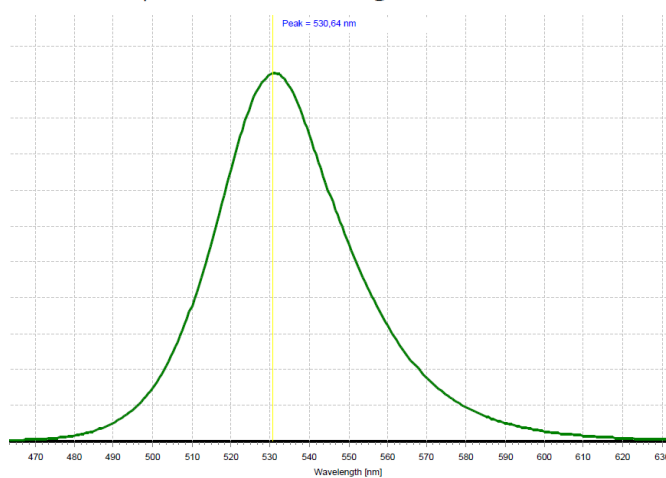


Maximum Forward Current vs. Ambient Temperature



View Angle

Typical spectrum at 350 mA



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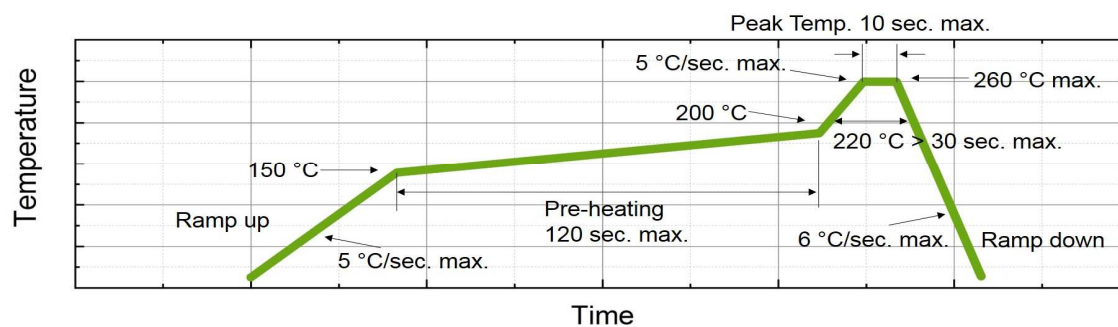
Data Sheet

High Power LED

EOLS-533-496

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Rev. 09, 2019



Recommended reflow soldering profile



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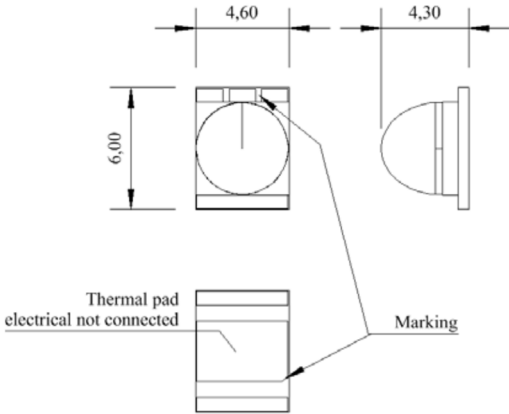
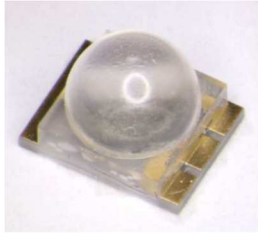
Data Sheet

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High Power LED**EOLS-545-227**

Rev. 04, 2018

Radiation	Type	Case
Greenish	InGaN with phosphor	SMD 6046 (2418), ceramics

 All dimensions in mm	
	Description: - size: 6.0(L) x 4.6(W) x 4.3(H) mm - high pulse current up to 1000 mA - with lens, view angle 20° - soldering pads: gold plated; only for reflow soldering - marking at anode

Maximum Ratings $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test conditions	Symbol	Value	Unit
Forward current		I_F	700	mA
Peak forward current	$t_p \leq 100 \mu\text{s}$, $\tau=1:10$	I_{FM}	1000	mA
Reverse voltage		V_R	5	V
Thermal resistance		R_{th_JA}	5	K/W
Operating temperature range		T_{amb}	-40 to +85	$^{\circ}\text{C}$
Storage temperature range		T_{stg}	-40 to +85	$^{\circ}\text{C}$

Electrostatic discharge classification (MIL-STD-883) - class 1

Optical and Electrical Characteristics $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Symbol	Conditions	Min	typ	max	Unit
Forward voltage	V_F	$I_F = 350 \text{ mA}$		3.0	3.6	V
Radiant power*	Φ_e	$I_F = 350 \text{ mA}$		180		mW
Radiant intensity*	I_e	$I_F = 350 \text{ mA}$		400		mW/sr
Luminous flux*	Φ_v	$I_F = 350 \text{ mA}$		80		lm
Luminous intensity*	I_v	$I_F = 350 \text{ mA}$		240		cd
Peak wavelength	λ_p	$I_F = 350 \text{ mA}$	537	545	553	nm
FWHM	$\Delta\lambda_{0.5}$	$I_F = 350 \text{ mA}$		92		nm
Reverse current	I_R	$I_R = 5 \text{ V}$			100	μA

*measured on star board



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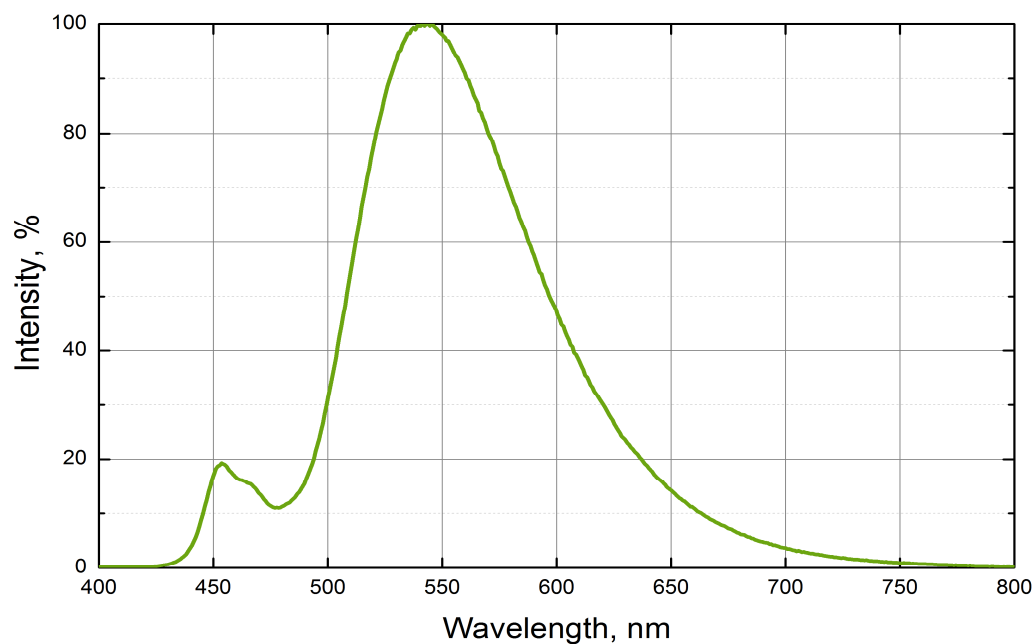
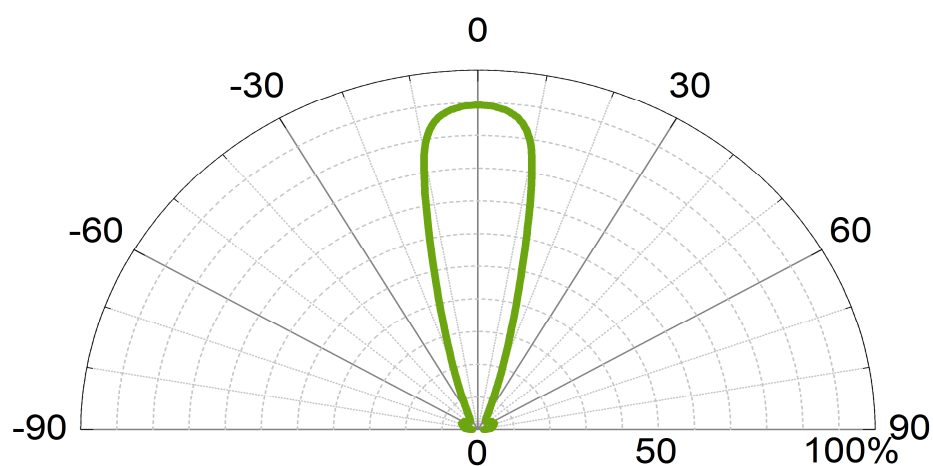
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Data Sheet**High Power LED****EOLS-545-227**

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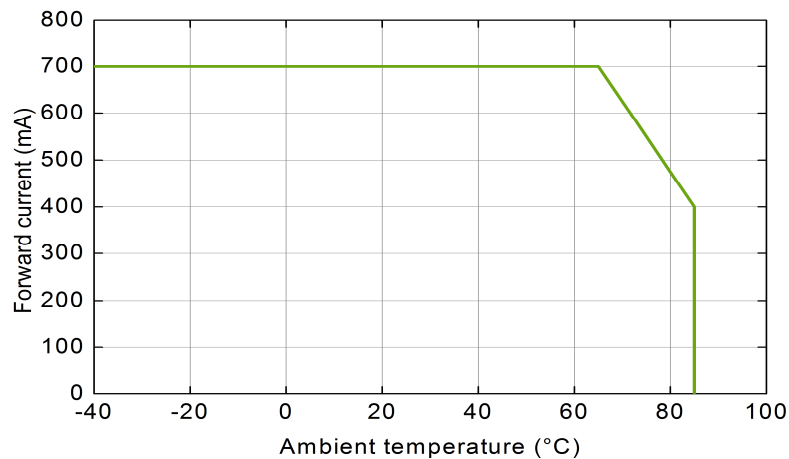
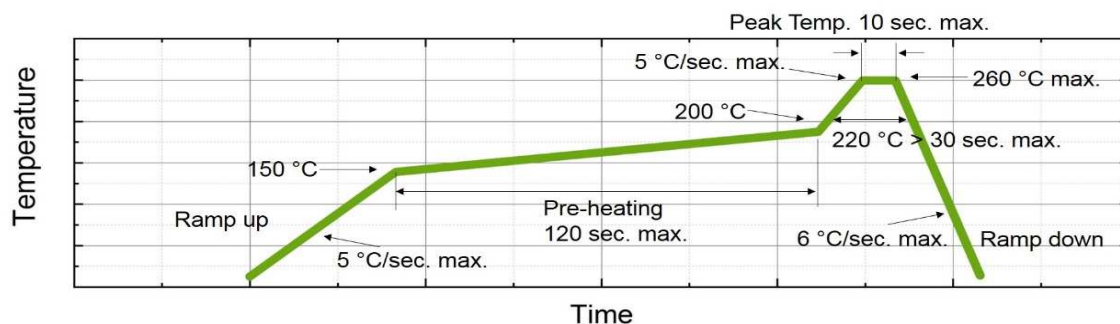
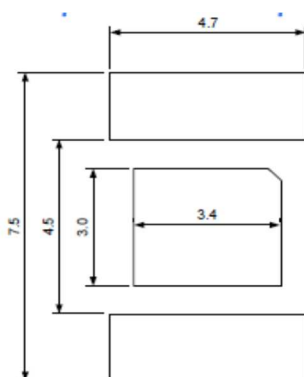
Rev. 04, 2018

**Typical radiation spectrum at 350 mA****Radiation pattern**

Data Sheet**High Power LED****EOLS-545-227**

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Rev. 04, 2018

**Max. forward current vs. ambient temperature****Recommended reflow soldering profile****Recommended soldering pad**

Thermal pad needs to be connected to a heat sink with less than 10 K/W thermal resistance.

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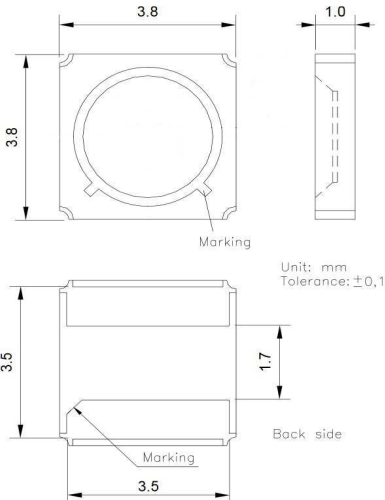
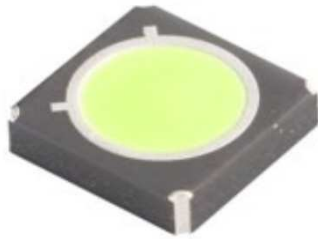
Data Sheet

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Green SMD-LED**EOLS-545-496**

Rev. 05, 2017

Radiation	Type	Case
green	InGaN, with conversion	SMD 3838 (1515)

	 Description: - Size 3.8 (W) x 3.8 (L) x 1.0 (H) mm - Circuit substrate: AlN ceramics - Devices are RoHS conform - Lead free solderable, soldering pads: silver plated - Marking at cathode
--	---

Maximum Ratings $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test conditions	Symbol	Value	Unit
Forward current		I_F	350	mA
Peak forward current	$t_p \leq 50 \text{ ms}$, $T = 6 \text{ s}$	I_{FM}	1600	mA
Reverse voltage		V_R	5	V
Reverse current		I_R	100	μA
Operating temperature range		T_{amb}	-40 to +85	$^{\circ}\text{C}$
Storage temperature range		T_{stg}	-40 to +85	$^{\circ}\text{C}$

Optical and Electrical Characteristics $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Symbol	Conditions	Min	typ	max	Unit
Forward voltage	V_F	$I_F = 350 \text{ mA}$		3.2	3.6	V
Radiant power	Φ_e	$I_F = 350 \text{ mA}$		110		mW
Luminous flux	Φ_v	$I_F = 350 \text{ mA}$		42		lm
Luminous intensity	I_v	$I_F = 350 \text{ mA}$	12000	15000		mcd
Peak wavelength	λ_p	$I_F = 350 \text{ mA}$		526		nm
Central wavelength	λ_c	$I_F = 350 \text{ mA}$		531		nm
Dominant wavelength	λ_D	$I_F = 350 \text{ mA}$		545		nm
FWHM	$\Delta\lambda_{0.5}$	$I_F = 350 \text{ mA}$		72		nm



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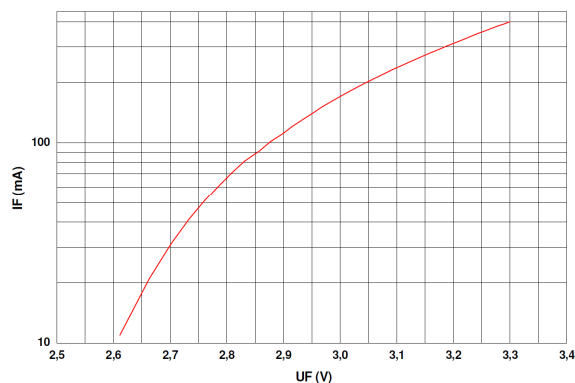
Data Sheet

Green SMD-LED

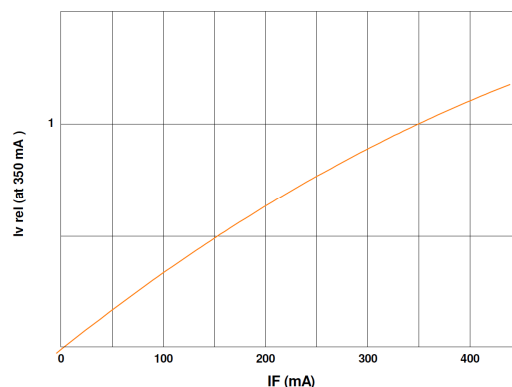
EOLS-545-496

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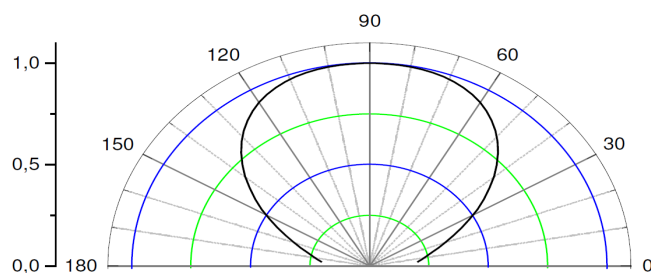
Rev. 05, 2017



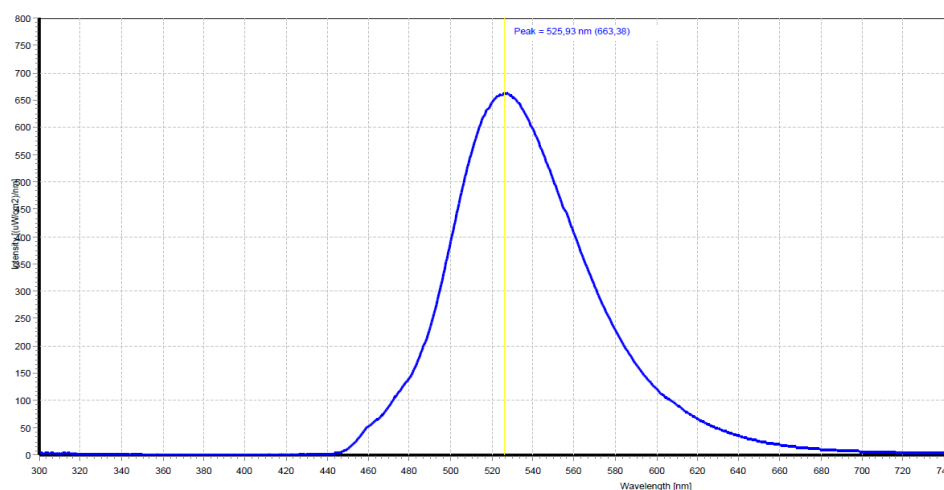
Forward Current vs. Forward Voltage



Intensity vs. Forward Current



View Angle



Typical spectrum at 350 mA

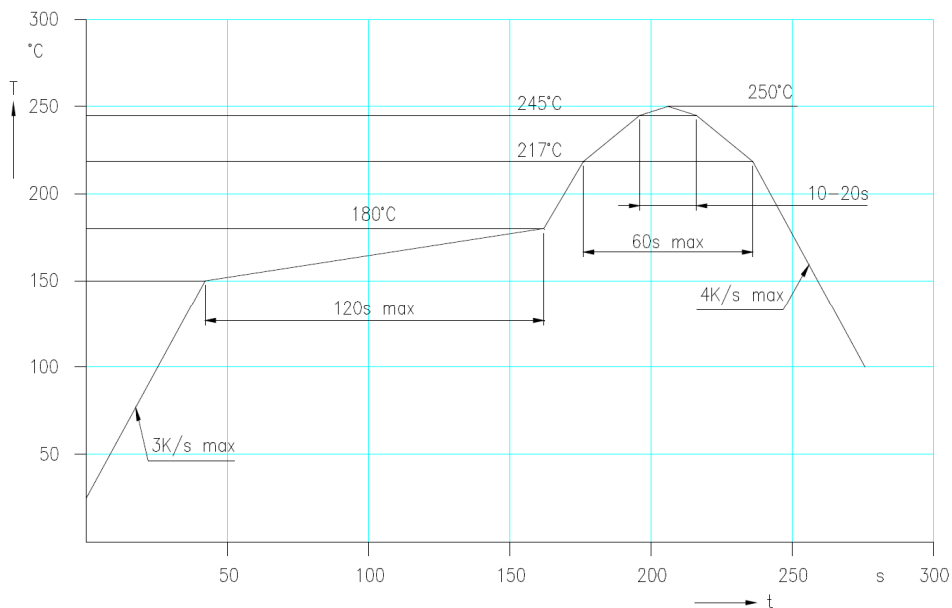


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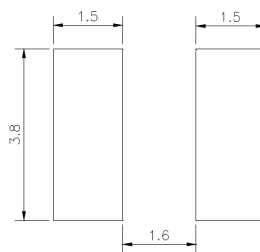
Data Sheet**Green SMD-LED****EOLS-545-496**

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Rev. 05, 2017



IR reflow soldering
profile for lead free
soldering



recommended max. thermal resistance
device-ambient: 20 K/W

Recommended Soldering Pattern

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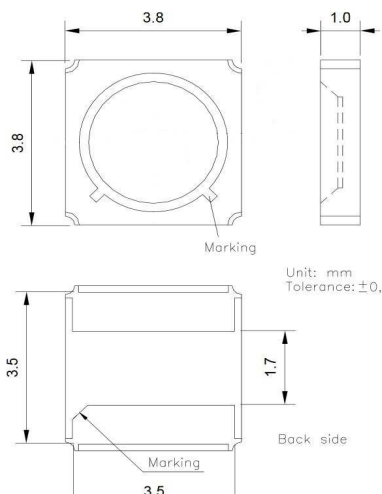
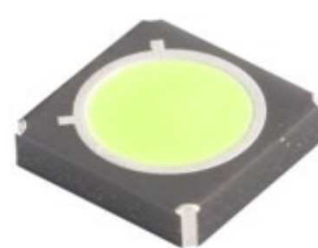
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Yellow-Green SMD-LED

EOLS-565-496

Rev. 02, 2017

Radiation	Type	Case
yellow-green	InGaN, with conversion	SMD 3838 (1515)

	 Description: - Size 3.8 (W) x 3.8 (L) x 1.0 (H) mm - Circuit substrate: AlN ceramics - Devices are RoHS conform - Lead free solderable, soldering pads: silver plated - Marking at cathode
--	---

Maximum Ratings

 $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test conditions	Symbol	Value	Unit
Forward current		I_F	350	mA
Peak forward current	$t_p \leq 100 \mu\text{s}$, $t/T=1/10$	I_{FM}	800	mA
Reverse voltage		V_R	5	V
Reverse current		I_R	100	μA
Operating temperature range		T_{amb}	-40 to +85	$^{\circ}\text{C}$
Storage temperature range		T_{stg}	-40 to +85	$^{\circ}\text{C}$

Optical and Electrical Characteristics

 $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Symbol	Conditions	Min	typ	max	Unit
Forward voltage	V_F	$I_F = 350 \text{ mA}$		3.2	3.6	V
Radiant power	Φ_e	$I_F = 350 \text{ mA}$		110		mW
Luminous flux	Φ_v	$I_F = 350 \text{ mA}$		42		lm
Peak wavelength	λ_p	$I_F = 350 \text{ mA}$		565		nm
Central wavelength	λ_c	$I_F = 350 \text{ mA}$		572		nm
FWHM	$\Delta\lambda_{0,5}$	$I_F = 350 \text{ mA}$		104		nm



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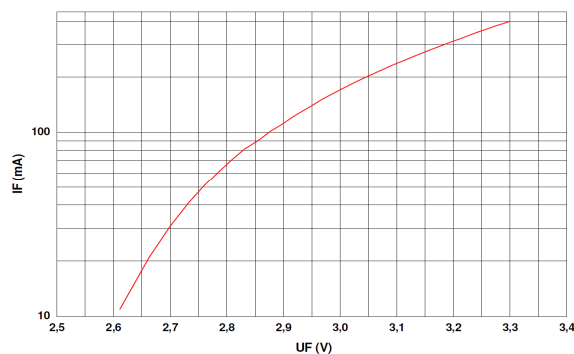
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Yellow-Green SMD-LED

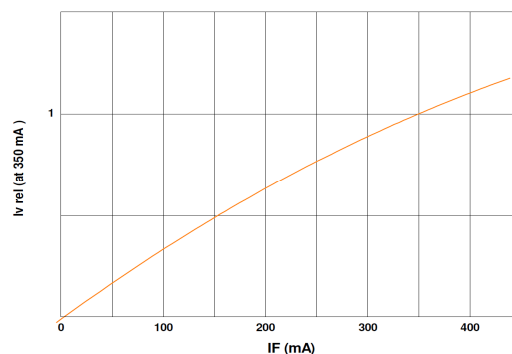
EOLS-565-496

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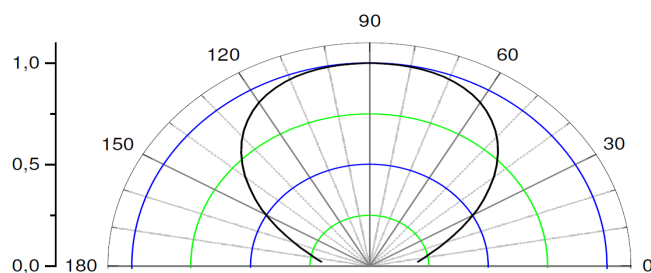
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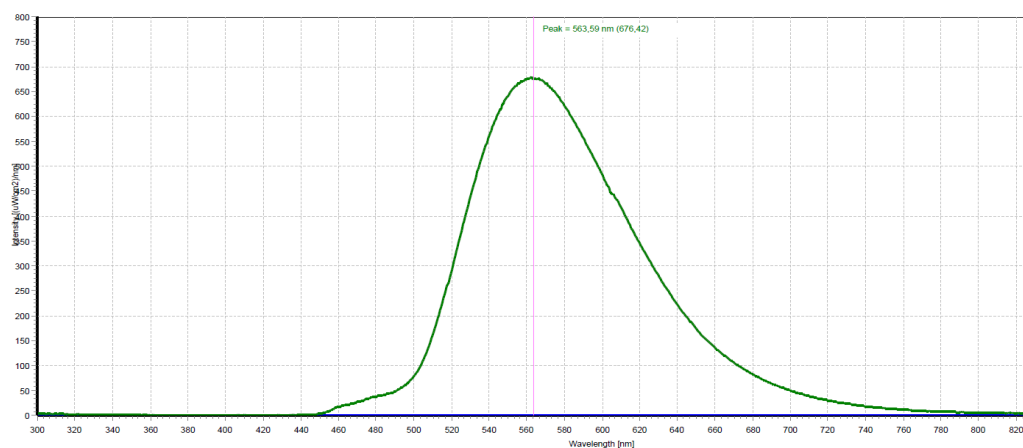
Forward Current vs. Forward Voltage



Intensity vs. Forward Current



View Angle



Typical spectrum at 350 mA

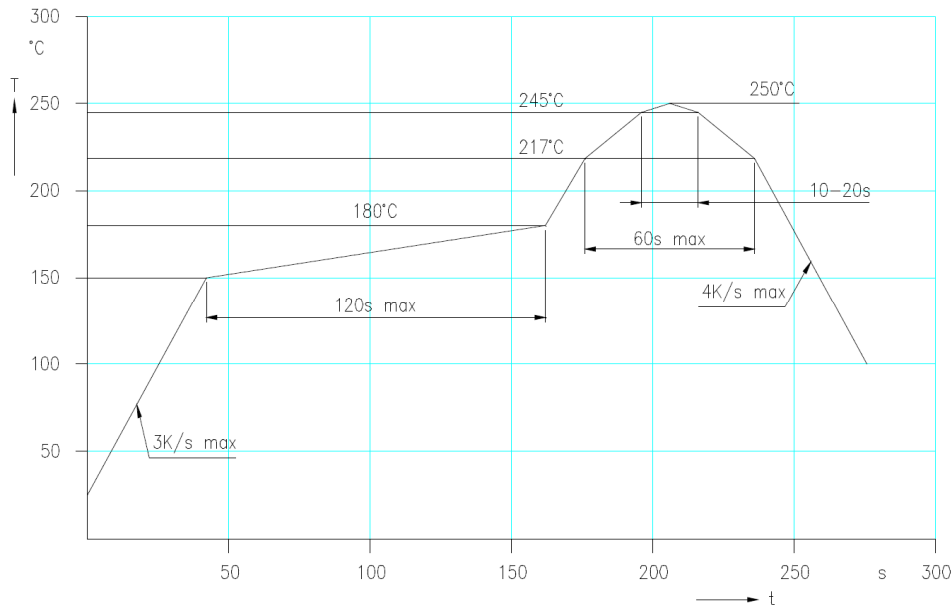
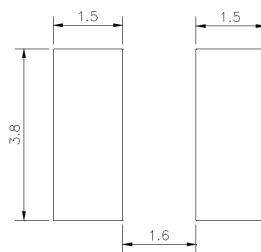


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Data Sheet**Yellow-Green SMD-LED****EOLS-565-496**

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Rev. 02, 2017

IR reflow soldering
profile for lead free
solderingrecommended max. thermal resistance
device-ambient: 20 K/W

Recommended Soldering Pattern

Art. No. 133 208



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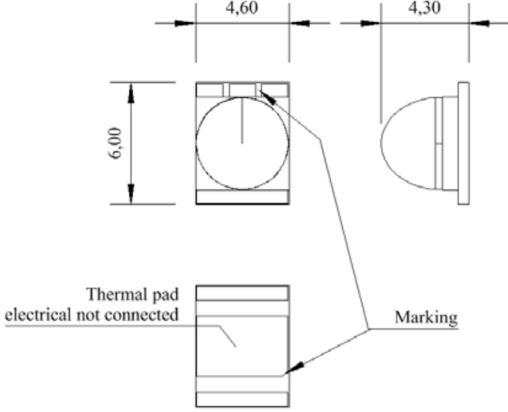
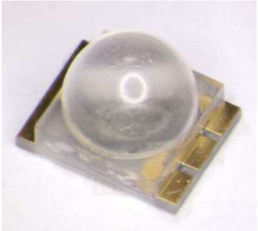
Data Sheet

page 1 of 3

High Power LED**EOLS-570-227**

Rev. 03, 2018

Radiation	Type	Case
Yellow-green	AlInGaP/GaAs	SMD 6046 (2418), ceramics

 Thermal pad electrical not connected Marking All dimensions in mm	 Description: - size: 6.0(L) x 4.6(W) x 4.3(H) mm - high pulse current up to 1000 mA - with lens, view angle 20° - soldering pads: gold plated; only for reflow soldering - marking at cathode
---	--

Maximum Ratings $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test conditions	Symbol	Value	Unit
Forward current		I_F	700	mA
Peak forward current	$t_p \leq 100 \mu\text{s}$, $\tau=1:10$	I_{FM}	1000	mA
Reverse voltage		V_R	5	V
Thermal resistance		R_{thJA}	5	K/W
Operating temperature range		T_{amb}	-40 to +85	$^{\circ}\text{C}$
Storage temperature range		T_{stg}	-40 to +85	$^{\circ}\text{C}$

Electrostatic discharge classification (MIL-STD-883) - class 1

Optical and Electrical Characteristics $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Symbol	Conditions	Min	typ	max	Unit
Forward voltage	V_F	$I_F = 350 \text{ mA}$		2.0	2.5	V
Radiant power*	Φ_e	$I_F = 350 \text{ mA}$		2.9		mW
Radiant intensity*	I_e	$I_F = 350 \text{ mA}$		11		mW/sr
Peak wavelength	λ_p	$I_F = 350 \text{ mA}$	562	570	578	nm
FWHM	$\Delta\lambda_{0.5}$	$I_F = 350 \text{ mA}$		16		nm
Reverse current	I_R	$I_R = 5 \text{ V}$			100	μA

*measured on star board

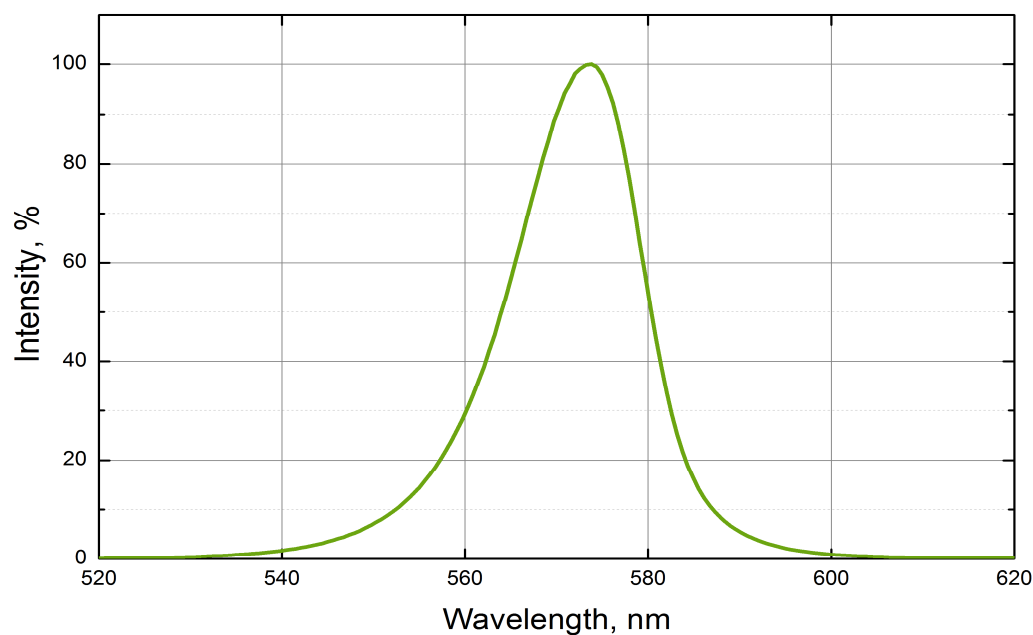
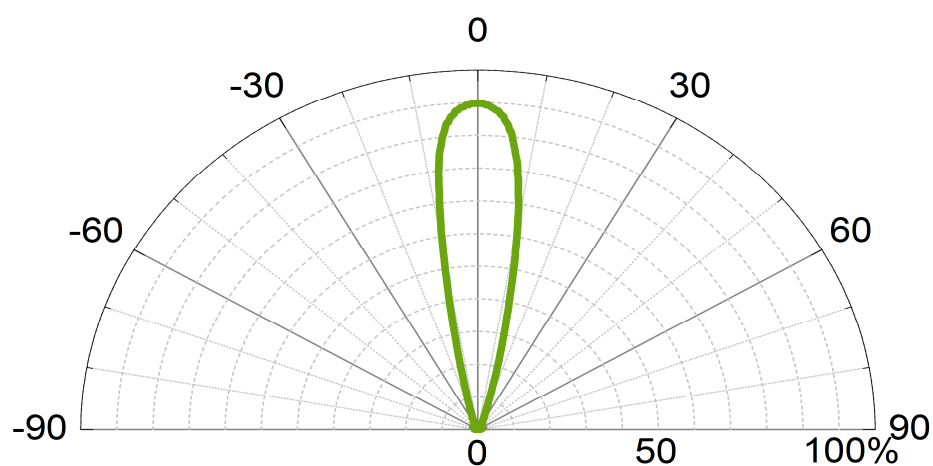


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Data Sheet**High Power LED****EOLS-570-227**

page 2 of 3

Rev. 03, 2018

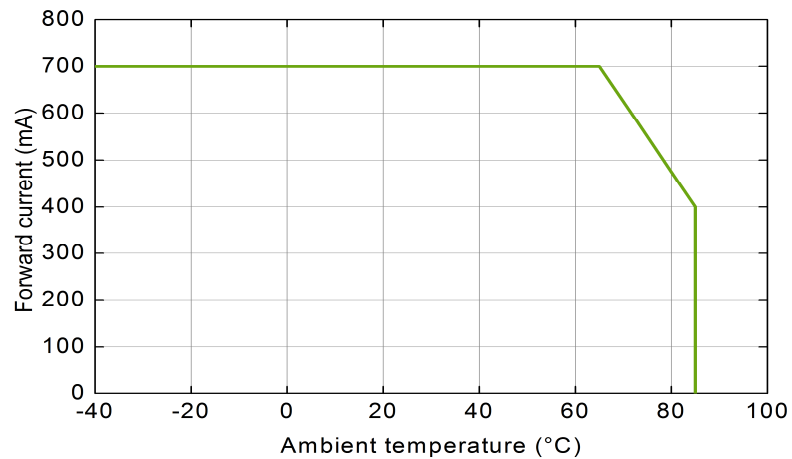
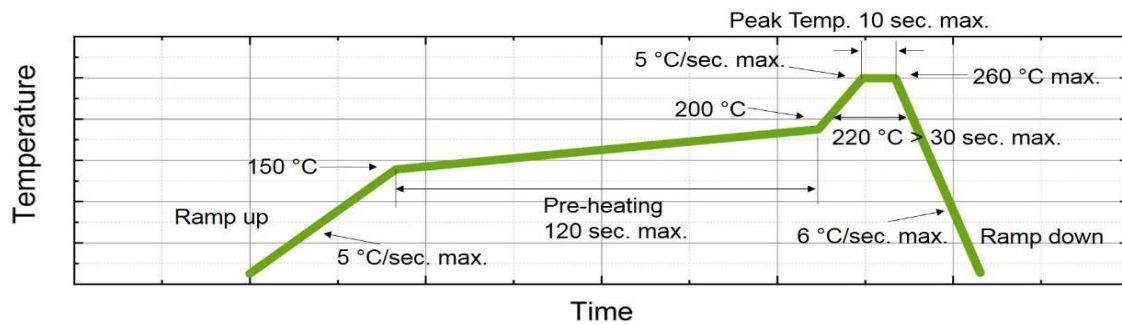
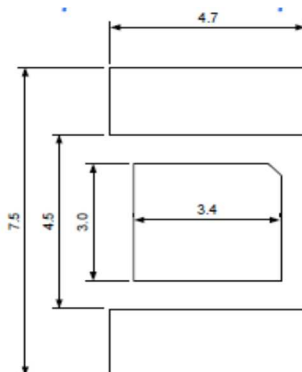
**Typical radiation spectrum at 350 mA****Radiation pattern**

Data Sheet

page 3 of 3

High Power LED**EOLS-570-227**

Rev. 03, 2018

**Max. forward current vs. ambient temperature****Recommended reflow soldering profile****Recommended soldering pad**

Thermal pad needs to be connected to a heat sink with less than 10 K/W thermal resistance.

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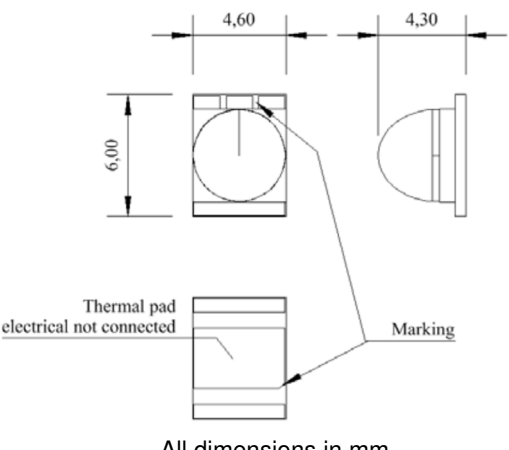
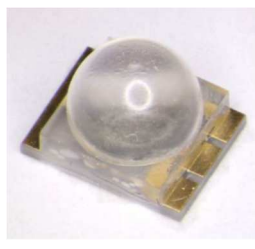
Data Sheet

page 1 of 3

High Power LED**EOLS-590-227**

Rev. 04, 2018

Radiation	Type	Case
Yellow	AlInGaP/GaAs	SMD 6046 (2418), ceramics

 Technical drawing of the LED package showing dimensions: 4.60 mm (width), 4.30 mm (height), and 6.00 mm (length). It also shows a thermal pad, electrical connection, and marking. All dimensions in mm	 Photograph of the LED package showing the lens and soldering pads.
	Description: - size: 6.0(L) x 4.6(W) x 4.3(H) mm - high pulse current up to 1000 mA - with lens, view angle 20° - soldering pads: gold plated; only for reflow soldering - marking at anode

Maximum Ratings $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test conditions	Symbol	Value	Unit
Forward current		I_F	700	mA
Peak forward current	$t_p \leq 100 \mu\text{s}$, $\tau=1:10$	I_{FM}	1000	mA
Reverse voltage		V_R	5	V
Thermal resistance		R_{th_JA}	5	K/W
Operating temperature range		T_{amb}	-40 to +85	$^{\circ}\text{C}$
Storage temperature range		T_{stg}	-40 to +85	$^{\circ}\text{C}$

Electrostatic discharge classification (MIL-STD-883) - class 1

Optical and Electrical Characteristics $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Symbol	Conditions	Min	typ	max	Unit
Forward voltage	V_F	$I_F = 350 \text{ mA}$		2.15	3.0	V
Radiant power*	Φ_e	$I_F = 350 \text{ mA}$		42		mW
Radiant intensity*	I_e	$I_F = 350 \text{ mA}$		200		mW/sr
Peak wavelength	λ_p	$I_F = 350 \text{ mA}$	582	590	598	nm
FWHM	$\Delta\lambda_{0.5}$	$I_F = 350 \text{ mA}$		15		nm
Reverse current	I_R	$I_R = 5 \text{ V}$			100	μA

*measured on star board

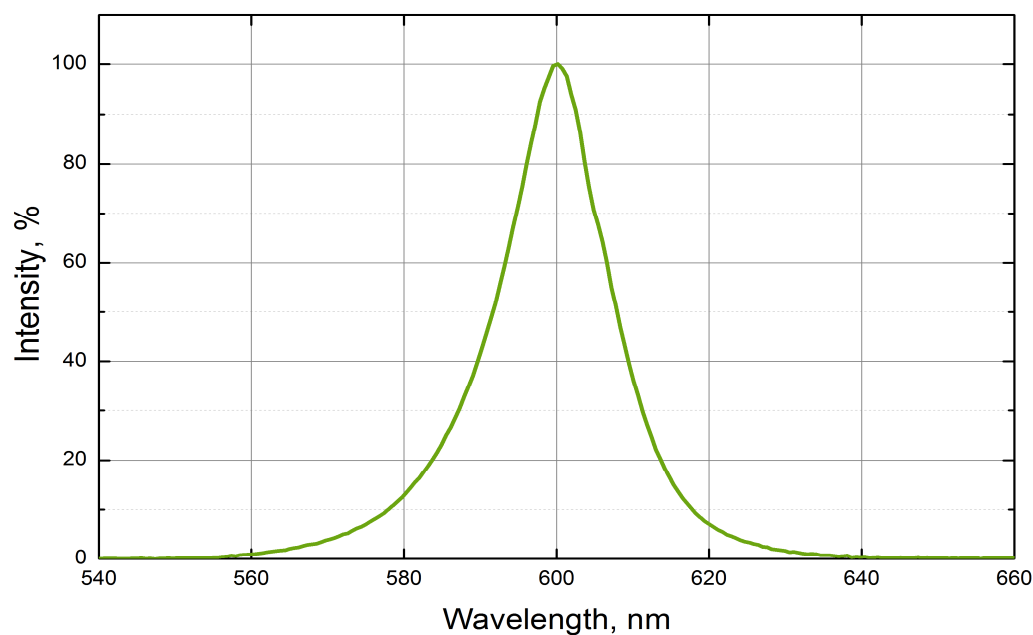
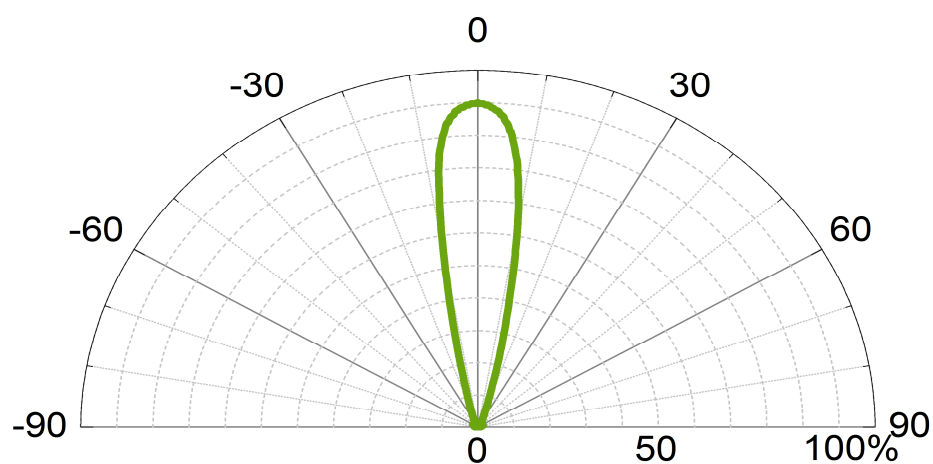


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Data Sheet**High Power LED****EOLS-590-227**

page 2 of 3

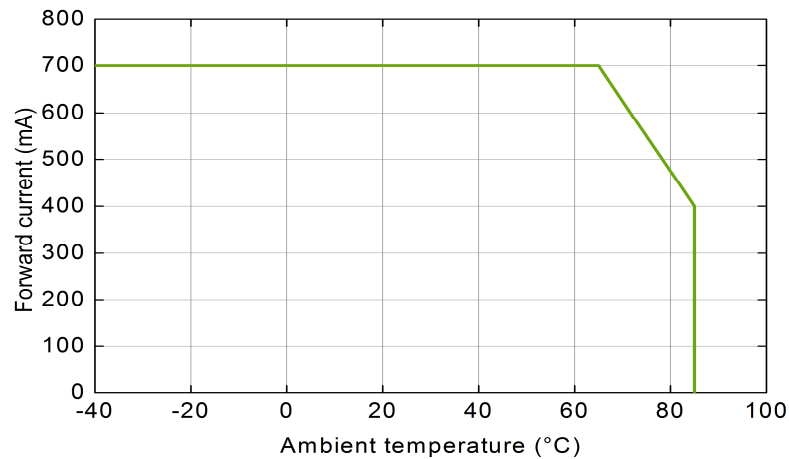
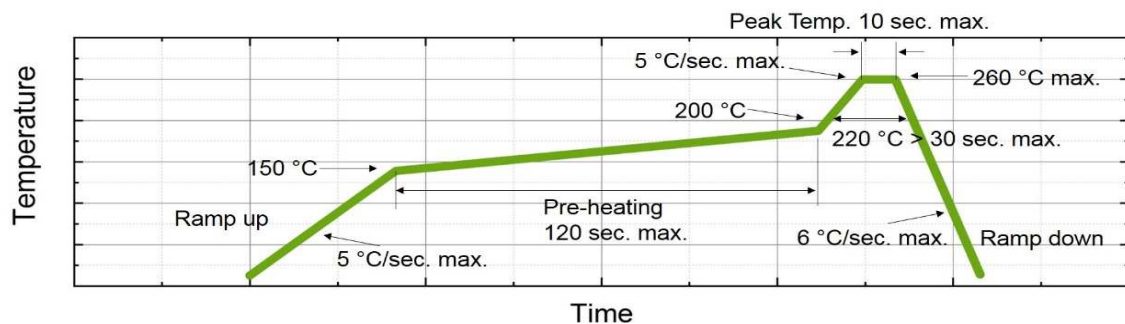
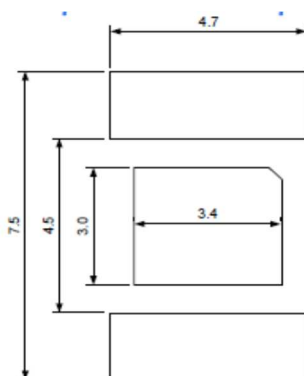
Rev. 04, 2018

**Typical radiation spectrum at 350 mA****Radiation pattern**

Data Sheet**High Power LED****EOLS-590-227**

page 3 of 3

Rev. 04, 2018

**Max. forward current vs. ambient temperature****Recommended reflow soldering profile****Recommended soldering pad**

Thermal pad needs to be connected to a heat sink with less than 10 K/W thermal resistance.

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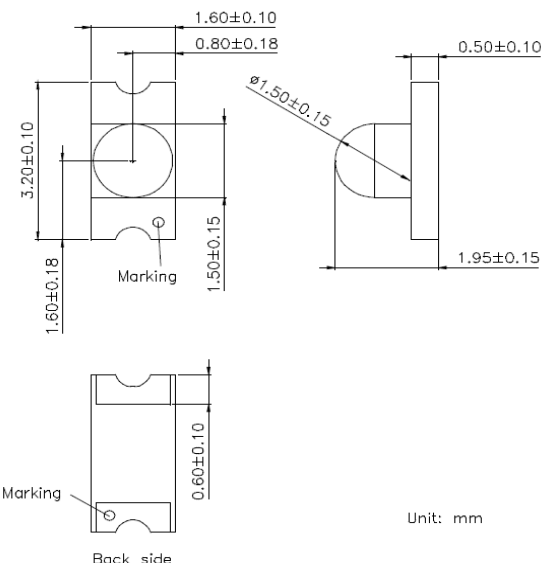
Data Sheet

page 1 of 3

Green SMD-LED**EOLS-525-843**

Rev. 02, 2017

Radiation	Type	Case
green	InGaN	SMD 3216 (1206), with lens

 Unit: mm	 Description: - Size 1206: 3.2 (L) x 1.6 (W) x 1.95 (H) mm - Circuit substrate: glass laminated epoxy - Devices are RoHS conform - Lead free solderable, soldering pads: gold plated - Marking at cathode
--	---

Maximum Ratings

Parameter	Test conditions	Symbol	Value	Unit
Forward current		I_F	20	mA
Peak forward current	$t_p \leq 100 \mu s, \tau=1:10$	I_{FM}	100	mA
Reverse voltage		V_R	5	V
Reverse current		I_R	100	μA
Operating temperature range		T_{amb}	-40 to +85	$^{\circ}C$
Storage temperature range		T_{stg}	-40 to +85	$^{\circ}C$
Thermal resistance		R_{thJA}	450	K/W

Optical and Electrical Characteristics

Parameter	Symbol	Conditions	Min	typ	max	Unit
Forward voltage	V_F	$I_F = 20 \text{ mA}$		3.25	3.8	V
Luminous intensity	I_v	$I_F = 20 \text{ mA}$	1800	3550		mcd
Dominant wavelength	λ_d	$I_F = 20 \text{ mA}$	520	525	530	nm



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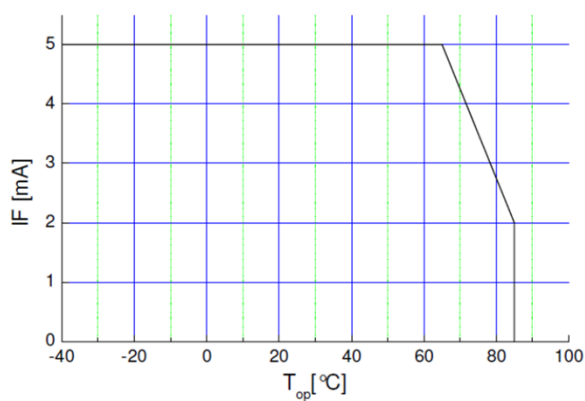
Data Sheet

Green SMD-LED

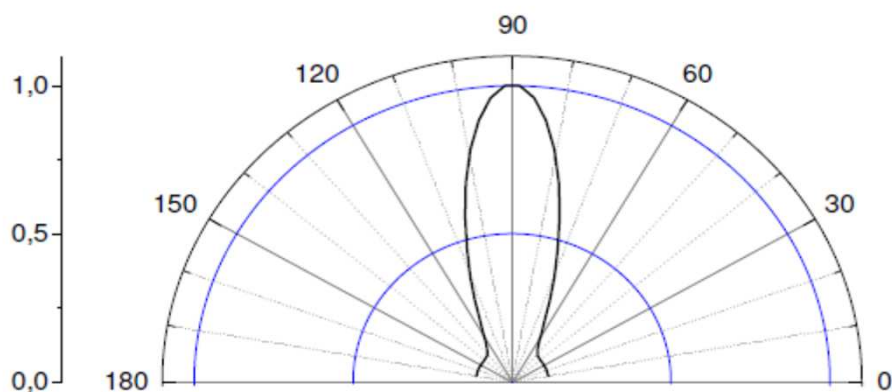
EOLS-525-843

page 2 of 3
Rev. 02, 2017

**Maximal
forward
current (DC)
characteristic**



View angle

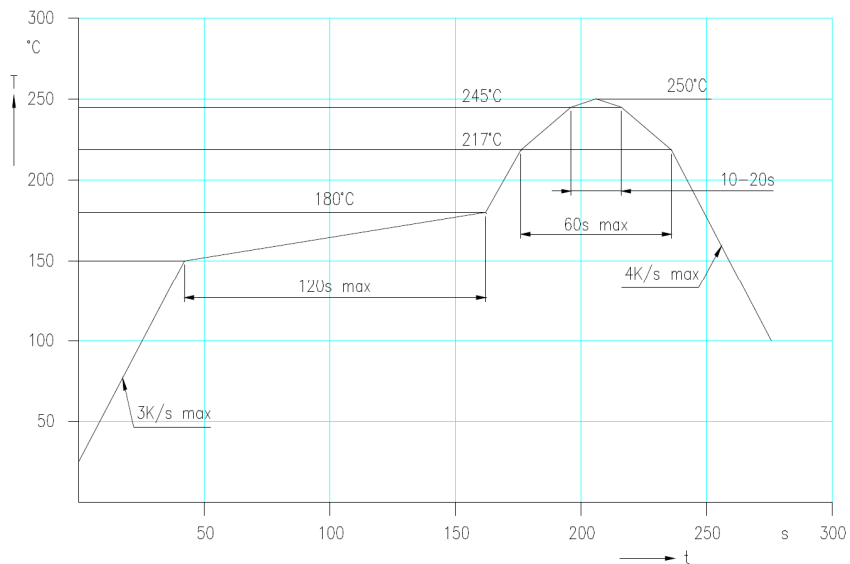
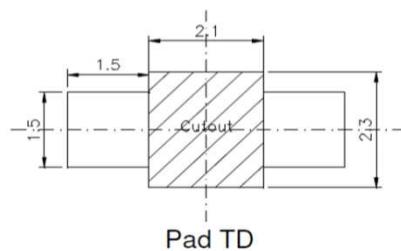
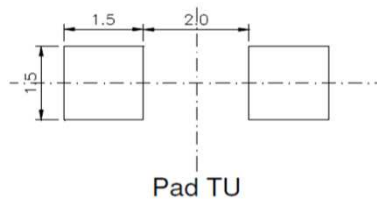


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Data Sheet**Green SMD-LED****EOLS-525-843**

page 3 of 3

Rev. 02, 2017

**IR reflow
soldering
profile for lead
free soldering****Recommended Soldering Patterns**

Manual soldering:
max power of iron 25 W / 3 s / 300°C



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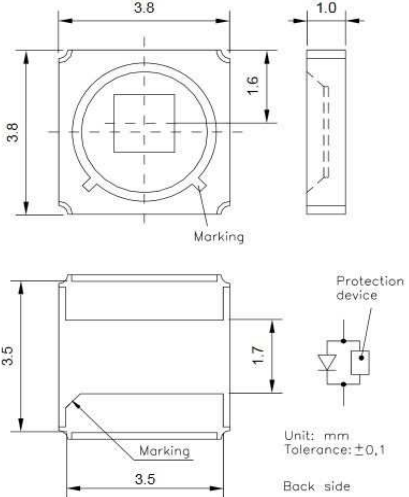
Data Sheet

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Yellow-Orange SMD-LED**EOLS-600-496**

Rev. 03, 2017

Radiation	Type	Case
yellow-orange	AlInGaP	SMD 3838 (1515)

 The technical drawing shows the top and side views of the SMD LED. The top view is a square with dimensions 3.8 mm by 3.8 mm. The side view shows a height of 1.0 mm. A marking is indicated on the top view. The bottom view shows a square with dimensions 3.5 mm by 3.5 mm. A protection device is indicated on the bottom view. The unit is mm and the tolerance is ±0.1 mm. Unit: mm Tolerance: ±0,1 Back side	 A photograph of the SMD LED, showing its square shape and the mounting pads. Description: - Size 3.8 (W) x 3.8 (L) x 1.0 (H) mm - Circuit substrate: AlN ceramics - Devices are RoHS conform - Lead free solderable, soldering pads: silver plated - Marking at cathode
--	--

Maximum Ratings $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test conditions	Symbol	Value	Unit
Forward current		I_F	350	mA
Peak forward current	$t_p \leq 100 \mu\text{s}$, $\tau = 1:10$	I_{FM}	800	mA
Reverse voltage		V_R	1	V
Reverse current		I_R	20	μA
Operating temperature range		T_{amb}	-40 to +85	$^{\circ}\text{C}$
Storage temperature range		T_{stg}	-40 to +85	$^{\circ}\text{C}$
Thermal resistance		R_{thJA}	10	K/W

Optical and Electrical Characteristics $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Symbol	Conditions	Min	typ	max	Unit
Forward voltage	V_F	$I_F = 350 \text{ mA}$		2.2	3.0	V
Luminous intensity	I_v	$I_F = 350 \text{ mA}$	7000		12000	mcd
Dominant wavelength	λ_d	$I_F = 350 \text{ mA}$	590	600	610	nm



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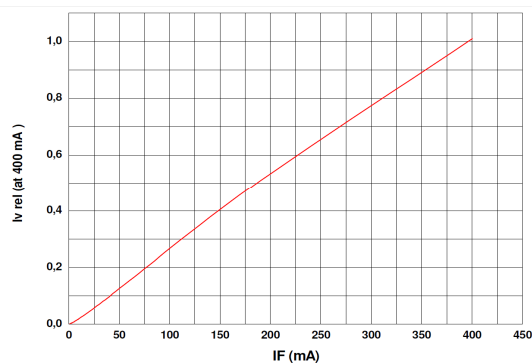
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Yellow-Orange SMD-LED

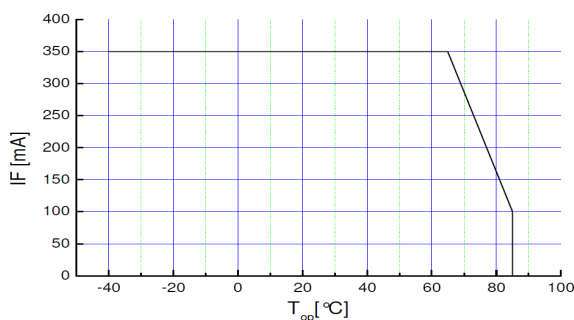
EOLS-600-496

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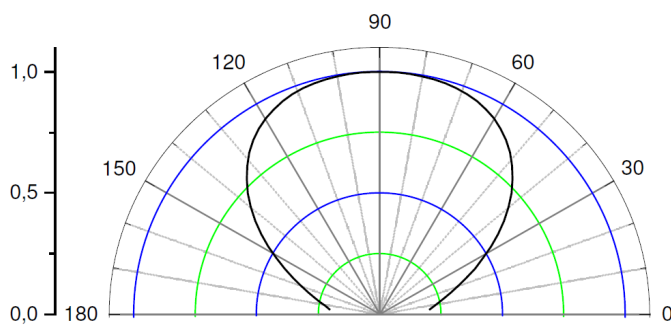
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Intensity vs. Forward Current



Forward Current vs. Operating Temperature



View Angle



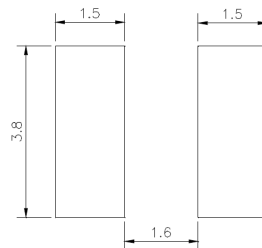
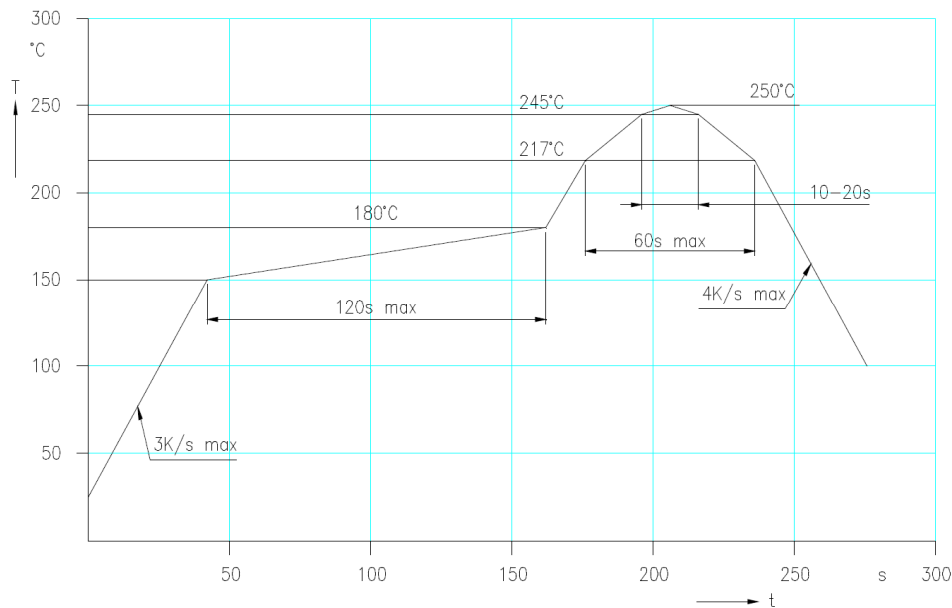
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Data Sheet

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Yellow-Orange SMD-LED**EOLS-600-496**

Rev. 03, 2017



recommended max. thermal resistance
device-ambient: 20 K/W

Recommended Soldering Pattern

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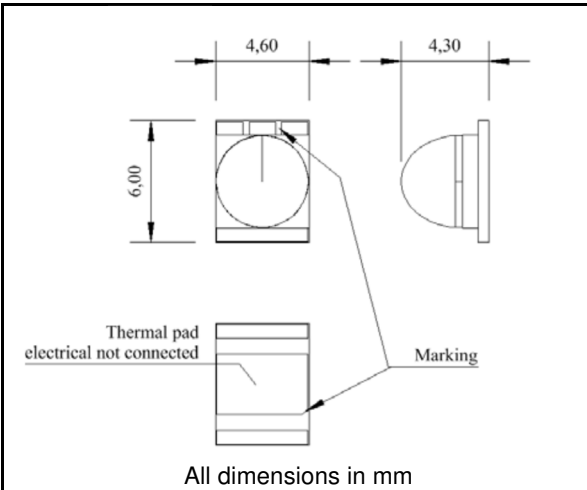
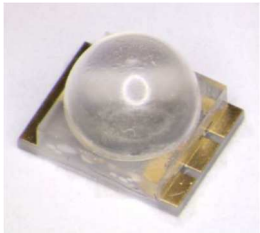
Data Sheet

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High Power LED**EOLS-610-227**

Rev. 03, 2018

Radiation	Type	Case
Orange	AlInGaP/GaAs	SMD 6046 (2418), ceramics

 Thermal pad electrical not connected Marking All dimensions in mm	 Description: - size: 6.0(L) x 4.6(W) x 4.3(H) mm - high pulse current up to 1000 mA - with lens, view angle 20° - soldering pads: gold plated; only for reflow soldering - marking at cathode
---	--

Maximum RatingsT_{amb} = 25°C, unless otherwise specified

Parameter	Test conditions	Symbol	Value	Unit
Forward current		I _F	700	mA
Peak forward current	t _p ≤ 100 μs, τ=1:10	I _{FM}	1000	mA
Reverse voltage		V _R	5	V
Thermal resistance		R _{th,JA}	5	K/W
Operating temperature range		T _{amb}	-40 to +85	°C
Storage temperature range		T _{stg}	-40 to +85	°C

Electrostatic discharge classification (MIL-STD-883) - class 1

Optical and Electrical CharacteristicsT_{amb} = 25°C, unless otherwise specified

Parameter	Symbol	Conditions	Min	typ	max	Unit
Forward voltage	V _F	I _F = 350 mA		2.3	2.6	V
Radiant power*	Φ _e	I _F = 350 mA		90		mW
Radiant intensity*	I _e	I _F = 350 mA		540		mW/sr
Peak wavelength	λ _p	I _F = 350 mA	600	610	623	nm
FWHM	Δλ _{0.5}	I _F = 350 mA		17		nm
Reverse current	I _R	I _R = 5 V			100	μA

*measured on star board

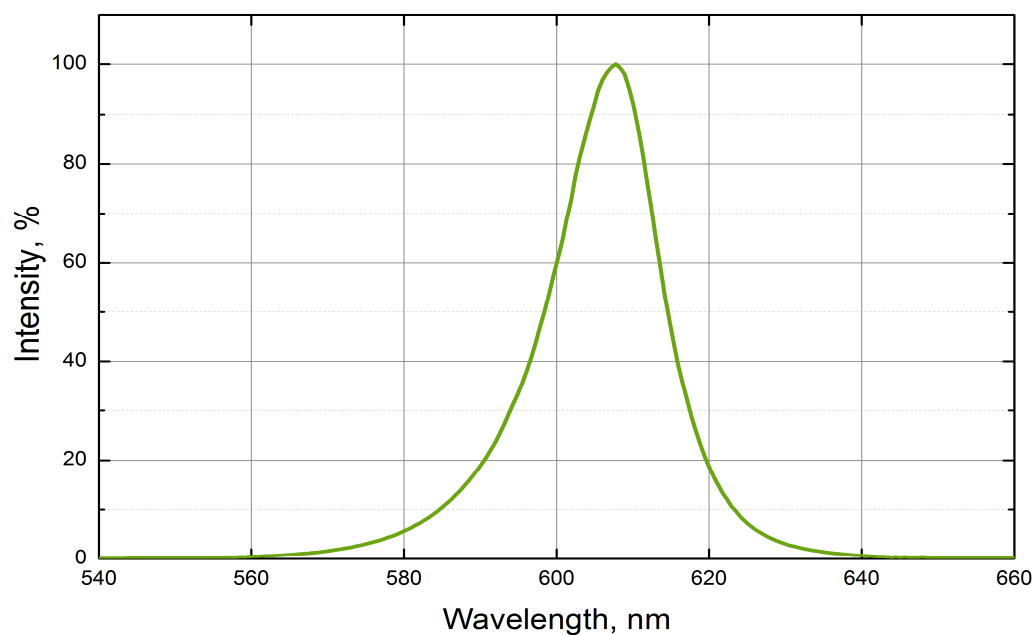
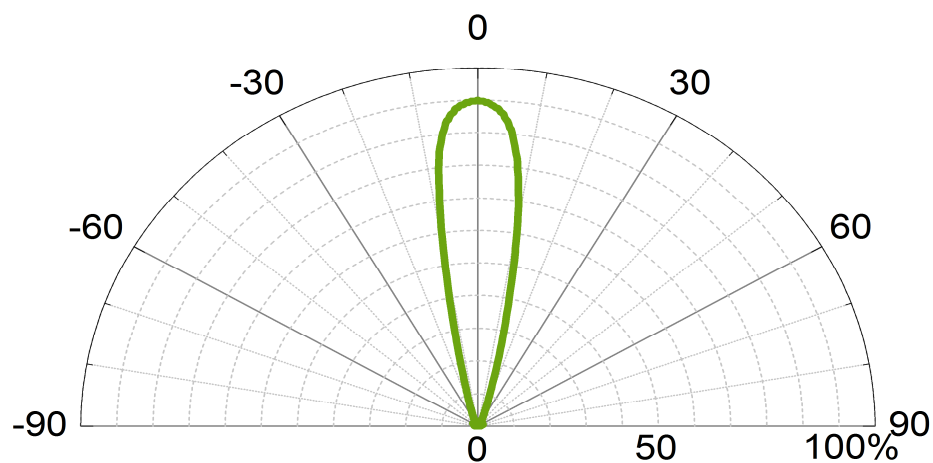


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Data Sheet**High Power LED****EOLS-610-227**

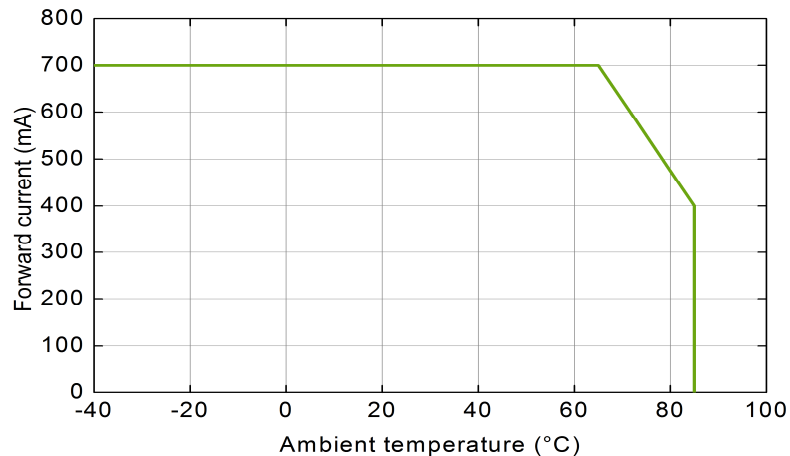
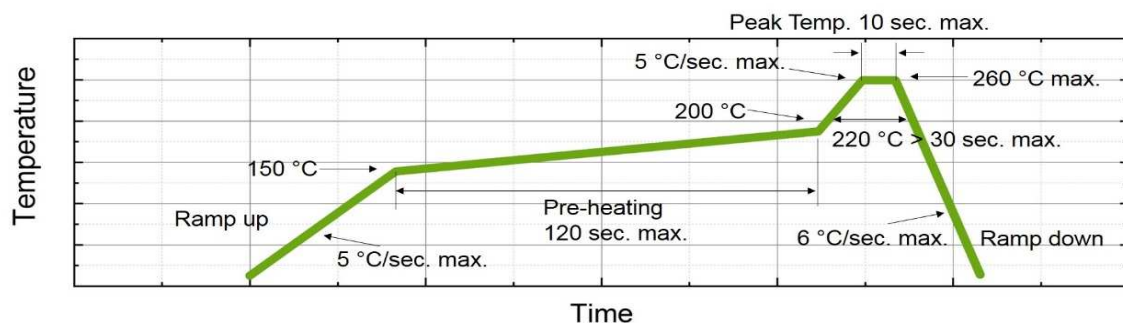
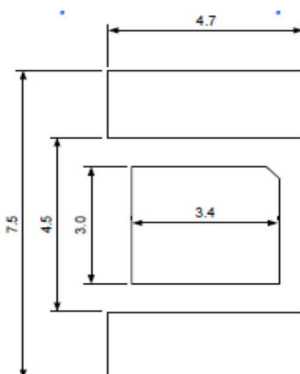
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Rev. 03, 2018

**Typical radiation spectrum at 350 mA****Radiation pattern**

Data Sheet**page 3 of 3****High Power LED****EOLS-610-227**

Rev. 03, 2018

**Max. forward current vs. ambient temperature****Recommended reflow soldering profile****Recommended soldering pad**

Thermal pad needs to be connected to a heat sink with less than 10 K/W thermal resistance.

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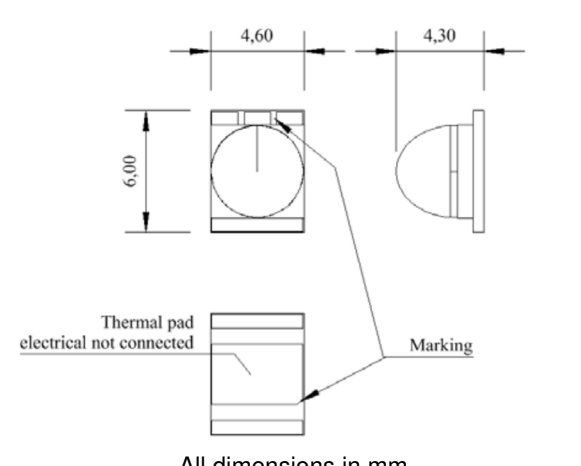
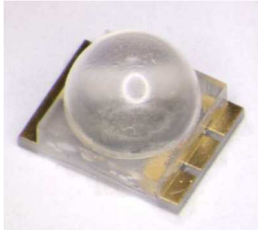
Data Sheet

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High Power LED**EOLS-630-227**

Rev. 04, 2020

Radiation	Type	Case
Red	AlInGaP/GaAs	SMD 6046 (2418), ceramics

 All dimensions in mm	
	Description: - size: 6.0(L) x 4.6(W) x 4.3(H) mm - high pulse current up to 1000 mA - with lens, view angle 20° - soldering pads: gold plated; only for reflow soldering - marking at anode

Maximum Ratings $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test conditions	Symbol	Value	Unit
Forward current		I_F	700	mA
Peak forward current	$t_p \leq 100 \mu\text{s}$, $\tau = 1:10$	I_{FM}	1000	mA
Reverse voltage		V_R	5	V
Thermal resistance		R_{th_JA}	5	K/W
Operating temperature range		T_{amb}	-40 to +85	$^{\circ}\text{C}$
Storage temperature range		T_{stg}	-40 to +85	$^{\circ}\text{C}$

Electrostatic discharge classification (MIL-STD-883) - class 1

Optical and Electrical Characteristics $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Symbol	Conditions	Min	typ	max	Unit
Forward voltage	V_F	$I_F = 350 \text{ mA}$		2.15	3.0	V
Radiant power*	Φ_e	$I_F = 350 \text{ mA}$		185		mW
Radiant intensity*	I_e	$I_F = 350 \text{ mA}$		430		mW/sr
Peak wavelength	λ_p	$I_F = 350 \text{ mA}$	620	630	640	nm
FWHM	$\Delta\lambda_{0.5}$	$I_F = 350 \text{ mA}$		16		nm
Reverse current	I_R	$I_R = 5 \text{ V}$			100	μA

*measured on star board

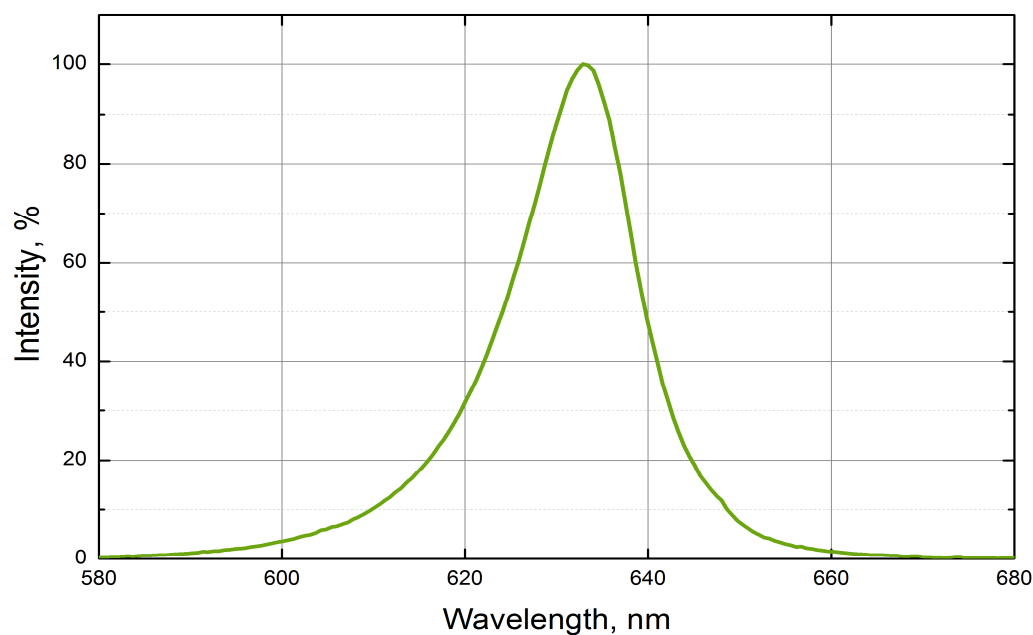
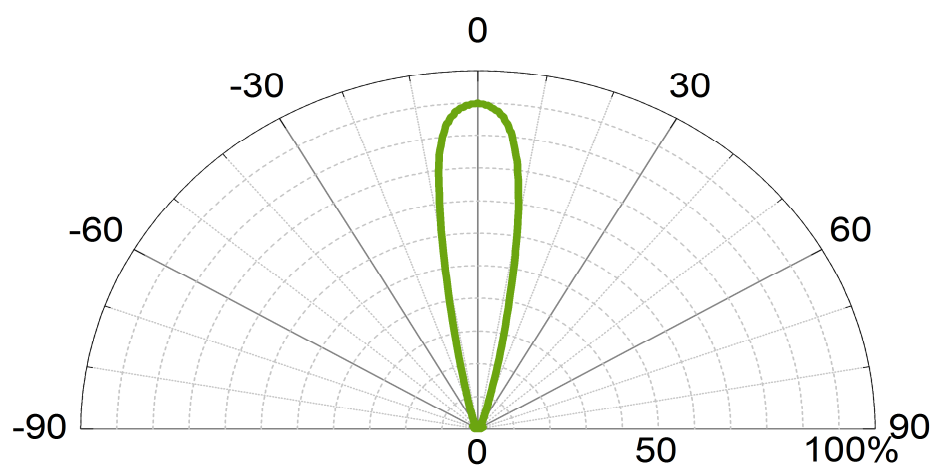


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Data Sheet**High Power LED****EOLS-630-227**

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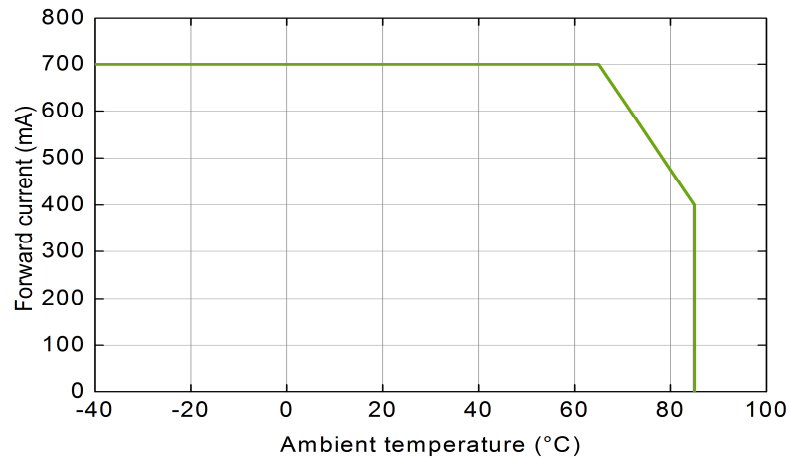
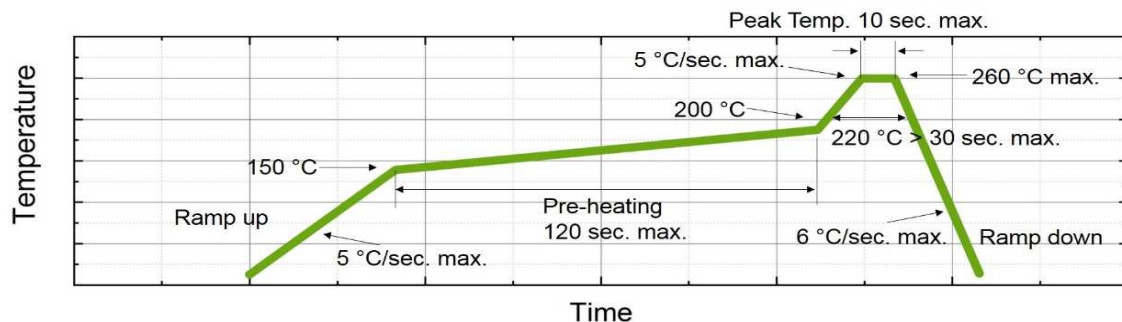
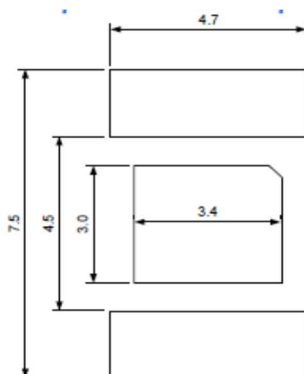
Rev. 04, 2020

**Typical radiation spectrum at 350 mA****Radiation pattern**

Data Sheet**High Power LED****EOLS-630-227**

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Rev. 04, 2020

**Max. forward current vs. ambient temperature****Recommended reflow soldering profile****Recommended soldering pad**

Thermal pad needs to be connected to a heat sink with less than 10 K/W thermal resistance.

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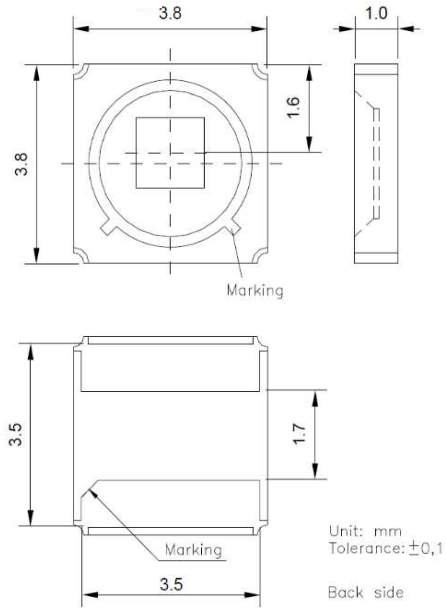
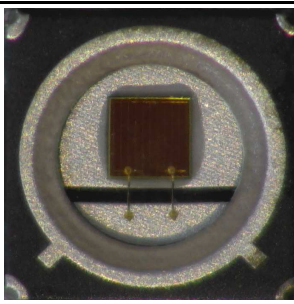
Data Sheet

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High Power LED**EOLS-635-496-1**

Rev. 10, 2020

Radiation	Type	Case
Red	AlInGaP/Si	SMD 3838 (1515)

 Unit: mm Tolerance: $\pm 0,1$ Back side	 The picture shown is for illustration purpose only. Actual product may vary due to product enhancement. Description: - Size 3.8 (W) x 3.8 (L) x 1.0 (H) mm - Circuit substrate: AlN ceramics - Marking at cathode - Lead free solderable, soldering pads: silver plated
---	--

Maximum Ratings $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test conditions	Symbol	Value	Unit
Forward current		I_F	350	mA
Peak forward current	$t_p \leq 80 \text{ ms}, T=1 \text{ s}$	I_{FM}	1000	mA
Operating temperature range		T_{amb}	-40 to +85	$^{\circ}\text{C}$
Storage temperature range		T_{stg}	-40 to +85	$^{\circ}\text{C}$

Optical and Electrical Characteristics $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Symbol	Conditions	Min	typ	max	Unit
Forward voltage	V_F	$I_F = 1000 \text{ mA}$		2.8	4.0	V
Radiant power*	Φ_e	$I_F = 1000 \text{ mA}$	350			mW
Peak wavelength	λ_p	$I_F = 350 \text{ mA}$		635		nm
FWHM	$\Delta\lambda_{0,5}$	$I_F = 350 \text{ mA}$		20		nm

*LEDs should never be operated with reverse bias!



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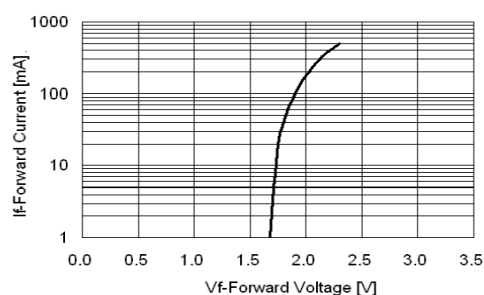
Data Sheet

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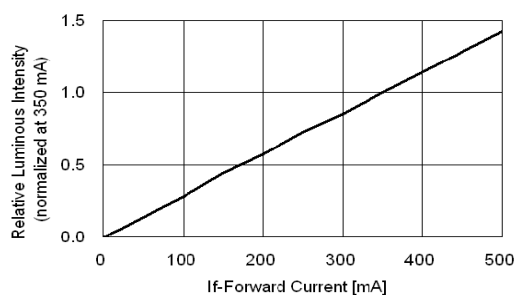
High Power LED

EOLS-635-496-1

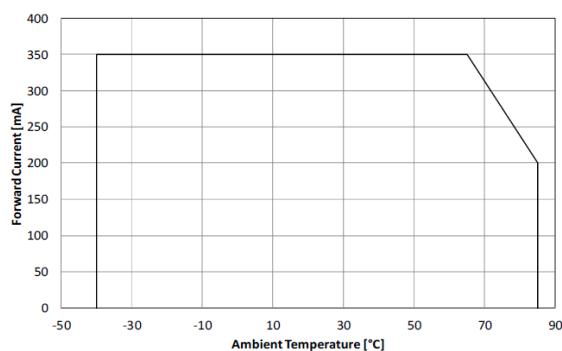
Rev. 10, 2020



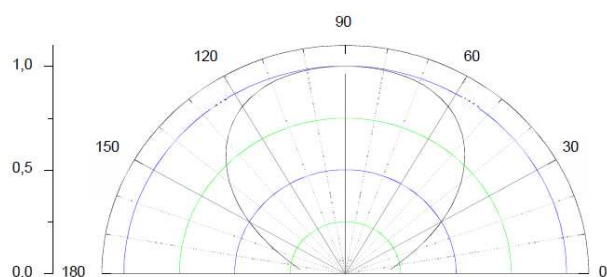
Forward Current vs. Forward Voltage



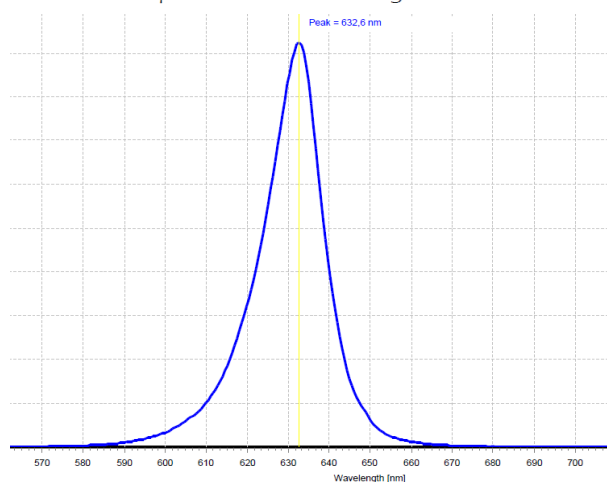
Intensity vs. Forward Current



Maximum Forward Current vs. Ambient Temperature



View Angle



Typical spectrum at 350 mA

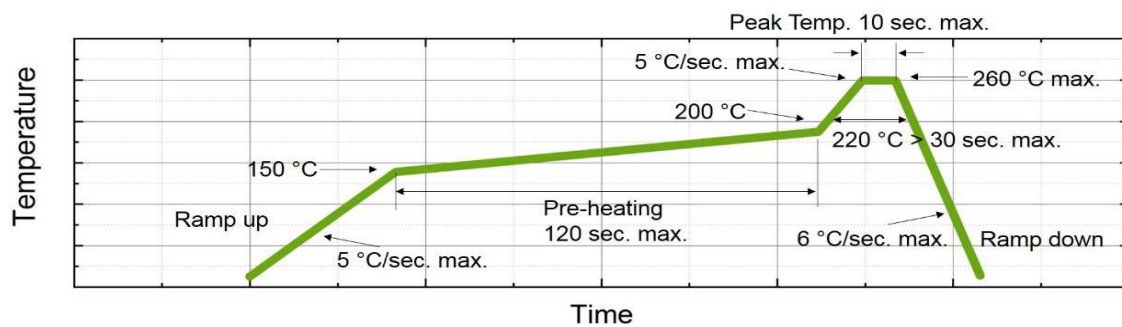


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Data Sheet**High Power LED****EOLS-635-496-1**

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Rev. 10, 2020

**Recommended reflow soldering profile**

Art. No. 133 114



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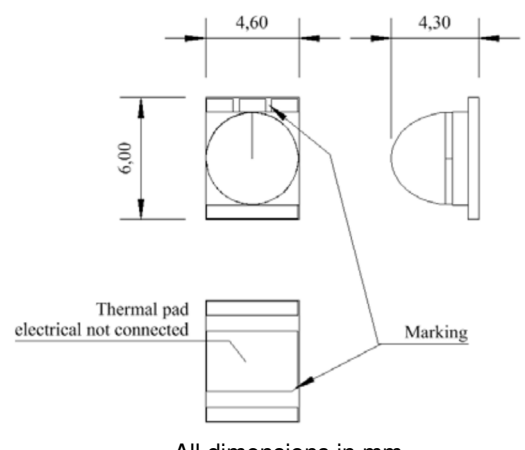
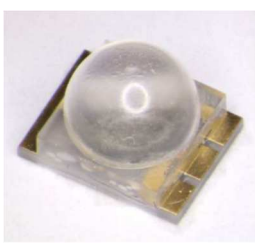
Data Sheet

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High Power LED**EOLS-645-227**

Rev. 04, 2018

Radiation	Type	Case
Red	AlInGaP/GaAs	SMD 6046 (2418), ceramics

 All dimensions in mm	
	Description: - size: 6.0(L) x 4.6(W) x 4.3(H) mm - high pulse current up to 1000 mA - with lens, view angle 20° - soldering pads: gold plated; only for reflow soldering - marking at anode

Maximum Ratings $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test conditions	Symbol	Value	Unit
Forward current		I_F	700	mA
Peak forward current	$t_p \leq 100 \mu\text{s}$, $\tau=1:10$	I_{FM}	1000	mA
Reverse voltage		V_R	5	V
Thermal resistance		R_{th_JA}	5	K/W
Operating temperature range		T_{amb}	-40 to +85	$^{\circ}\text{C}$
Storage temperature range		T_{stg}	-40 to +85	$^{\circ}\text{C}$

Electrostatic discharge classification (MIL-STD-883) - class 1

Optical and Electrical Characteristics $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Symbol	Conditions	Min	typ	max	Unit
Forward voltage	V_F	$I_F = 350 \text{ mA}$		2.15	2.6	V
Radiant power*	Φ_e	$I_F = 350 \text{ mA}$		190		mW
Radiant intensity*	I_e	$I_F = 350 \text{ mA}$		820		mW/sr
Peak wavelength	λ_p	$I_F = 350 \text{ mA}$	637	645	653	nm
FWHM	$\Delta\lambda_{0.5}$	$I_F = 350 \text{ mA}$		16		nm
Reverse current	I_R	$I_R = 5 \text{ V}$			100	μA

*measured on star board

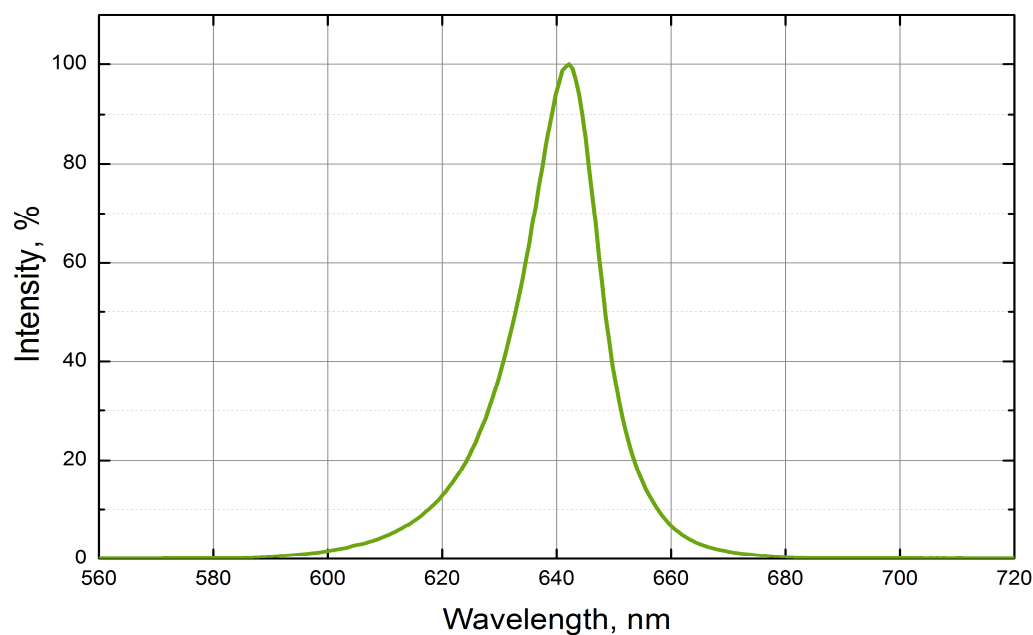
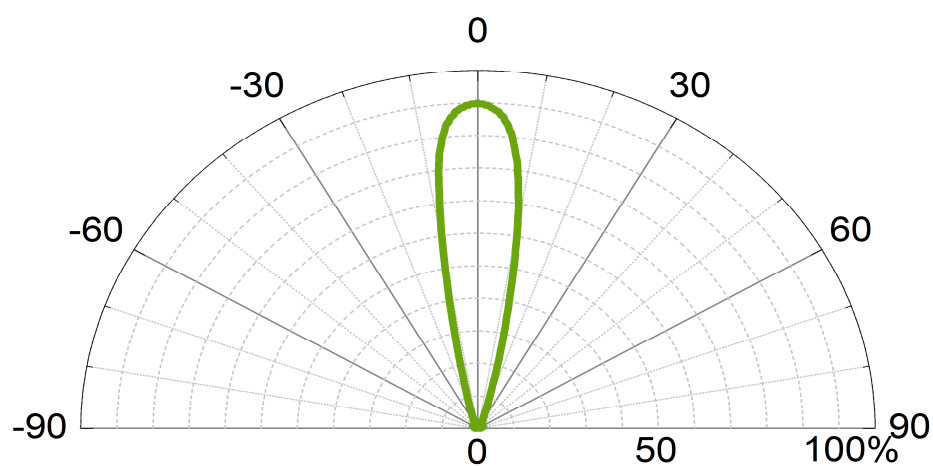


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Data Sheet**High Power LED****EOLS-645-227**

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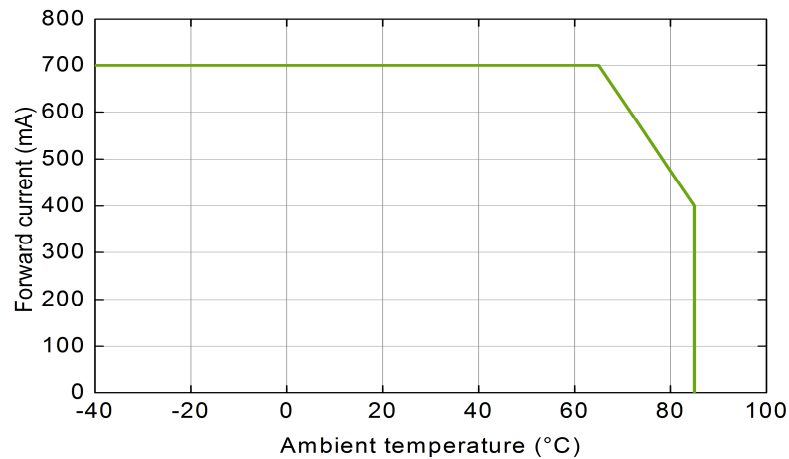
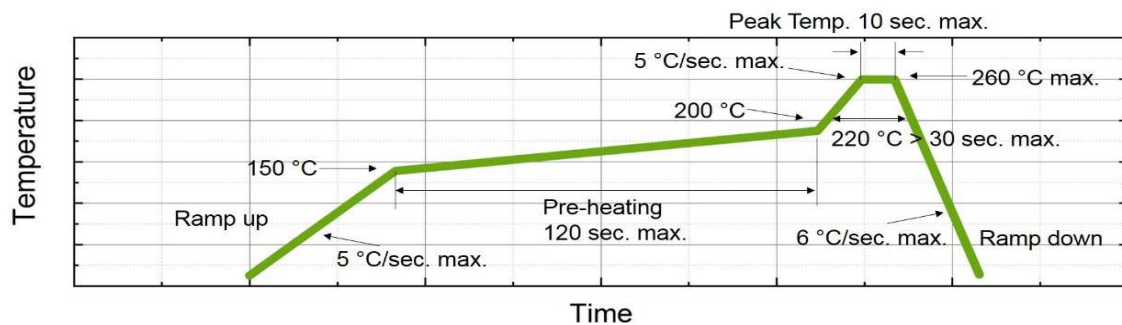
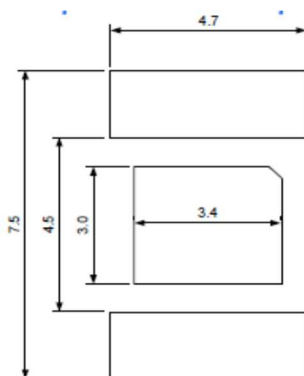
Rev. 04, 2018

**Typical radiation spectrum at 350 mA****Radiation pattern**

Data Sheet**High Power LED****EOLS-645-227**

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Rev. 04, 2018

**Max. forward current vs. ambient temperature****Recommended reflow soldering profile****Recommended soldering pad**

Thermal pad needs to be connected to a heat sink with less than 10 K/W thermal resistance.

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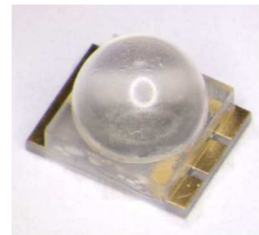
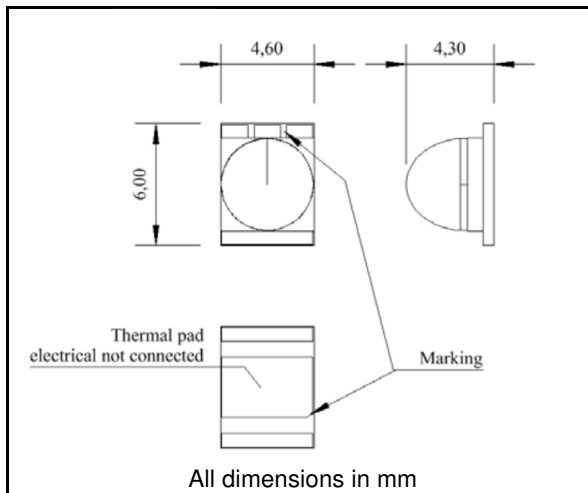
Data Sheet

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High Power LED**EOLS-660-227**

Rev. 04, 2018

Radiation	Type	Case
Deep red	tbd	SMD 6046 (2418), ceramics

**Description:**

- size: 6.0(L) x 4.6(W) x 4.3(H) mm
- high pulse current up to 1000 mA
- with lens, view angle 20°
- soldering pads: gold plated; only for reflow soldering
- marking at anode

Maximum RatingsT_{amb} = 25°C, unless otherwise specified

Parameter	Test conditions	Symbol	Value	Unit
Forward current		I _F	700	mA
Peak forward current	t _p ≤ 100 μs, τ=1:10	I _{FM}	1000	mA
Reverse voltage		V _R	5	V
Thermal resistance		R _{th_JA}	5	K/W
Operating temperature range		T _{amb}	-40 to +85	°C
Storage temperature range		T _{stg}	-40 to +85	°C

Electrostatic discharge classification (MIL-STD-883) - class 1

Optical and Electrical CharacteristicsT_{amb} = 25°C, unless otherwise specified

Parameter	Symbol	Conditions	Min	typ	max	Unit
Forward voltage	V _F	I _F = 350 mA		2.15	3.0	V
Radiant power*	Φ _e	I _F = 350 mA		220		mW
Radiant intensity*	I _e	I _F = 350 mA		640		mW/sr
Peak wavelength	λ _p	I _F = 350 mA	652	660	668	nm
FWHM	Δλ _{0.5}	I _F = 350 mA		17		nm
Reverse current	I _R	I _R = 5 V			100	μA

*measured on star board



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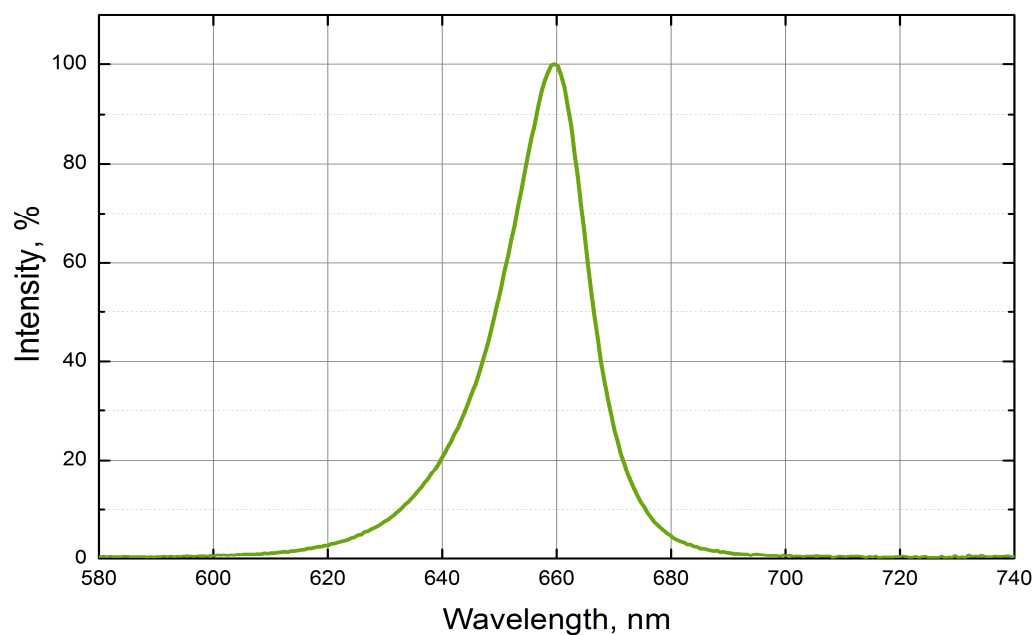
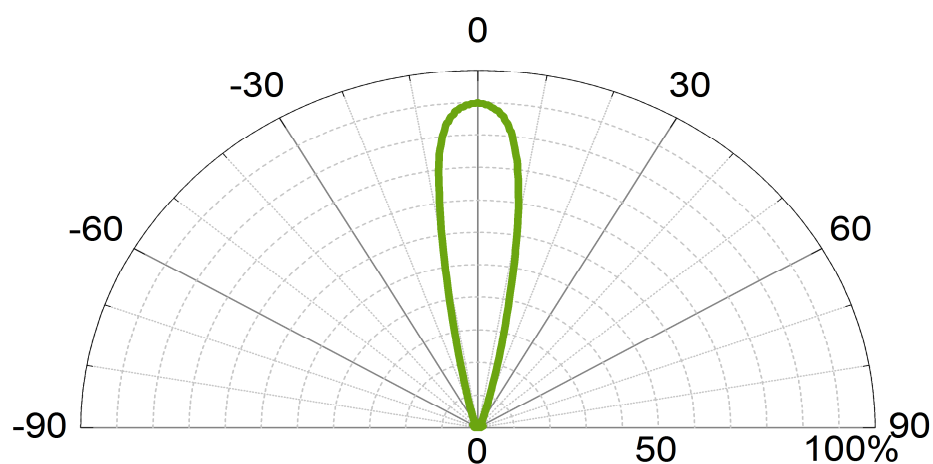
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Data Sheet**High Power LED****EOLS-660-227**

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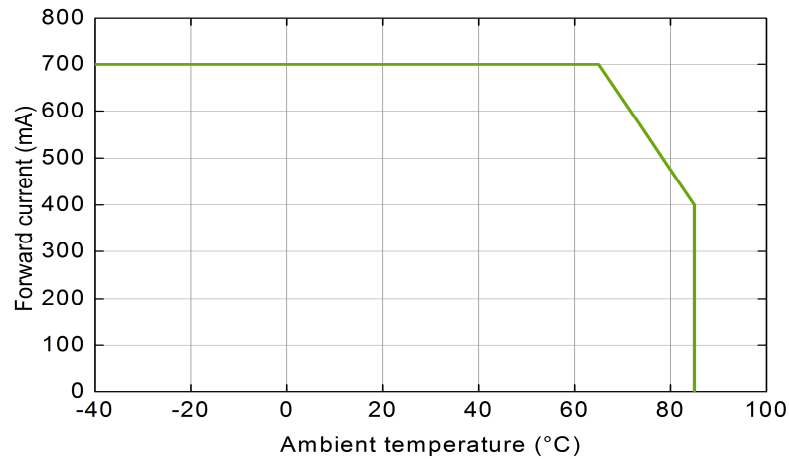
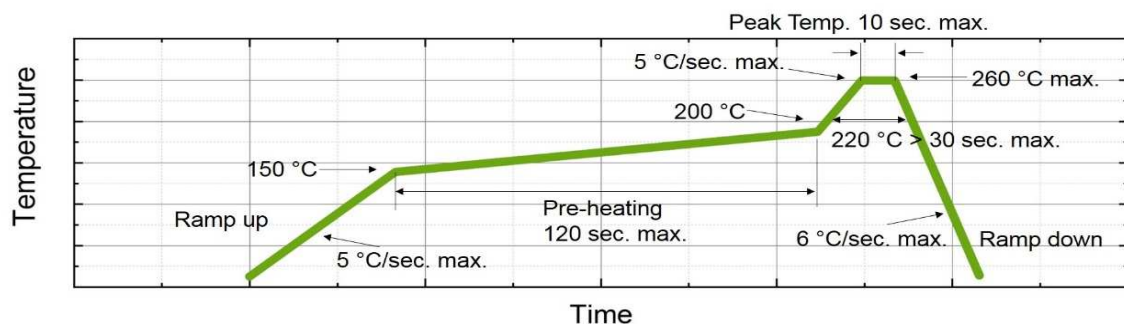
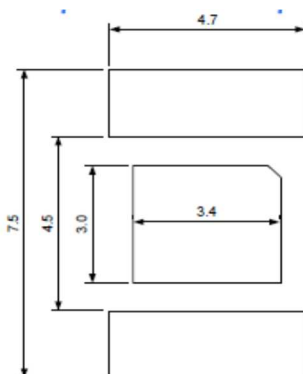
Rev. 04, 2018

**Typical radiation spectrum at 350 mA****Radiation pattern**

Data Sheet**High Power LED****EOLS-660-227**

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Rev. 04, 2018

**Max. forward current vs. ambient temperature****Recommended reflow soldering profile****Recommended soldering pad**

Thermal pad needs to be connected to a heat sink with less than 10 K/W thermal resistance.

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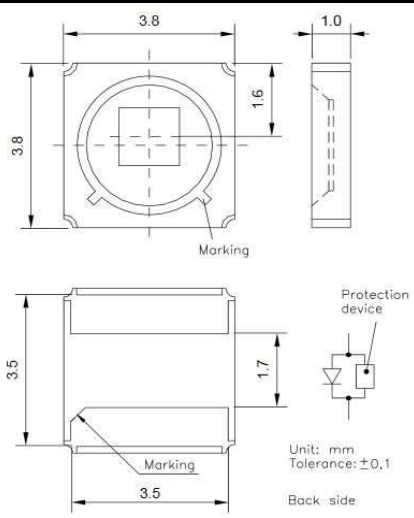
Data Sheet

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Deep Red SMD-LED**EOLS-660-496**

Rev. 03, 2017

Radiation	Type	Case
Deep red		SMD 3838 (1515)

 The technical drawing shows the top and side views of the SMD-LED. The top view is a square with dimensions 3.8 mm by 3.8 mm. The side view shows a height of 1.0 mm. A marking is indicated on the top view. The bottom view shows a square with dimensions 3.5 mm by 3.5 mm and a height of 1.7 mm. A protection device is indicated on the bottom view. The unit is mm and the tolerance is ±0.1. Unit: mm Tolerance: ±0.1	 A photograph of the SMD-LED component, showing its square shape and the internal circuitry. Description: - Size 3.8 (W) x 3.8 (L) x 1.0 (H) mm - Circuit substrate: AlN ceramics - Devices are RoHS conform - Lead free solderable, soldering pads: silver plated - Marking at cathode
---	---

Maximum Ratings $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test conditions	Symbol	Value	Unit
Forward current		I_F	500	mA
Peak forward current	$t_p \leq 100 \mu\text{s}$, $\tau = 1:10$	I_{FM}	700	mA
Reverse voltage		V_R	5	V
Reverse current		I_R	100	μA
Operating temperature range		T_{amb}	-40 to +85	$^{\circ}\text{C}$
Storage temperature range		T_{stg}	-40 to +85	$^{\circ}\text{C}$
Thermal resistance		R_{thJA}	10	K/W

Optical and Electrical Characteristics $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Symbol	Conditions	Min	typ	max	Unit
Forward voltage	V_F	$I_F = 350 \text{ mA}$		2.3	3.0	V
Radiant intensity	I_e	$I_F = 350 \text{ mA}$	45	110		mW/sr
Radiant power	Φ_e	$I_F = 350 \text{ mA}$	145			mW
Peak wavelength	λ_d	$I_F = 350 \text{ mA}$	650	660	670	nm



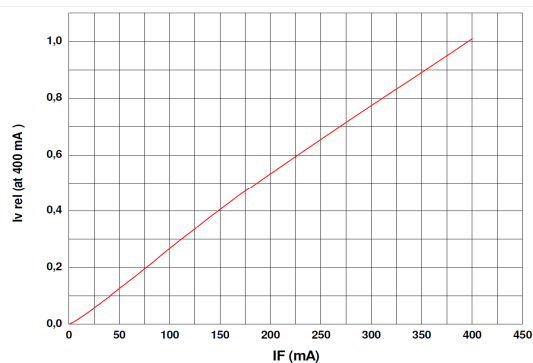
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Data Sheet

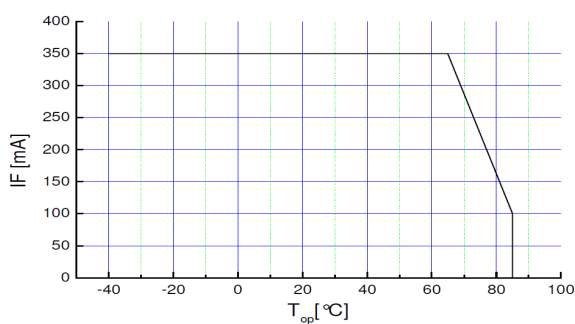
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Deep Red SMD-LED**EOLS-660-496**

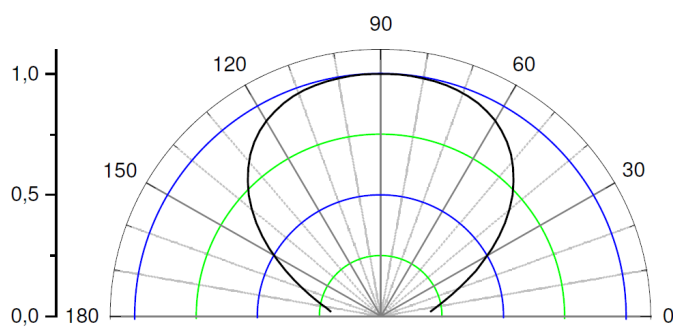
Rev. 03, 2017



Intensity vs. Forward Current



Forward Current vs. Operating Temperature



View Angle



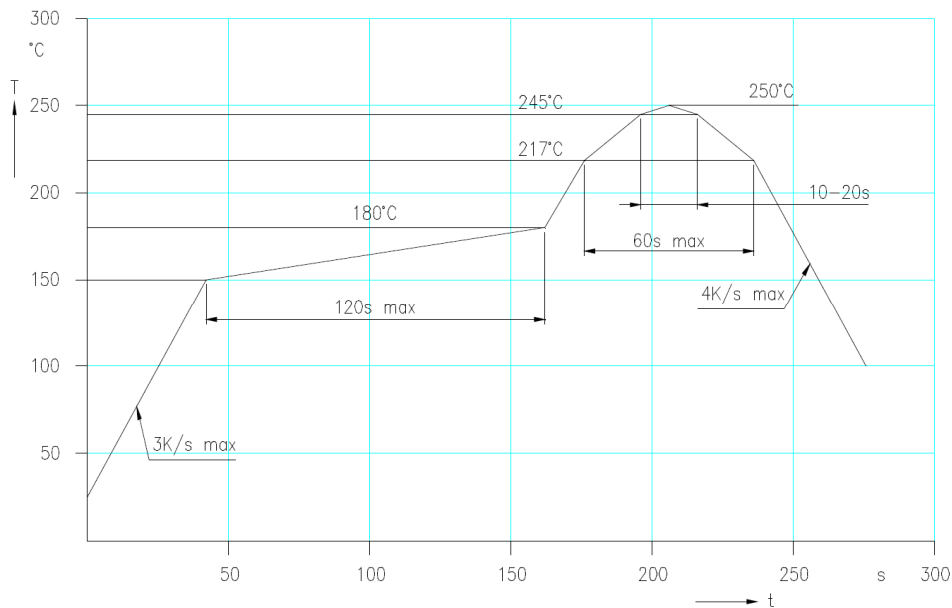
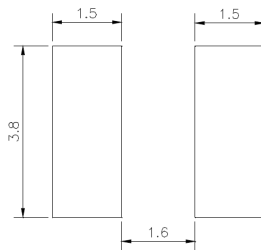
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Data Sheet

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Deep Red SMD-LED**EOLS-660-496**

Rev. 03, 2017

IR reflow soldering
profile for lead free
solderingrecommended max. thermal resistance
device-ambient: 20 K/W

Recommended Soldering Pattern

Manual soldering:

max power of iron 25 W / 3 s / 300 °C

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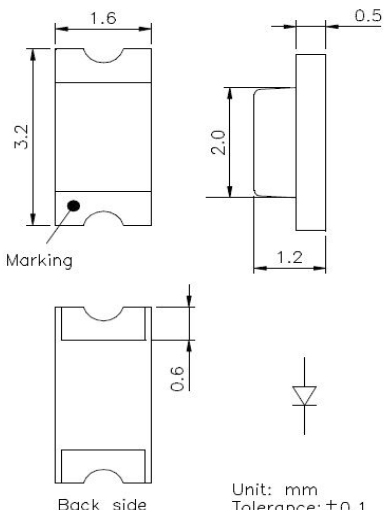
Data Sheet

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Deep red SMD-LED**EOLS-670-199**

Rev. 03, 2017

Radiation	Type	Case
Deep red - Infrared	AlGaAs	SMD 3216 (1206)

 Unit: mm Tolerance: $\pm 0,1$	 Description: - Size 1206: 3.2 (L) x 1.6 (W) x 1.2 (H) mm - Circuit substrate: glass laminated epoxy - Devices are RoHS conform - Lead free solderable, soldering pads: gold plated - Marking at anode
--	--

Maximum Ratings $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test conditions	Symbol	Value	Unit
Forward current		I_F	30	mA
Peak forward current	$t_p \leq 100 \mu\text{s}$, $\tau = 1:10$	I_{FM}	150	mA
Reverse voltage		V_R	5	V
Reverse current		I_R	100	μA
Operating temperature range		T_{amb}	-40 to +85	$^{\circ}\text{C}$
Storage temperature range		T_{stg}	-55 to +85	$^{\circ}\text{C}$
Thermal resistance		R_{thJA}	450	K/W

Optical and Electrical Characteristics $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Symbol	Conditions	Min	typ	max	Unit
Forward voltage	V_F	$I_F = 30 \text{ mA}$		1.9	2.2	V
Rise & fall time	t_r, t_f	$I_F = 30 \text{ mA}$		40	160	ns
Radiant intensity	I_e	$I_F = 30 \text{ mA}$	0.5	1.0		mW/sr
Radiant power	Φ_e	$I_F = 30 \text{ mA}$		1.5		mW
Peak wavelength	λ_d	$I_F = 30 \text{ mA}$	662	670	678	nm



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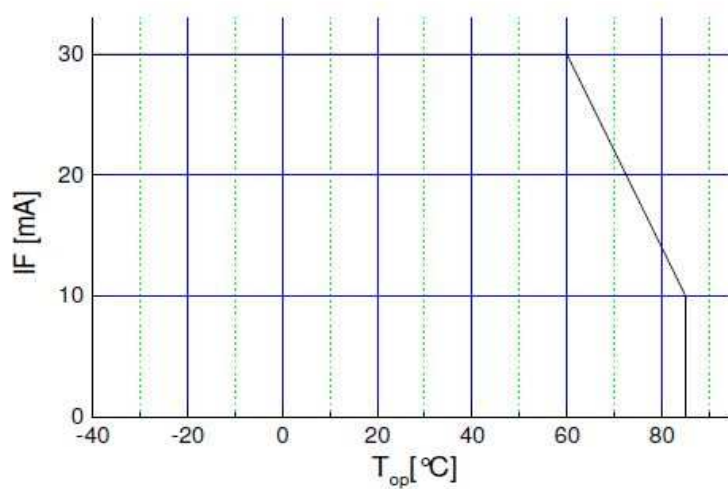
Data Sheet

Deep red SMD-LED

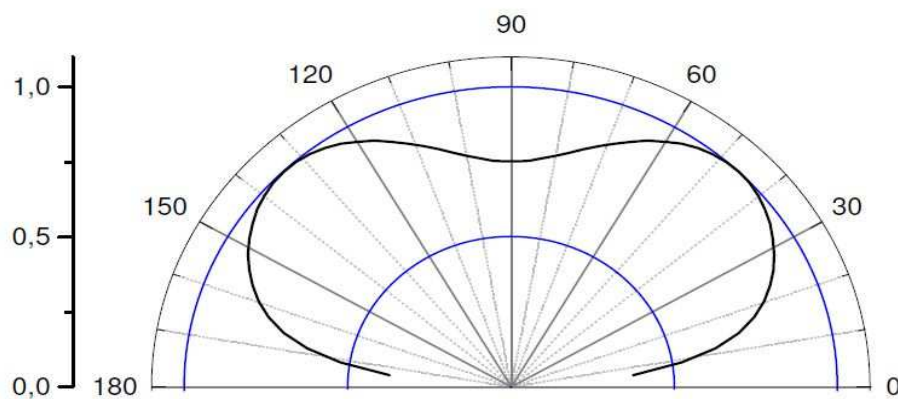
EOLS-670-199

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Rev. 03, 2017

**Maximal
forward
current (DC)
characteristic**



View angle

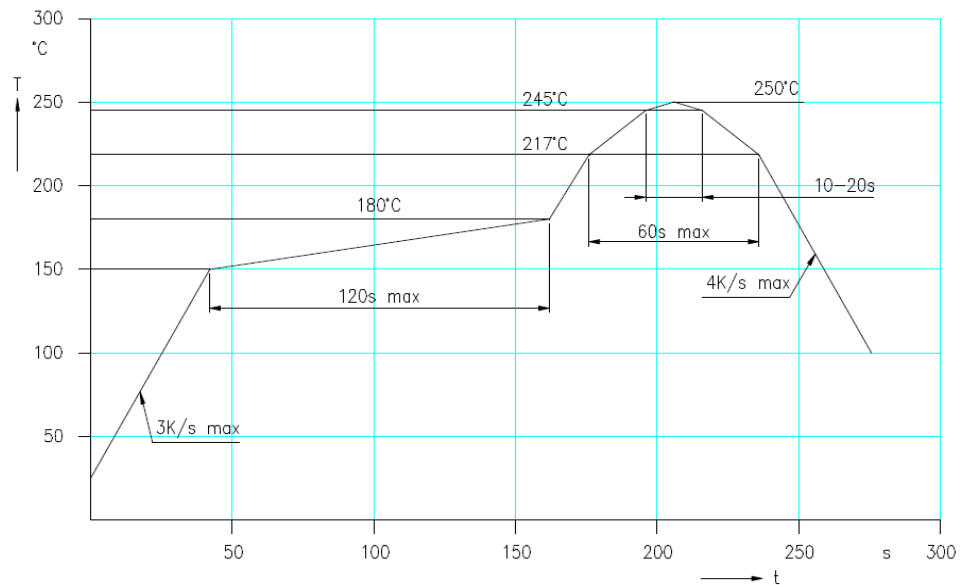
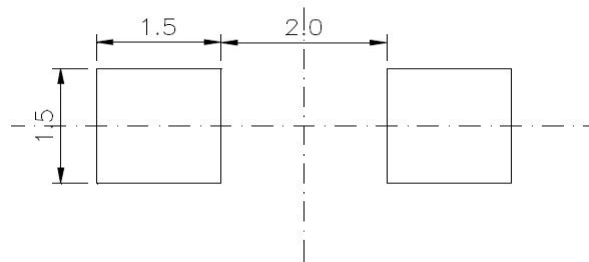


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Data Sheet**Deep red SMD-LED****EOLS-670-199**

page 3 of 3

Rev. 03, 2017

**IR reflow
soldering
profile for lead
free soldering****Recommended Soldering Pattern****Manual soldering:**

max power of iron 25 W / 3 s / 300 °C

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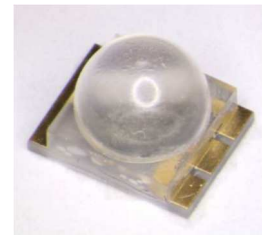
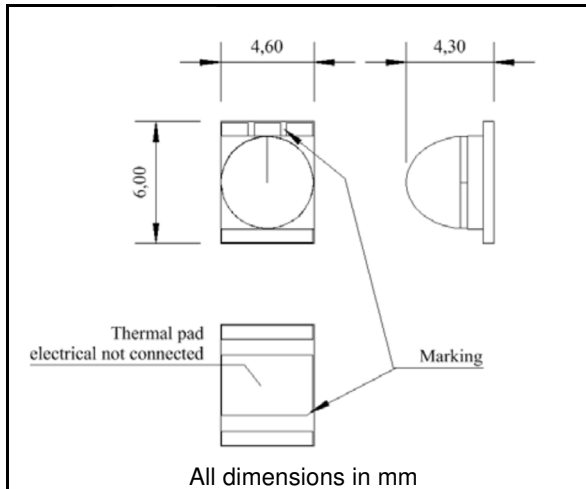
Data Sheet**Preliminary**

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High Power LED**EOLS-680-227**

Rev. 04, 2018

Radiation	Type	Case
Deep red	AlInGaP/GaAs	SMD 6046 (2418), ceramics

**Description:**

- size: 6.0(L) x 4.6(W) x 4.3(H) mm
- high pulse current up to 1000 mA
- with lens, view angle 20°
- soldering pads: gold plated; only for reflow soldering
- marking at anode

Maximum Ratings $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test conditions	Symbol	Value	Unit
Forward current		I_F	700	mA
Peak forward current	$t_p \leq 100 \mu\text{s}$, $\tau=1:10$	I_{FM}	1000	mA
Reverse voltage		V_R	5	V
Thermal resistance		$R_{th,JA}$	5	K/W
Operating temperature range		T_{amb}	-40 to +85	$^{\circ}\text{C}$
Storage temperature range		T_{stg}	-40 to +85	$^{\circ}\text{C}$

Electrostatic discharge classification (MIL-STD-883) - class 1

Optical and Electrical Characteristics $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Symbol	Conditions	Min	typ	max	Unit
Forward voltage	V_F	$I_F = 350 \text{ mA}$		2.0	2.35	V
Radiant power*	Φ_e	$I_F = 350 \text{ mA}$		200		mW
Radiant intensity*	I_e	$I_F = 350 \text{ mA}$		850		mW/sr
Peak wavelength	λ_p	$I_F = 350 \text{ mA}$	672	680	688	nm
FWHM	$\Delta\lambda_{0.5}$	$I_F = 350 \text{ mA}$		19		nm
Reverse current	I_R	$I_R = 5 \text{ V}$			100	μA

*measured on star board



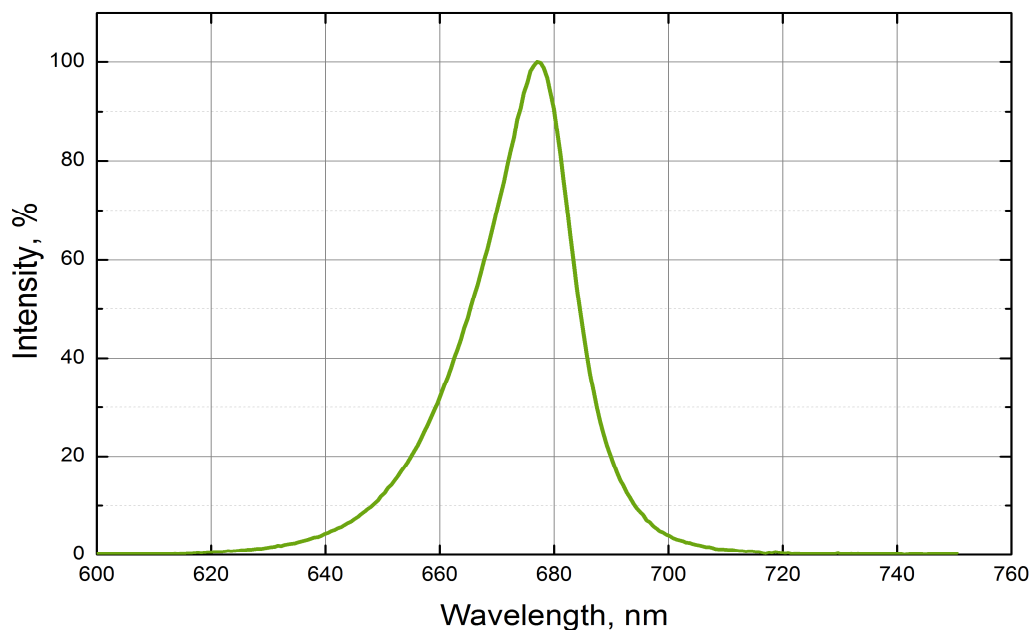
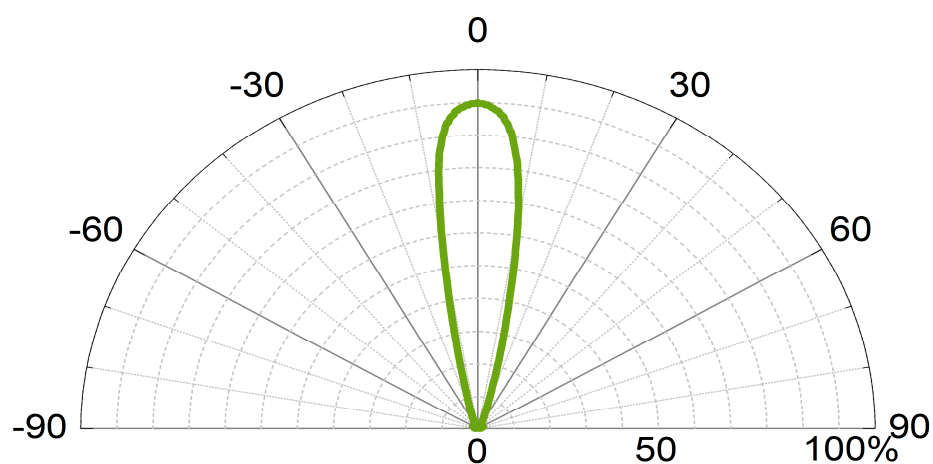
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Data Sheet**Preliminary**

page 2 of 3

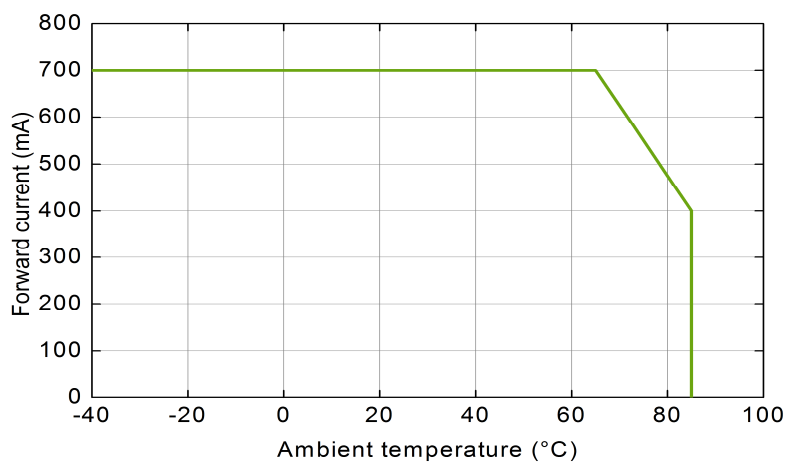
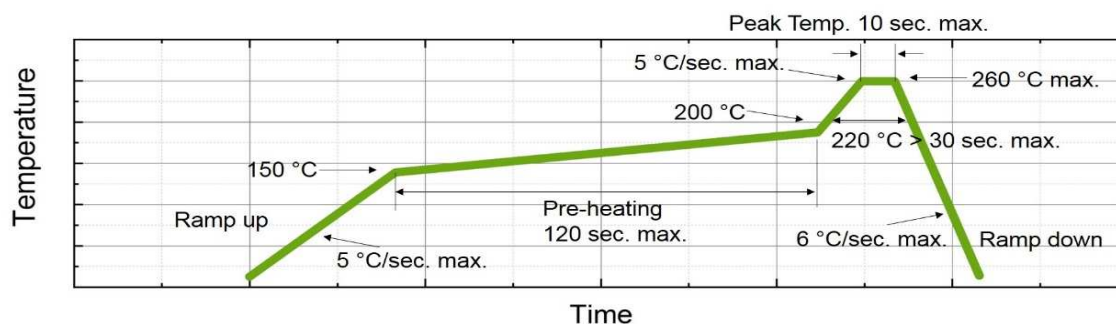
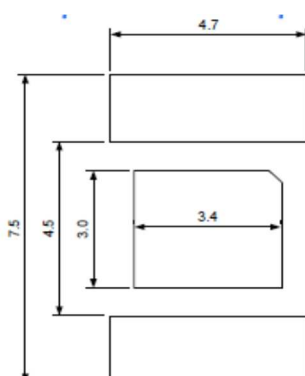
High Power LED**EOLS-680-227**

Rev. 04, 2018

**Typical radiation spectrum at 350 mA****Radiation pattern**

Data Sheet**Preliminary****page 3 of 3****High Power LED****EOLS-680-227**

Rev. 04, 2018

**Max. forward current vs. ambient temperature****Recommended reflow soldering profile****Recommended soldering pad**

Thermal pad needs to be connected to a heat sink with less than 10 K/W thermal resistance.

Art. No. 133 170



Data Sheet

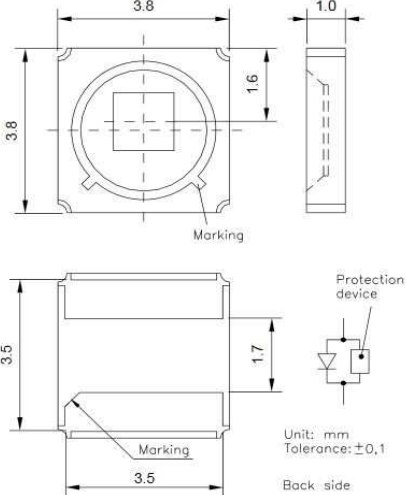
page 1 of 3

Deep Red SMD-LED

EOLS-690-496

Rev. 01, 2017

Radiation	Type	Case
Deep red	AlGaAs/AlGaAs	SMD 3838 (1515)

	 Description: - Size 3.8 (W) x 3.8 (L) x 1.0 (H) mm - Circuit substrate: AlN ceramics - Devices are RoHS conform - Lead free solderable, soldering pads: silver plated - Marking at cathode
--	---

Maximum Ratings

T_{amb} = 25°C, unless otherwise specified

Parameter	Test conditions	Symbol	Value	Unit
Forward current		I _F	350	mA
Peak forward current	t _p ≤ 100 μs, τ = 1:10	I _{FM}	350	mA
Reverse voltage		V _R	5	V
Reverse current		I _R	100	μA
Operating temperature range		T _{amb}	-40 to +85	°C
Storage temperature range		T _{stg}	-40 to +85	°C
Thermal resistance		R _{thJA}	10	K/W

Optical and Electrical Characteristics

T_{amb} = 25°C, unless otherwise specified

Parameter	Symbol	Conditions	Min	typ	max	Unit
Forward voltage	V _F	I _F = 350 mA		1.95	2.2	V
Radiant intensity	I _e	I _F = 350 mA		17		mW/sr
Radiant power	Φ _e	I _F = 350 mA		45		mW
Peak wavelength	λ _p	I _F = 350 mA	680	690	700	nm
FWHM	Δλ _{0,5}	I _F = 350 mA		25		nm



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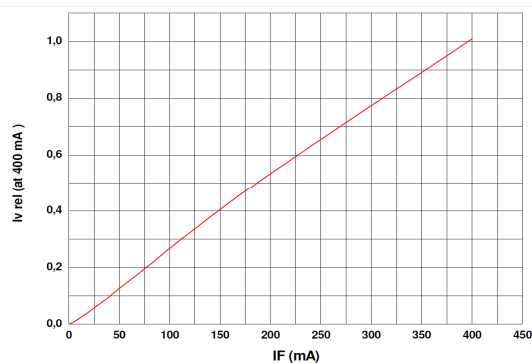
Data Sheet

Deep Red SMD-LED

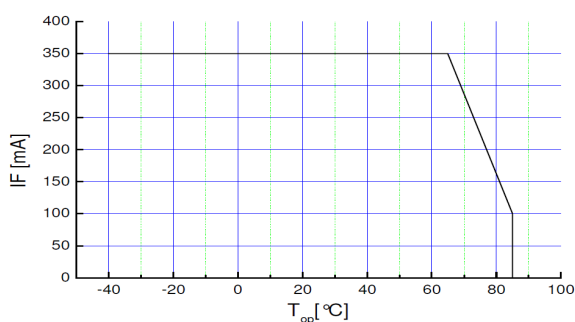
EOLS-690-496

page 2 of 3

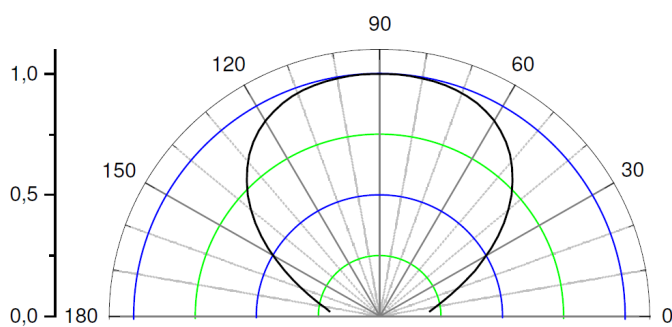
Rev. 01, 2017



Intensity vs. Forward Current



Forward Current vs. Operating Temperature



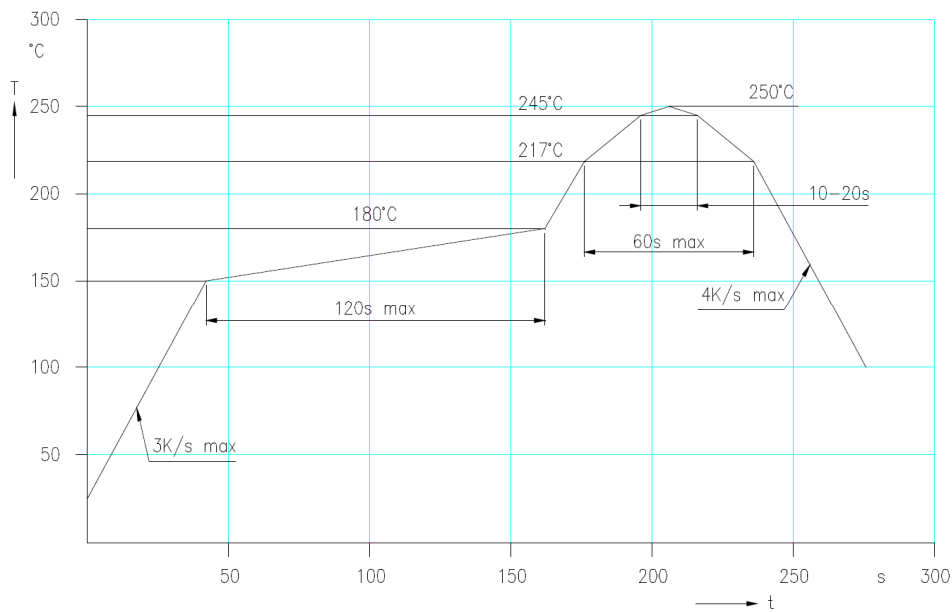
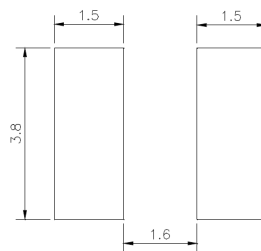
View Angle



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Data Sheet**page 3 of 3****Deep Red SMD-LED****EOLS-690-496**

Rev. 01, 2017

IR reflow soldering
profile for lead free
solderingrecommended max. thermal resistance
device—ambient: 20 K/W**Recommended Soldering Pattern****Manual soldering:**

max power of iron 25 W / 3 s / 300 °C

Art. No. 133 181

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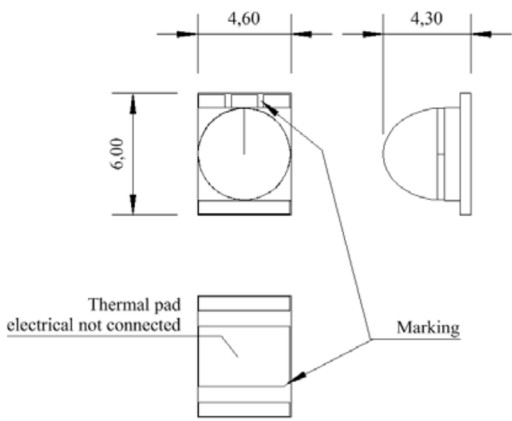
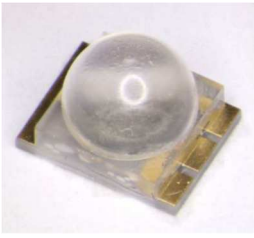
Data Sheet

page 1 of 4

High Power SMD LED**EOLS-700-227**

Rev. 04, 2020

Radiation	Type	Case
Deep red	AlGaAs	SMD 6046 (2418), ceramics

 All dimensions in mm	
	Description: - size: 6.0(L) x 4.6(W) x 4.3(H) mm - high pulse current up to 1000 mA - with lens, view angle 20° - soldering pads: gold plated; only for reflow soldering - marking at anode

Maximum Ratings $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test conditions	Symbol	Value	Unit
Forward current		I_F	700	mA
Peak forward current	$t_p \leq 100 \mu\text{s}$, $\tau=1:10$	I_{FM}	1000	mA
Reverse voltage		V_R	5	V
Thermal resistance		R_{th_JA}	5	K/W
Operating temperature range		T_{amb}	-40 to +85	$^{\circ}\text{C}$
Storage temperature range		T_{stg}	-40 to +85	$^{\circ}\text{C}$

Electrostatic discharge classification (MIL-STD-883) - class 1

Optical and Electrical Characteristics $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Symbol	Conditions	Min	typ	max	Unit
Forward voltage	V_F	$I_F = 350 \text{ mA}$		1.8	2.2	V
Radiant power*	Φ_e	$I_F = 350 \text{ mA}$		36		mW
Radiant intensity*	I_e	$I_F = 350 \text{ mA}$		125		mW/sr
Peak wavelength	λ_p	$I_F = 350 \text{ mA}$	690	700	710	nm
FWHM	$\Delta\lambda_{0.5}$	$I_F = 350 \text{ mA}$		23		nm
Reverse current	I_R	$I_R = 5 \text{ V}$			100	μA

*measured on star board



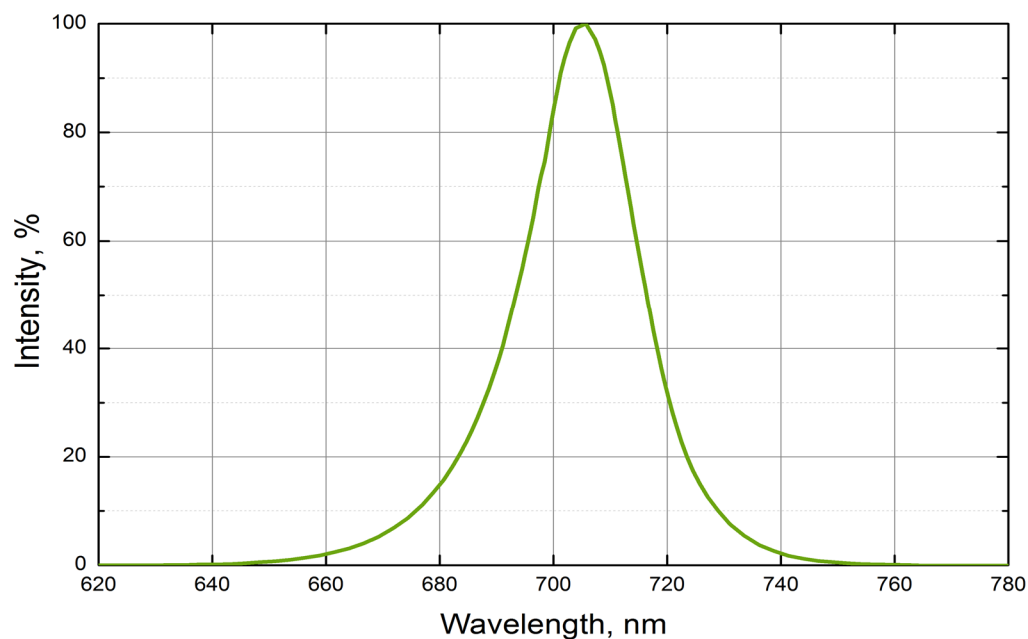
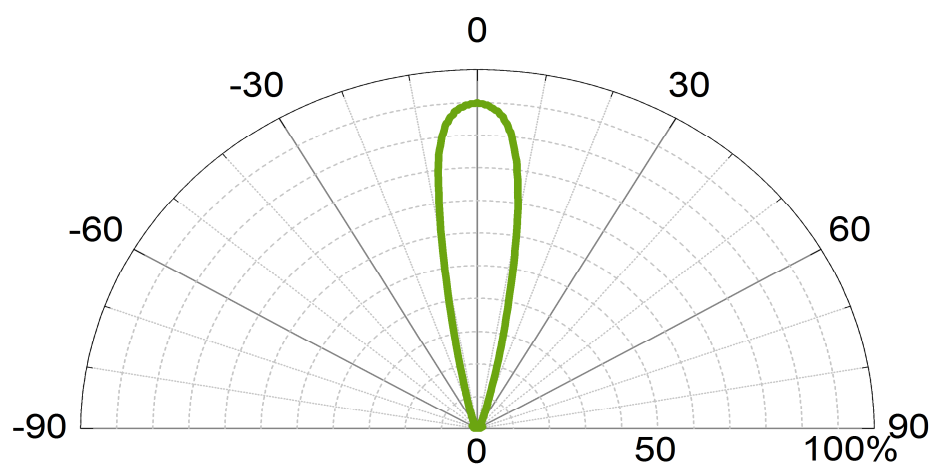
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Data Sheet

page 2 of 4

High Power SMD LED**EOLS-700-227**

Rev. 04, 2020

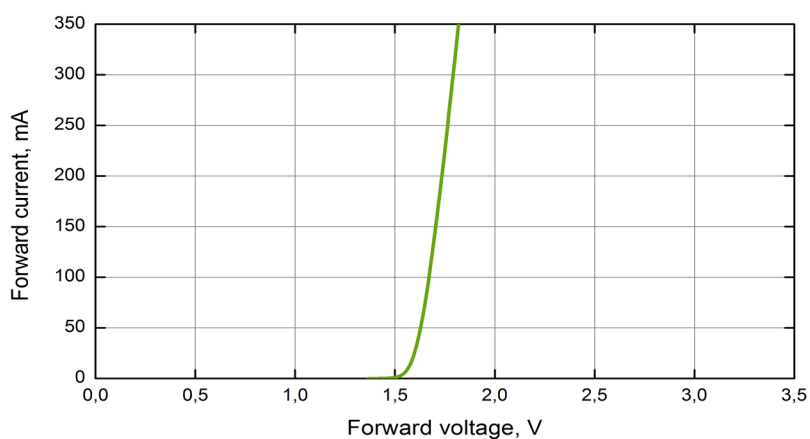
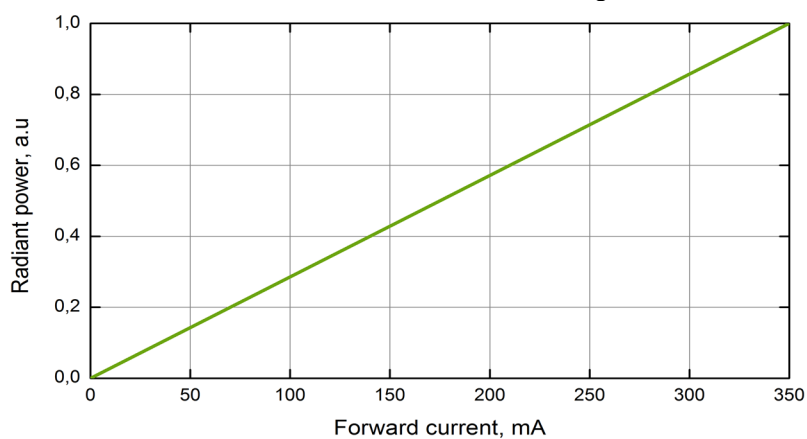
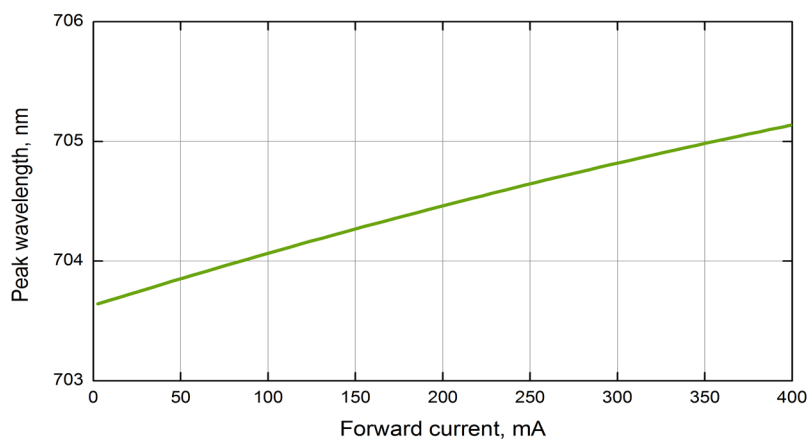
**Typical radiation spectrum at 350 mA****Radiation pattern**

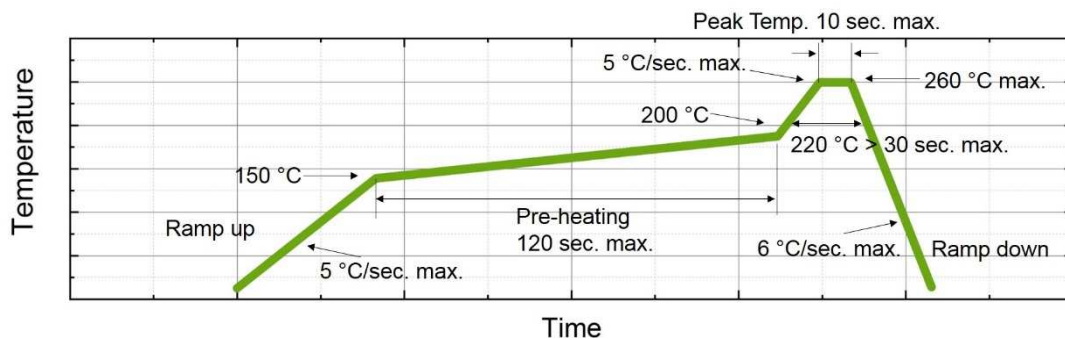
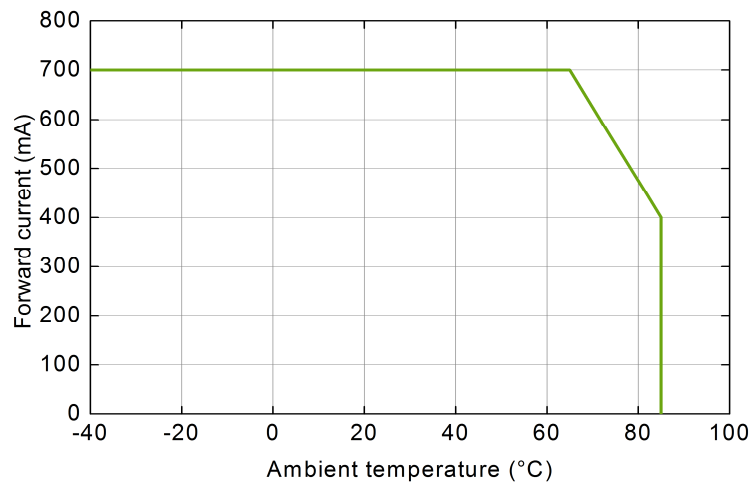
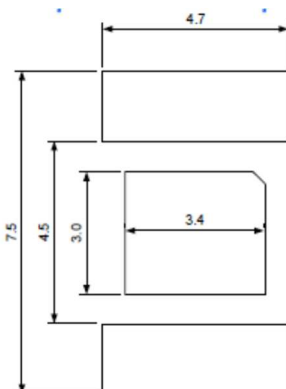
Data Sheet

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High Power SMD LED**EOLS-700-227**

Rev. 04, 2020

**Forward current vs. forward voltage****Radiant power vs. forward current****Peak wavelength vs. forward current**

Data Sheet**High Power SMD LED****EOLS-700-227**page 4 of 4
Rev. 04, 2020**Recommended reflow soldering profile****Recommended soldering pad**

Thermal pad needs to be connected to a heat sink with less than 10 K/W thermal resistance.

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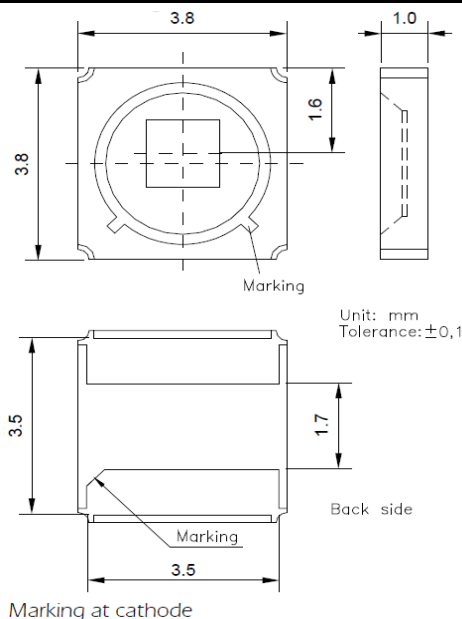
Infrared SMD-LED

EOLS-700-496

page 1 of 4

Rev. 03, 2017

Radiation	Type	Case
deep red - infrared	AlGaAs	SMD 3838 (1515)

 Unit: mm Tolerance: $\pm 0,1$ Marking at cathode	 Description: - Size 3.8 (W) x 3.8 (L) x 1.0 (H) mm - Circuit substrate: AlN ceramics - Devices are RoHS conform - Lead free solderable, soldering pads: silver plated - High radiation intensity
--	---

Maximum Ratings

 $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified


Parameter	Test conditions	Symbol	Value	Unit
Forward current		I_F	350	mA
Peak forward current	$t_p \leq 100 \mu\text{s}$, $\tau=1:10$	I_{FM}	500	mA
Reverse current	$V_R=5 \text{ V}$	I_R	100	μA
Reverse voltage	$I_R=100 \mu\text{A}$	V_R	5	V
Storage and operating temp. range		T_{stg}	-40 to +85	$^{\circ}\text{C}$
Thermal resistance		R_{thJA}	10	K/W

Optical and Electrical Characteristics

 $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Symbol	Conditions	Min	typ	max	Unit
Forward voltage	V_F	$I_F=350 \text{ mA}$		1.9	2.2	V
Radiant power	Φ_e	$I_F=350 \text{ mA}$		36		mW
Radiant Intensity	I_e	$I_F=350 \text{ mA}$	10	15		mW/sr
Peak wavelength	λ_p	$I_F=350 \text{ mA}$	690	700	710	nm
FWHM	$\Delta\lambda_{0.5}$	$I_F=350 \text{ mA}$		23		nm
Rise and fall time	V_F	$I_F=350 \text{ mA}$		40	160	ns

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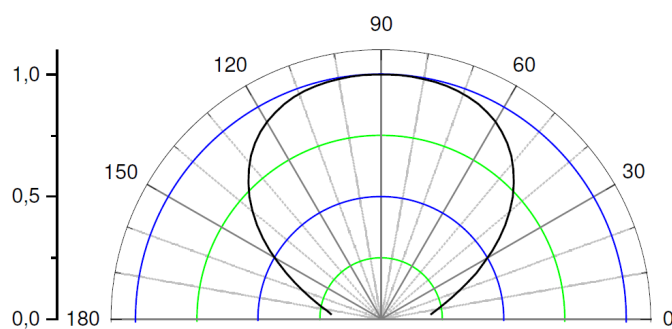
Data Sheet

Infrared SMD-LED

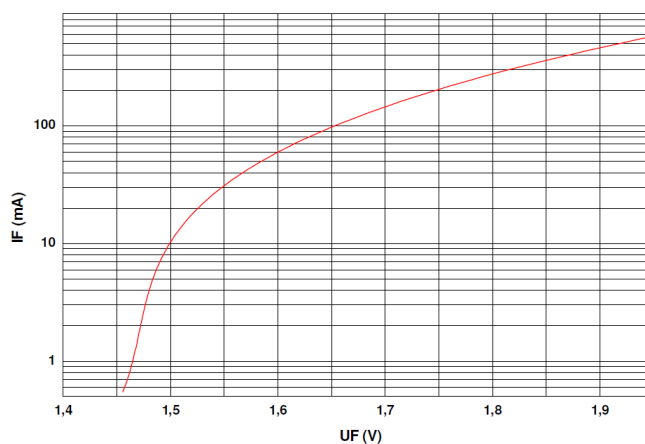
EOLS-700-496

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Rev. 03, 2017

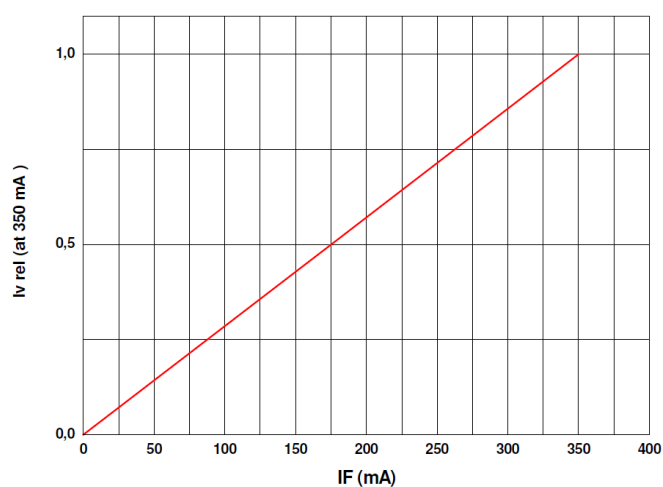
Radiation pattern



$I_F - U_F$ characteristic



$I_{e, rel} - I_F$ characteristic



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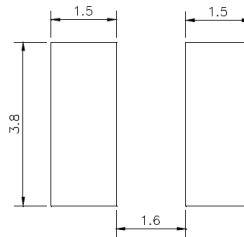
Data Sheet

Infrared SMD-LED

EOLS-700-496

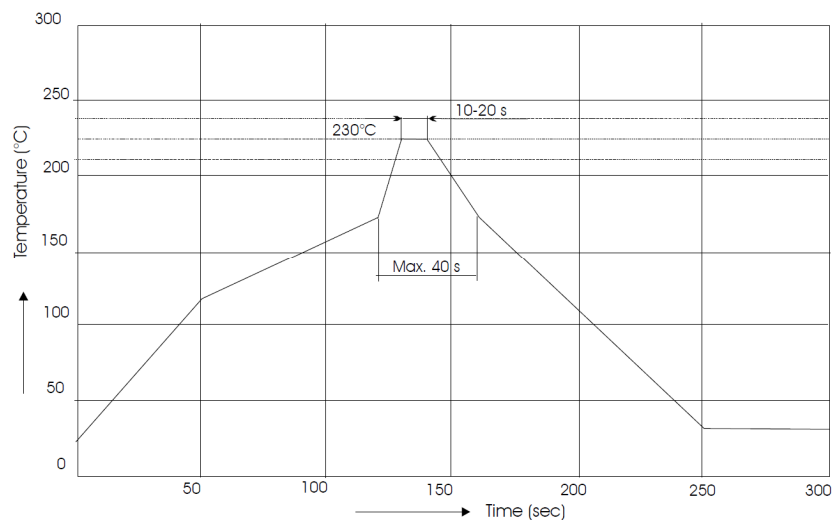
page 3 of 4
Rev. 03, 2017

Recommended Soldering Patterns

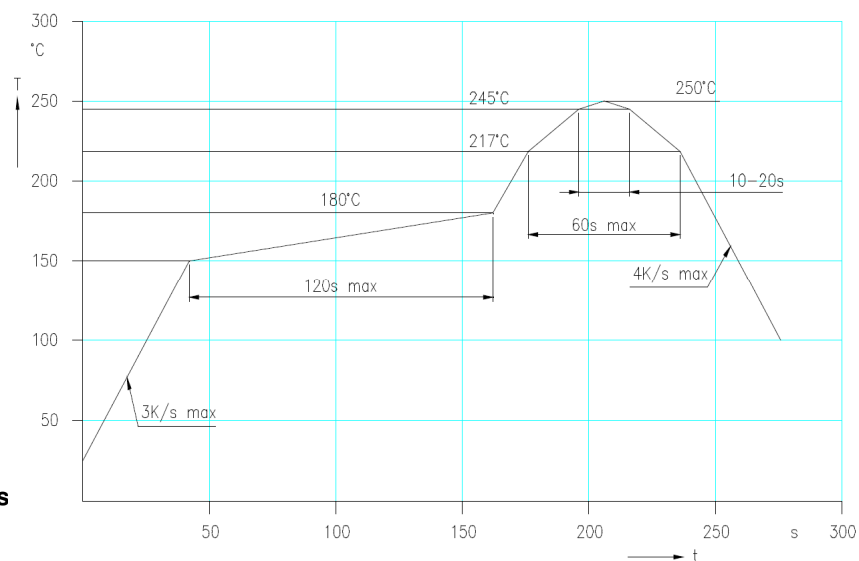


recommended max. thermal resistance
device-ambient: 20 K/W

IR reflow soldering profile



IR reflow soldering profile for lead free soldering



Manual soldering:
max power of iron 25 W / 3 s
300°C

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All operating parameters must be validated for each customer application by the customer.

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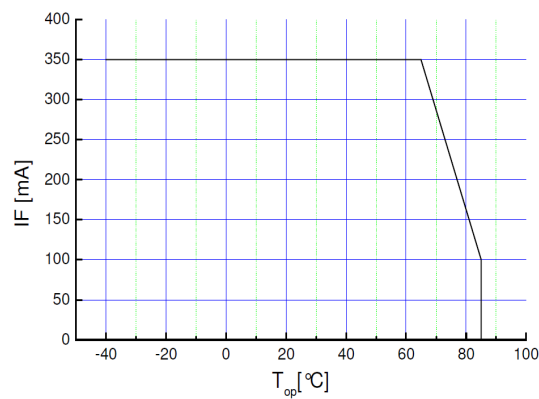
Infrared SMD-LED

EOLS-700-496

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Rev. 03, 2017

Measured according to CIE 127. All SMD-LEDs are 100% measured and selected on full automated equipment with an accuracy of $\pm 11\%$.

**Maximal
forward
current (DC)
characteristic**



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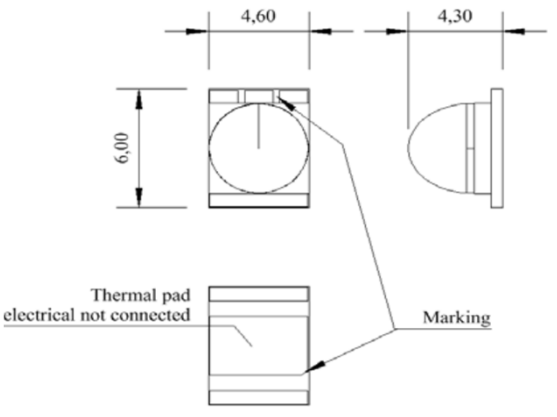
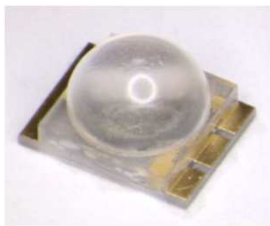
Data Sheet

page 1 of 3

High Power SMD LED**EOLS-720-227**

Rev. 01, 2017

Radiation	Type	Case
Deep red	AlGaAs	SMD 6046 (2418), ceramics

 Thermal pad electrical not connected Marking	 Description: - size: 6.0(L) x 4.6(W) x 4.3(H) mm - high pulse current up to 1000 mA - with lens, view angle 20° - soldering pads: gold plated; only for reflow soldering - marking at anode
---	---

Maximum RatingsT_{amb} = 25°C, unless otherwise specified

Parameter	Test conditions	Symbol	Value	Unit
Forward current		I _F	700	mA
Peak forward current	t _p ≤ 100 μs, τ=1:10	I _{FM}	1000	mA
Reverse voltage		V _R	5	V
Thermal resistance		R _{th_JA}	5	K/W
Operating temperature range		T _{amb}	-40 to +85	°C
Storage temperature range		T _{stg}	-40 to +85	°C

Electrostatic discharge classification (MIL-STD-883) - class 1

Optical and Electrical CharacteristicsT_{amb} = 25°C, unless otherwise specified

Parameter	Symbol	Conditions	Min	typ	max	Unit
Forward voltage	V _F	I _F = 350 mA		1.8	2.2	V
Radiant power*	Φ _e	I _F = 350 mA		42		mW
Radiant intensity*	I _e	I _F = 350 mA		125		mW/sr
Peak wavelength	λ _p	I _F = 350 mA	710	720	720	nm
FWHM	Δλ _{0.5}	I _F = 350 mA		25		nm
Reverse current	I _R	I _R = 5 V			100	μA

*measured on star board



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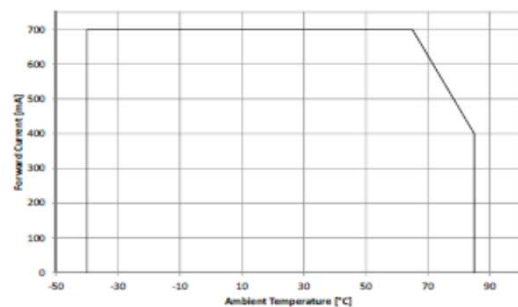
Data Sheet

page 2 of 3

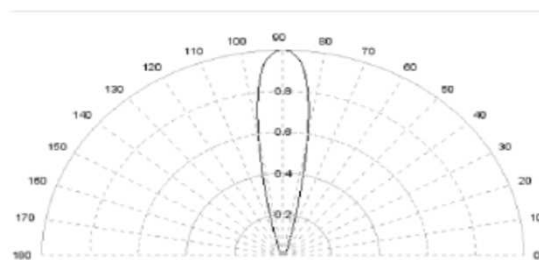
High Power SMD LED

EOLS-720-227

Rev. 01, 2017



Max. Forward Current vs. Ambient Temperature
Max. Flussstrom über Umgebungstemperatur



View Angle
Abstrahlung



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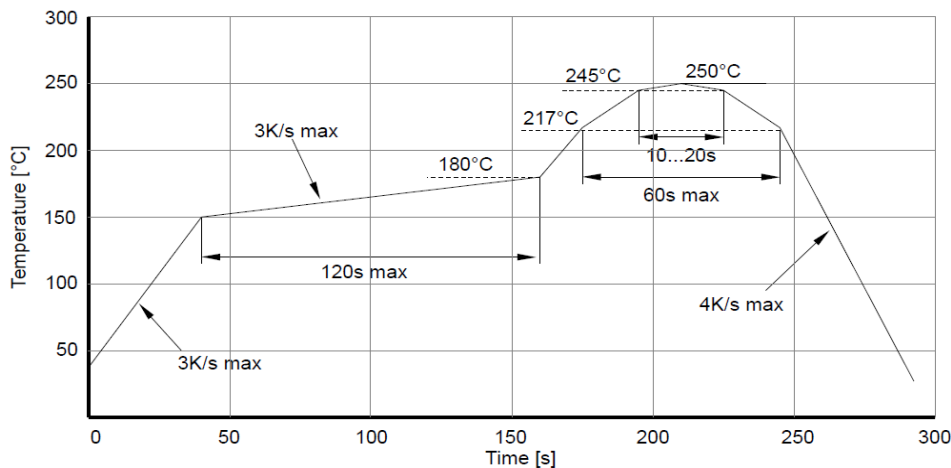
Data Sheet

page 3 of 3

High Power SMD LED

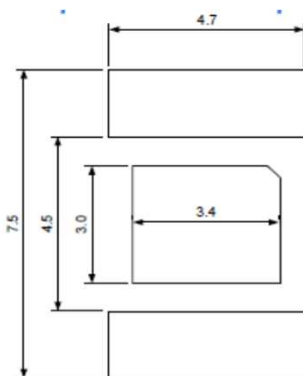
EOLS-720-227

Rev. 01, 2017



IR reflow soldering
profile for lead free
soldering

IR Reflow
Lötprozess für
bleifreies Lot



Recommended soldering pad

Thermal pad needs to be connected to a heat sink
with less than 10K/W thermal resistance.

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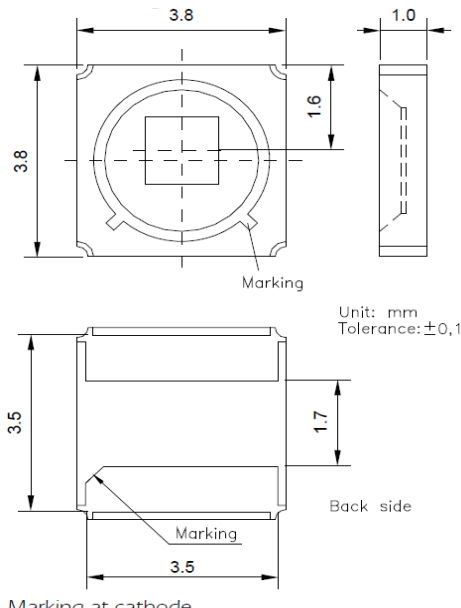
Data Sheet

page 1 of 4

Infrared SMD-LED**EOLS-740-496**

Rev. 03, 2017

Radiation	Type	Case
Infrared	AlGaAs	SMD 3838 (1515)

 The drawing shows the top and back views of the LED. The top view is a square with dimensions 3.8 mm by 3.8 mm. The back view shows a square with dimensions 3.5 mm by 3.5 mm. The height is 1.0 mm. The drawing includes a marking at the cathode and a marking at the anode. The unit is mm and the tolerance is ±0,1.	 A photograph of the LED component, showing its square shape and the internal circuitry.
Description:	
- Size 3.8 (W) x 3.8 (L) x 1.0 (H) mm - Circuit substrate: AlN ceramics - Devices are RoHS conform - Lead free solderable, soldering pads: silver plated - High radiation intensity	

Maximum Ratings $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test conditions	Symbol	Value	Unit
Forward current		I_F	350	mA
Peak forward current	$t_p \leq 100 \mu\text{s}$, $\tau=1:10$	I_{FM}	500	mA
Reverse current	$V_R=5 \text{ V}$	I_R	100	μA
Reverse voltage	$I_R=100 \mu\text{A}$	V_R	5	V
Storage and operating temp. range		T_{stg}	-40 to +85	$^{\circ}\text{C}$
Thermal resistance		R_{thJA}	10	K/W

Optical and Electrical Characteristics $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Symbol	Conditions	Min	typ	max	Unit
Forward voltage	V_F	$I_F=350 \text{ mA}$		1.9	2.2	V
Radiant power	Φ_e	$I_F=350 \text{ mA}$		42		mW
Radiant Intensity	I_e	$I_F=350 \text{ mA}$	10	15		mW/sr
Peak wavelength	λ_p	$I_F=350 \text{ mA}$	730	740	750	nm
FWHM	$\Delta\lambda_{0.5}$	$I_F=350 \text{ mA}$		25		nm
Rise and fall time	V_F	$I_F=350 \text{ mA}$		40	160	ns

We reserve the right to make changes to improve technical design and may do so without further notice. Parameters can vary in different applications. All operating parameters must be validated for each customer application by the customer.



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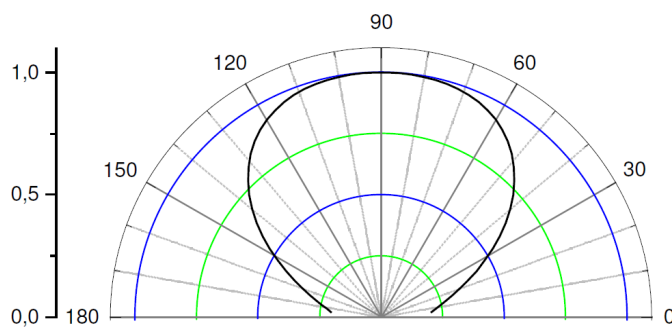
Data Sheet

Infrared SMD-LED

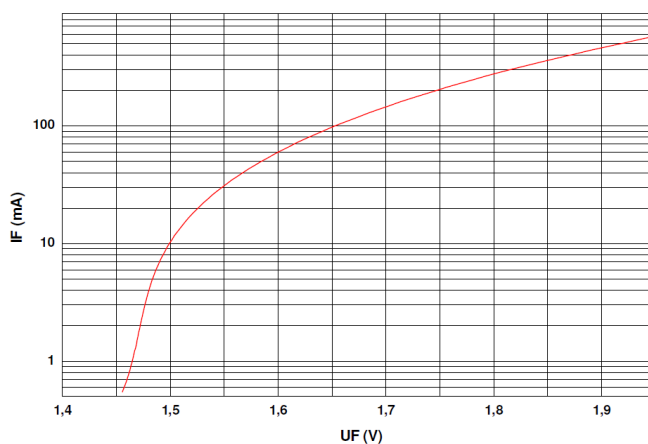
EOLS-740-496

page 2 of 4
Rev. 03, 2017

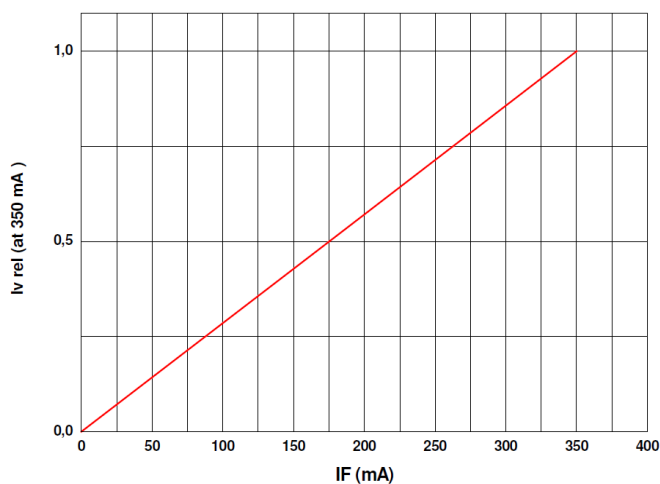
Radiation pattern



$I_F - U_F$ characteristic



$I_{e, rel} - I_F$ characteristic



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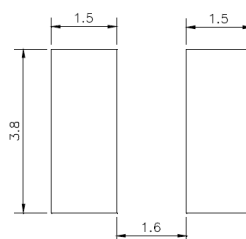
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Infrared SMD-LED

EOLS-740-496

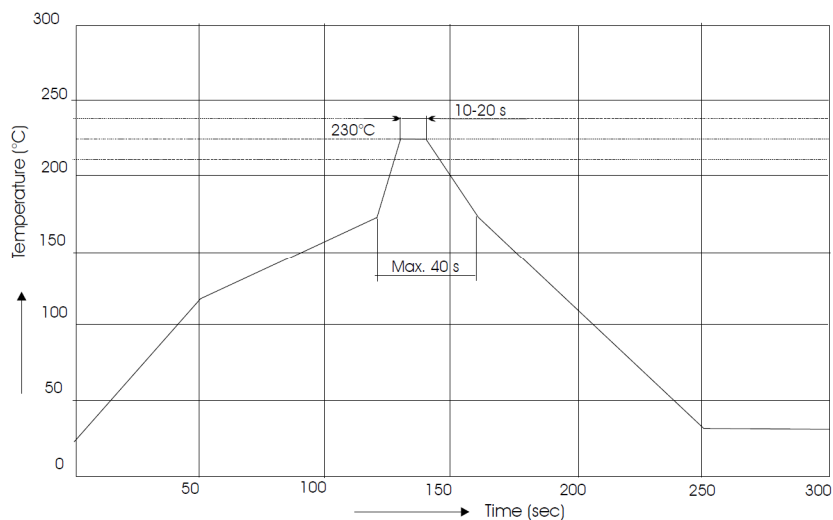
page 3 of 4
Rev. 03, 2017

Recommended Soldering Patterns

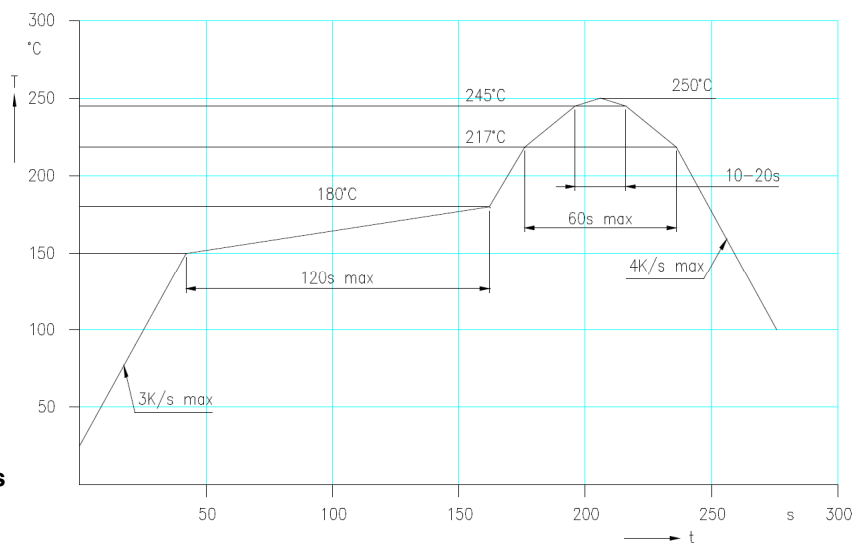


recommended max. thermal resistance
device-ambient: 20 K/W

IR reflow soldering profile



IR reflow soldering profile for lead free soldering



Manual soldering:
max power of iron 25 W / 3 s
300°C

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Data Sheet

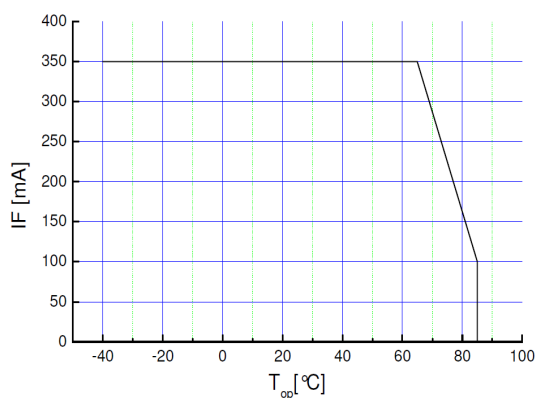
Infrared SMD-LED

EOLS-740-496

page 4 of 4
Rev. 03, 2017

Measured according to CIE 127. All SMD-LEDs are 100% measured and selected on full automated equipment with an accuracy of $\pm 11\%$.

**Maximal
forward
current (DC)
characteristic**



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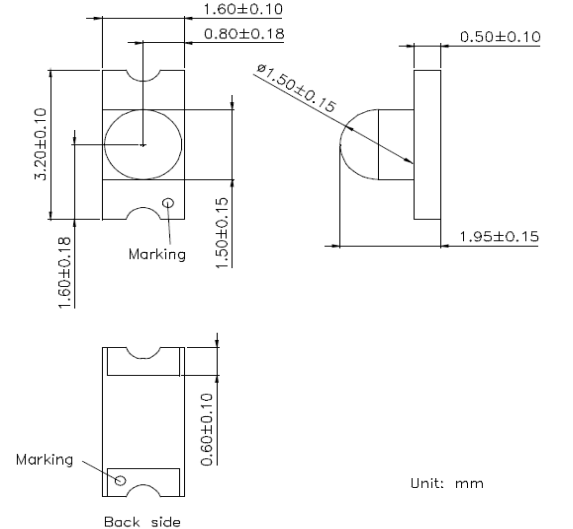
Data Sheet

page 1 of 3

Infrared SMD-LED**EOLS-740-843**

Rev. 02, 2017

Radiation	Type	Case
near infrared	AGaAs	SMD 3216 (1206), with lens

 Unit: mm	 Description: - Size 1206: 3.2 (L) x 1.6 (W) x 1.95 (H) mm - Circuit substrate: glass laminated epoxy - Devices are RoHS conform - Lead free solderable, soldering pads: gold plated - Marking at anode
--	---

Maximum Ratings $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test Conditions	Symbol	Value	Unit
Peak forward current	$t_p \leq 100 \mu\text{s}$, $\tau = 1:10$	I_{FP}	150	mA
Continuous forward current		I_F	30	mA
Reverse voltage		V_R	5	V
Operating temperature range		T_{amb}	-40 to +85	$^{\circ}\text{C}$
Storage temperature range		T_{stg}	-55 to +85	$^{\circ}\text{C}$
Thermal resistance		R_{thJA}	450	K/W

Optical and Electrical Characteristics $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Forward voltage	V_F	$I_F = 30 \text{ mA}$		1.7	2	V
Reverse current	I_R	$V_R = 5 \text{ V}$			100	μA
Radiant power	Φ_e	$I_F = 30 \text{ mA}$		10		mW
Radiant intensity	I_e	$I_F = 30 \text{ mA}$	3.2	6		mW/sr
Peak wavelength	λ_p	$I_F = 30 \text{ mA}$	730	740	750	nm
Spectral bandwidth	$\Delta\lambda_{0.5}$	$I_F = 30 \text{ mA}$		40		nm
Viewing angle	ϕ	$I_F = 30 \text{ mA}$		40		deg
Rise and fall time	t_r, t_f	$I_F = 30 \text{ mA}$		40	160	ns

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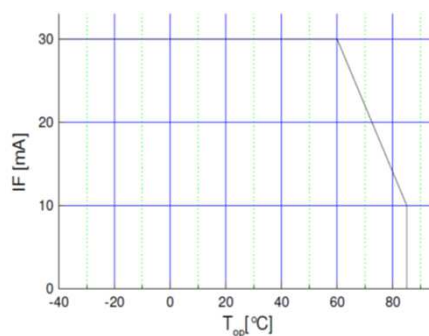
Infrared SMD-LED

EOLS-740-843

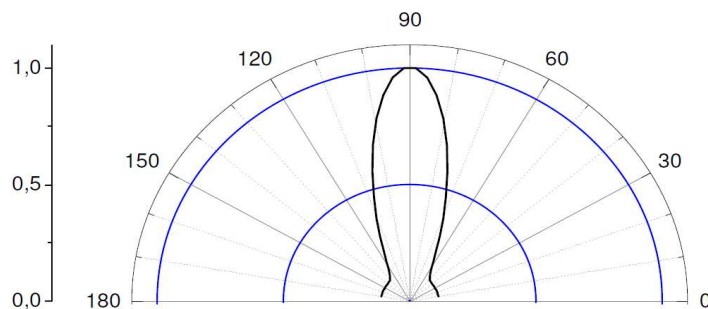
page 2 of 3

Rev. 02, 2017

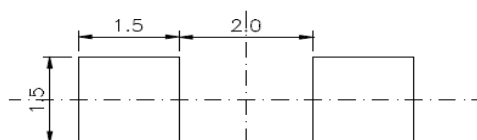
**Maximal
forward
current (DC)
characteristic**



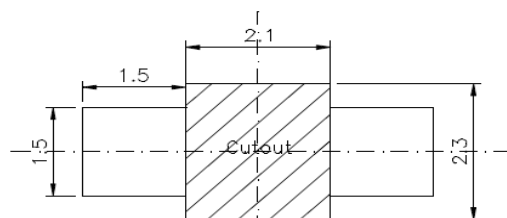
Radiation pattern



Recommended Soldering Patterns



Pad TU



Pad TD

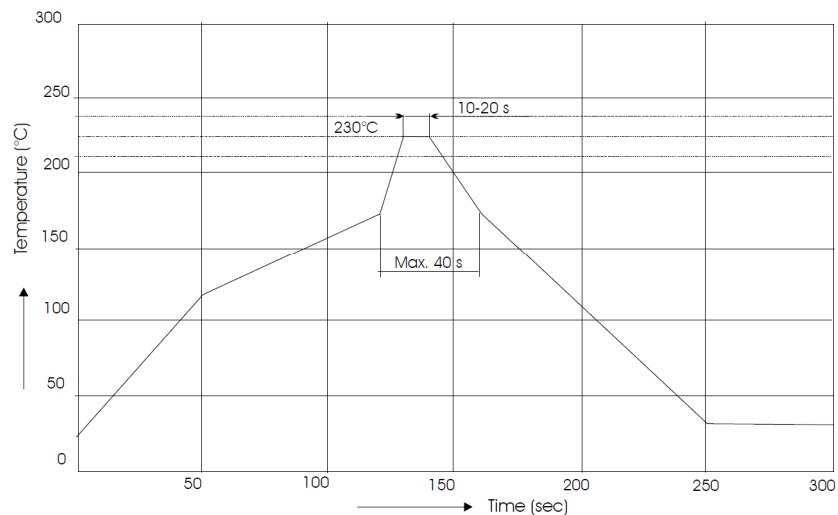
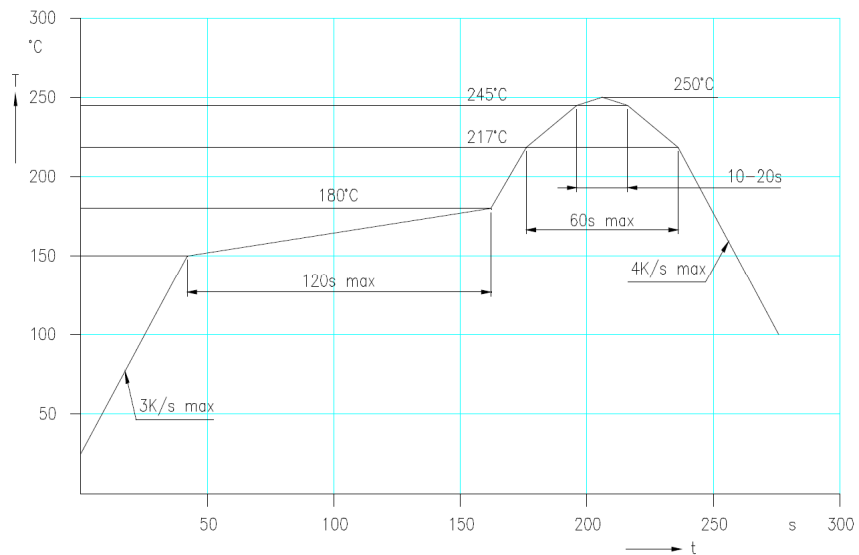


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**Data Sheet****Infrared SMD-LED****EOLS-740-843**

page 3 of 3

Rev. 02, 2017

**IR reflow
soldering
profile****IR reflow
soldering
profile for lead
free soldering**

Manual soldering:
max power of iron 25 W / 3 s /
300°C

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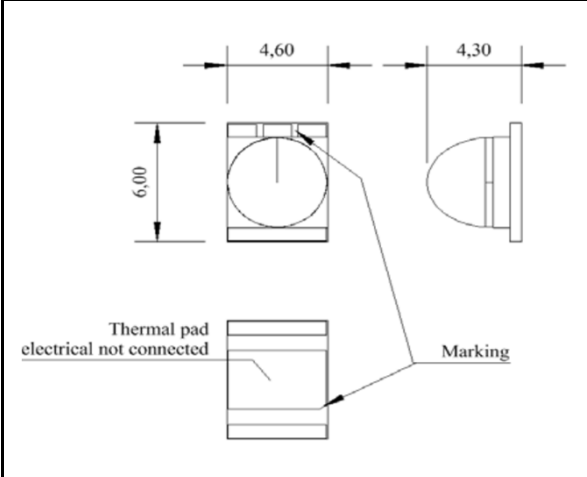
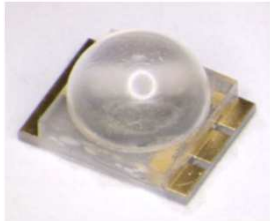
Data Sheet

page 1 of 3

High Power LED**EOLS-760-227**

Rev. 02, 2016

Radiation	Type	Case
Infrared	AlGaAs	SMD 6046 (2418), ceramics

 Thermal pad electrical not connected Marking	 Description: - size: 6.0(L) x 4.6(W) x 4.3(H) mm - high pulse current up to 1000 mA - with lens, view angle 20° - soldering pads: gold plated; only for reflow soldering - marking at anode
---	--

Maximum Ratings $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test conditions	Symbol	Value	Unit
Forward current		I_F	500	mA
Peak forward current	$t_p \leq 100 \mu\text{s}$, $\tau=1:10$	I_{FM}	1000	mA
Reverse voltage		V_R	5	V
Thermal resistance		R_{th_JA}	5	K/W
Operating temperature range		T_{amb}	-40 to +85	$^{\circ}\text{C}$
Storage temperature range		T_{stg}	-40 to +85	$^{\circ}\text{C}$

Electrostatic discharge classification (MIL-STD-883) - class 1

Optical and Electrical Characteristics $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Symbol	Conditions	Min	typ	max	Unit
Forward voltage	V_F	$I_F = 350 \text{ mA}$		1.7	2.0	V
Radiant intensity	Φ_e	$I_F = 350 \text{ mA}$		44		mW
Radiant intensity	I_e	$I_F = 350 \text{ mA}$	70	160		mW/sr
Peak wavelength	λ_p	$I_F = 350 \text{ mA}$	750	760	770	nm
FWHM	$\Delta\lambda_{0.5}$	$I_F = 350 \text{ mA}$		29	50	nm
Reverse current	I_R	$I_R = 5 \text{ V}$			100	μA



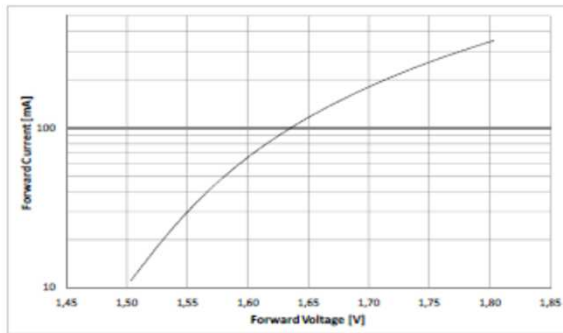
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Data Sheet

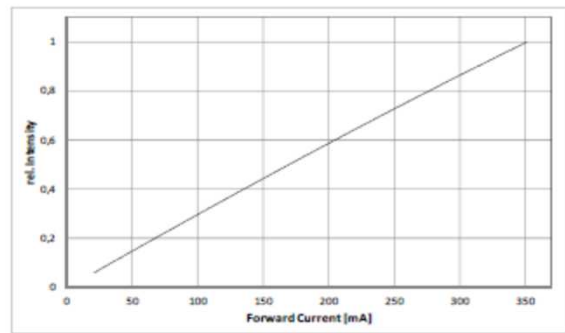
page 2 of 3

High Power LED**EOLS-760-227**

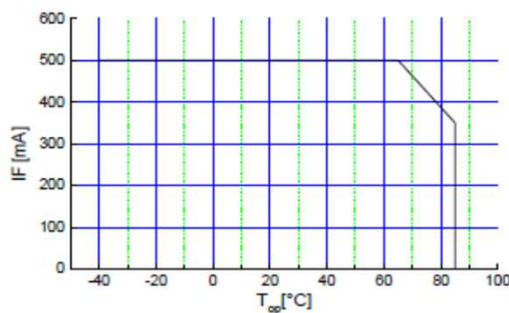
Rev. 02, 2016



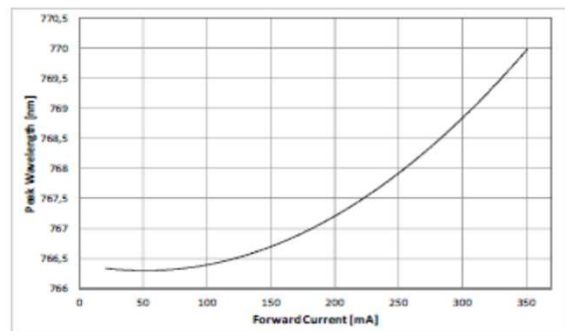
Forward Current vs. Forward Voltage
Flussstrom über Flussspannung



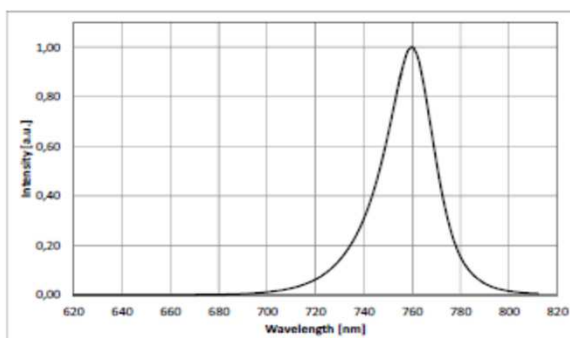
Intensity vs. Forward Current
Strahlstärke über Flussstrom



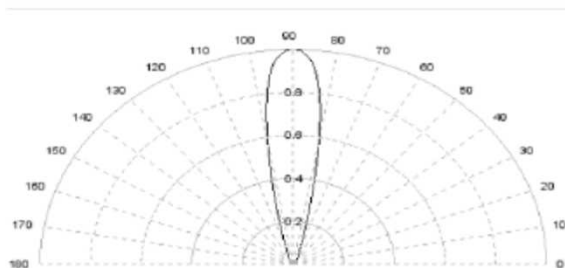
Max. Forward Current vs. Ambient Temperature
Max. Flussstrom über Umgebungstemperatur



Forward Current vs. Shift Peak Wavelength
Flussstrom gegen Verschiebung der Wellenlänge



Spectrum @ 350mA
Spektrum

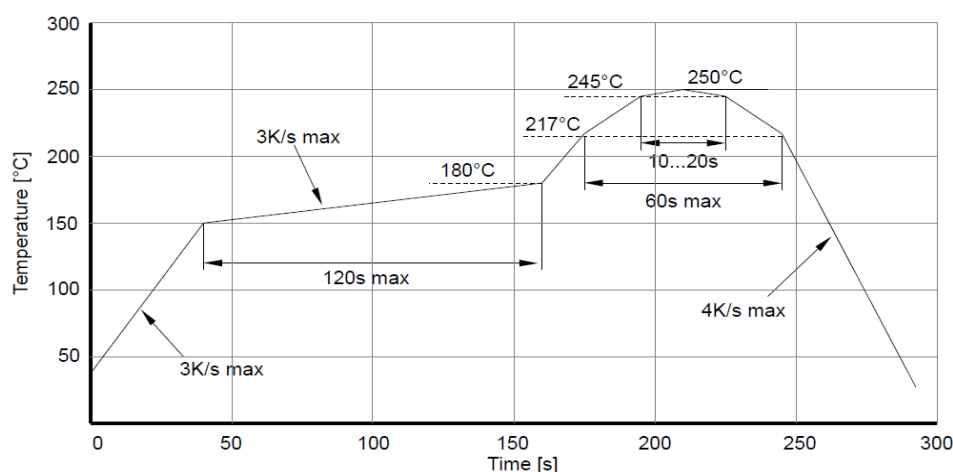
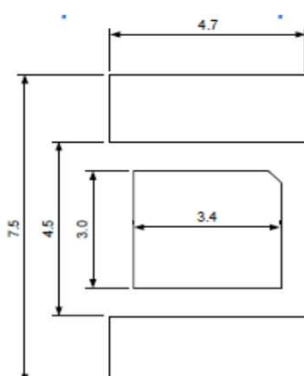


View Angle
Abstrahlung



Data Sheet**page 3 of 3****High Power LED****EOLS-760-227**

Rev. 02, 2016

IR reflow soldering
profile for lead free
solderingIR Reflow
Lötprozess für
bleifreies Lot

Recommended soldering pad

Thermal pad needs to be connected to a heat sink
with less than 10K/W thermal resistance.

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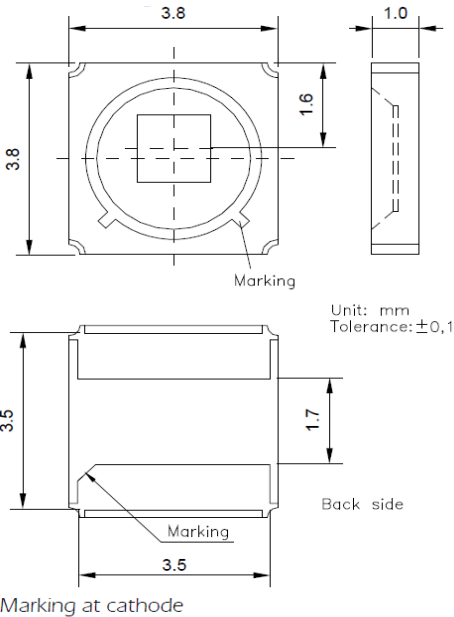
Data Sheet

page 1 of 4

Infrared SMD-LED**EOLS-765-496**

Rev. 01, 2017

Radiation	Type	Case
Infrared	AlGaAs	SMD 3838 (1515)

 Unit: mm Tolerance: $\pm 0,1$ Marking at cathode	 Description: - Size 3.8 (W) x 3.8 (L) x 1.0 (H) mm - Circuit substrate: AlN ceramics - Devices are RoHS conform - Lead free solderable, soldering pads: silver plated - High radiation intensity
--	---

Maximum Ratings $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test conditions	Symbol	Value	Unit
Forward current		I_F	350	mA
Peak forward current	$t_p \leq 100 \mu\text{s}$, $\tau=1:10$	I_{FM}	500	mA
Reverse current	$V_R=5 \text{ V}$	I_R	100	μA
Reverse voltage	$I_R=100 \mu\text{A}$	V_R	5	V
Storage and operating temp. range		T_{stg}	-40 to +85	$^{\circ}\text{C}$
Thermal resistance		R_{thJA}	10	K/W

Optical and Electrical Characteristics $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Symbol	Conditions	Min	typ	max	Unit
Forward voltage	V_F	$I_F=350 \text{ mA}$		1.7	2.2	V
Radiant power	Φ_e	$I_F=350 \text{ mA}$		44		mW
Radiant Intensity	I_e	$I_F=350 \text{ mA}$	10	15		mW/sr
Peak wavelength	λ_p	$I_F=350 \text{ mA}$	755	765	775	nm
FWHM	$\Delta\lambda_{0,5}$	$I_F=350 \text{ mA}$		29		nm

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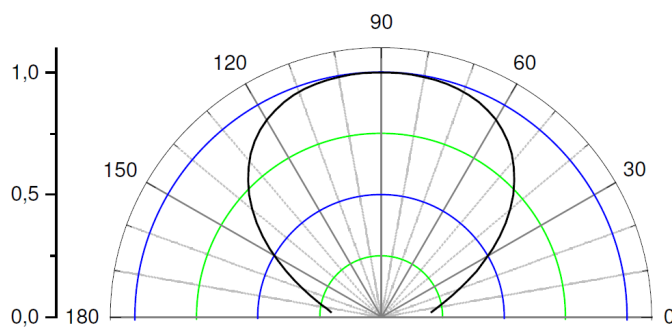
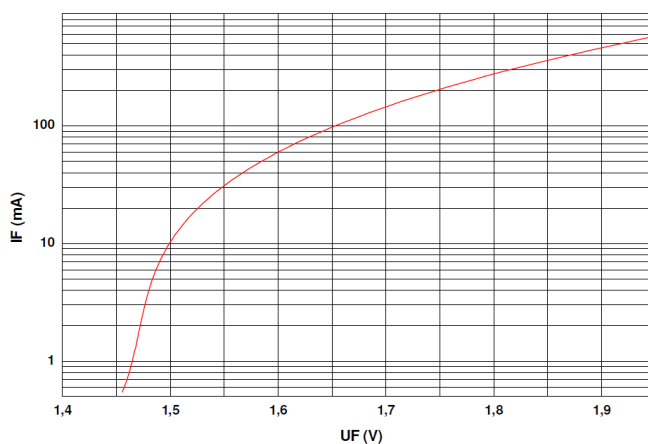
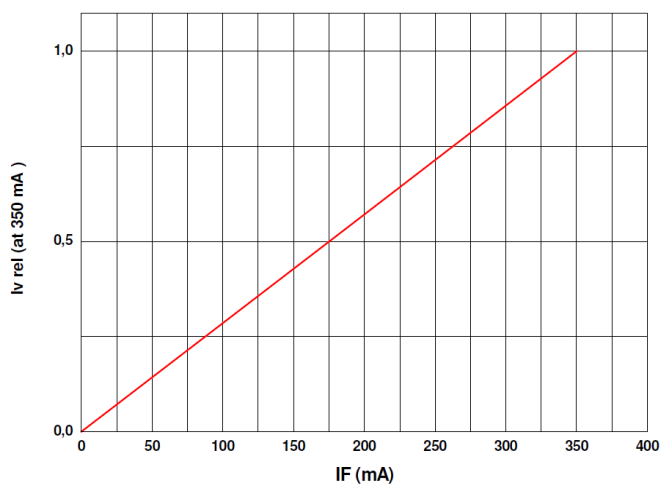
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Data Sheet**Infrared SMD-LED****EOLS-765-496**

page 2 of 4

Rev. 01, 2017

Radiation pattern **$I_F - U_F$
characteristic** **$I_{e, rel} - I_F$
characteristic**

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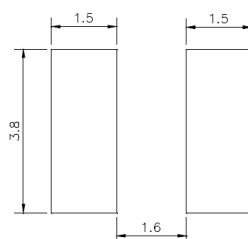
Data Sheet

Infrared SMD-LED

EOLS-765-496

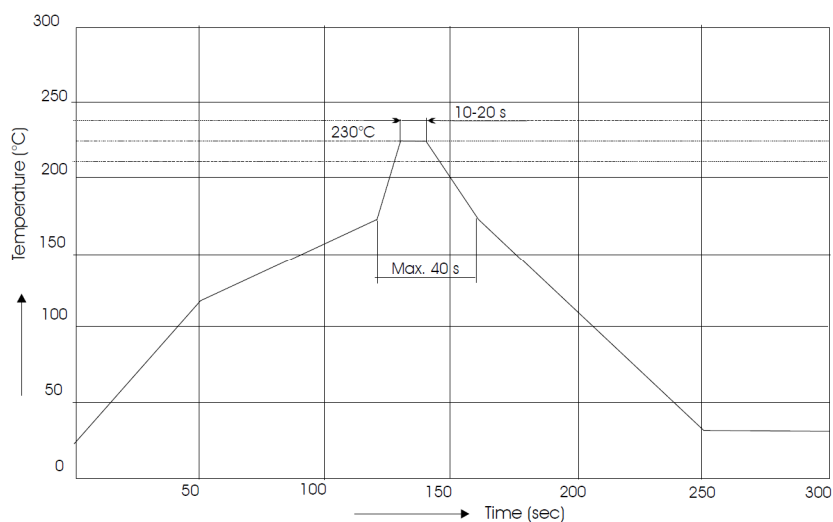
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Rev. 01, 2017

Recommended Soldering Patterns

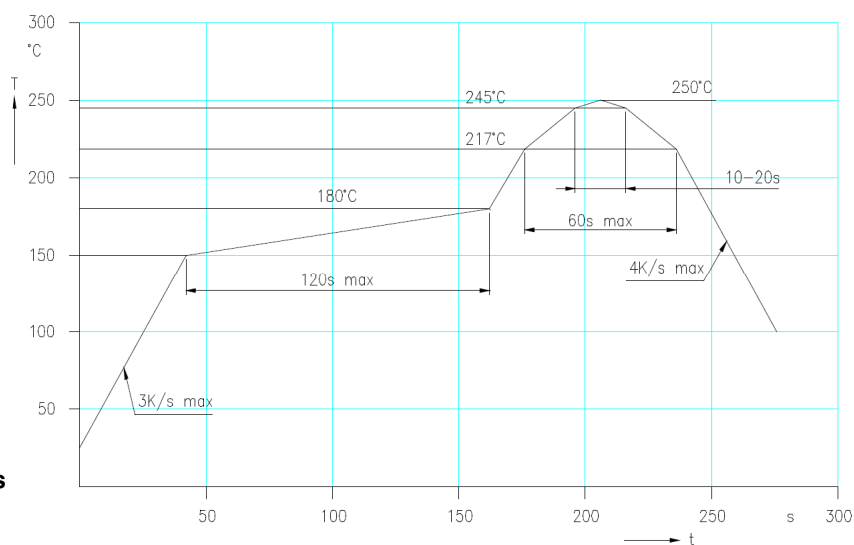


recommended max. thermal resistance
device-ambient: 20 K/W

IR reflow soldering profile



IR reflow soldering profile for lead free soldering



Manual soldering:
max power of iron 25 W / 3 s
300°C

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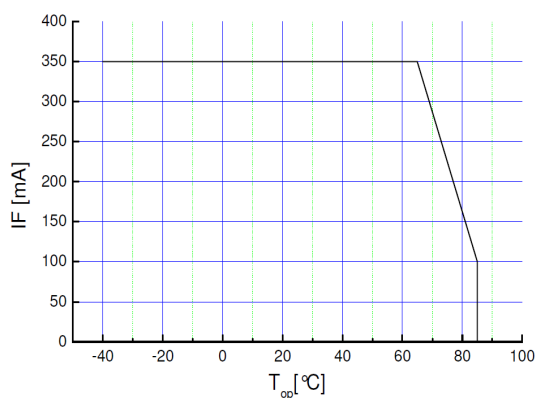
Infrared SMD-LED

EOLS-765-496

page 4 of 4
Rev. 01, 2017

Measured according to CIE 127. All SMD-LEDs are 100% measured and selected on full automated equipment with an accuracy of $\pm 11\%$.

**Maximal
forward
current (DC)
characteristic**



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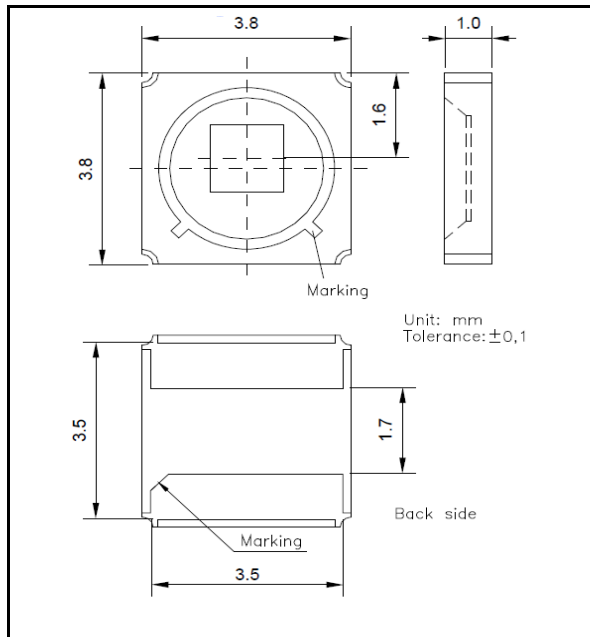
page 1 of 4

Infrared SMD-LED

EOLS-770-496

Rev. 03, 2017

Radiation	Type	Case
Infrared	AlGaAs	SMD 3838 (1515)

 Unit: mm Tolerance: $\pm 0,1$	 Description: - Size 3.8 (W) x 3.8 (L) x 1.0 (H) mm - Circuit substrate: AlN ceramics - Devices are RoHS conform - Lead free solderable, soldering pads: silver plated - High radiation intensity - Marking at anode
--	---

Maximum Ratings

 $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified


Parameter	Test conditions	Symbol	Value	Unit
Forward current		I_F	350	mA
Peak forward current	$t_p \leq 100 \mu\text{s}$, $\tau=1:10$	I_{FM}	500	mA
Reverse current	$V_R=5 \text{ V}$	I_R	100	μA
Reverse voltage	$I_R=100 \mu\text{A}$	V_R	5	V
Storage and operating temp. range		T_{stg}	-40 to +85	$^{\circ}\text{C}$
Thermal resistance		R_{thJA}	10	K/W

Optical and Electrical Characteristics

 $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Symbol	Conditions	Min	typ	max	Unit
Forward voltage	V_F	$I_F= 350 \text{ mA}$		1.8	2.2	V
Radiant power	Φ_e	$I_F= 350 \text{ mA}$		44		mW
Radiant Intensity	I_e	$I_F= 350 \text{ mA}$	20	30		mW/sr
Peak wavelength	λ_p	$I_F= 350 \text{ mA}$	755	770	780	nm
FWHM	$\Delta\lambda_{0,5}$	$I_F= 350 \text{ mA}$		29		nm

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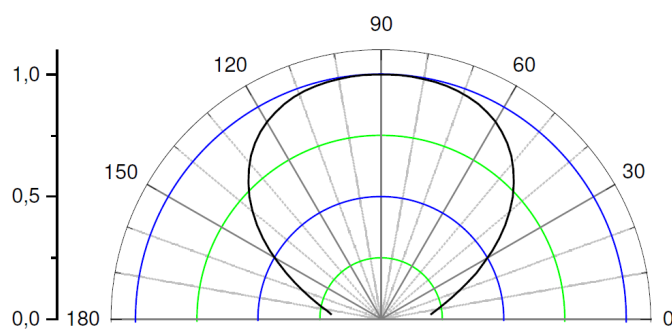
Data Sheet

Infrared SMD-LED

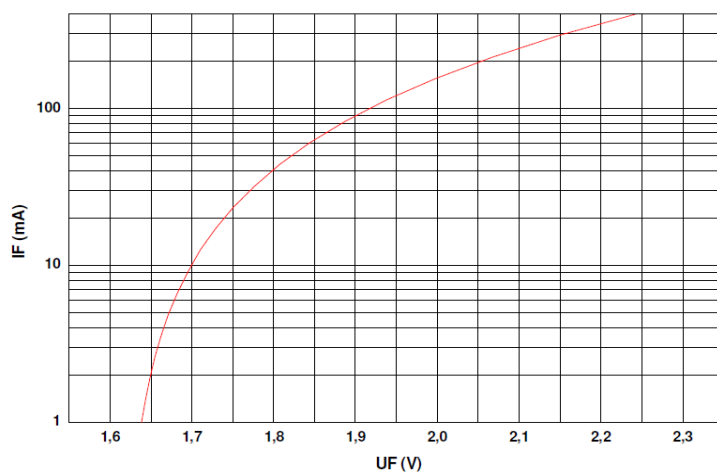
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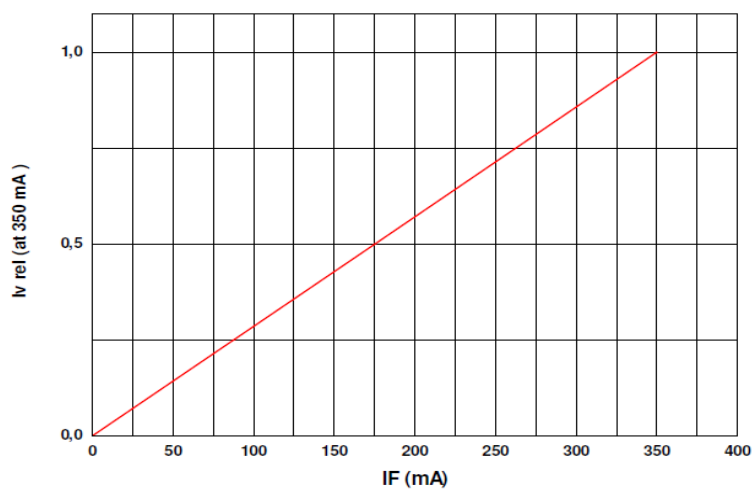
Radiation pattern



$I_F - U_F$ characteristic



$I_{e, rel} - I_F$ characteristic



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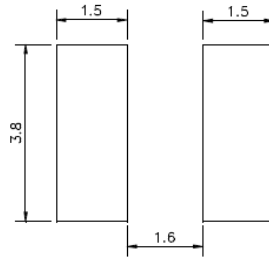
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Infrared SMD-LED

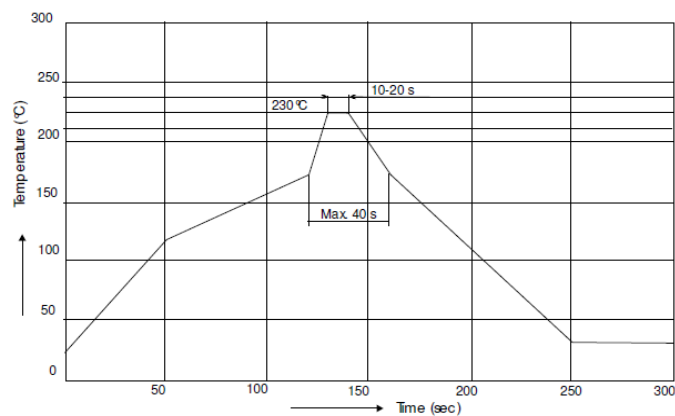
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Rev. 03, 2017

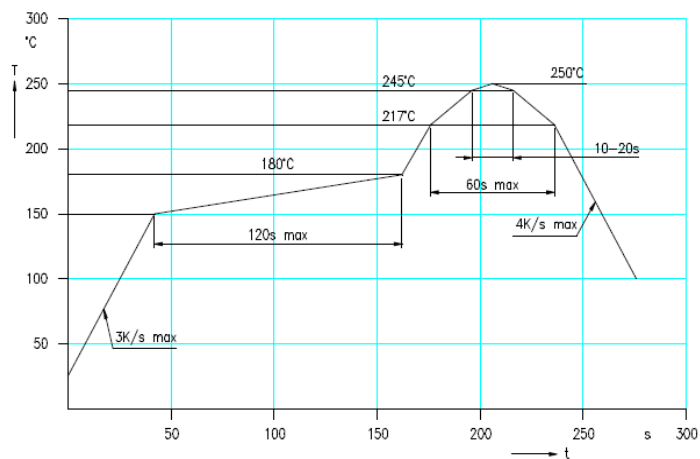
Recommended Soldering Patterns



IR reflow soldering profile



IR reflow soldering profile for lead free soldering



Manual soldering:
max power of iron 25 W / 3 s /
300°C

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Data Sheet

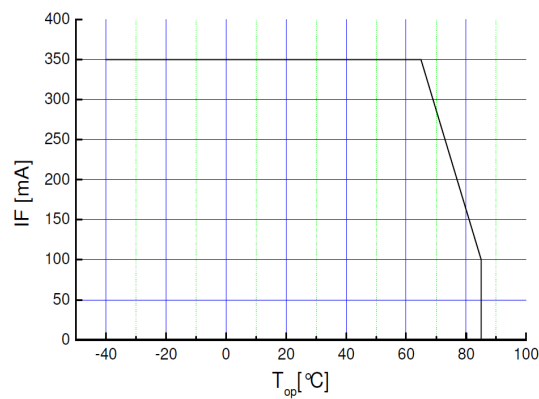
Infrared SMD-LED

EOLS-770-496

page 4 of 4
Rev. 03, 2017

Measured according to CIE 127. All SMD-LEDs are 100% measured and selected on full automated equipment with an accuracy of $\pm 11\%$.

**Maximal
forward
current (DC)
characteristic**



Art. No. 133 024



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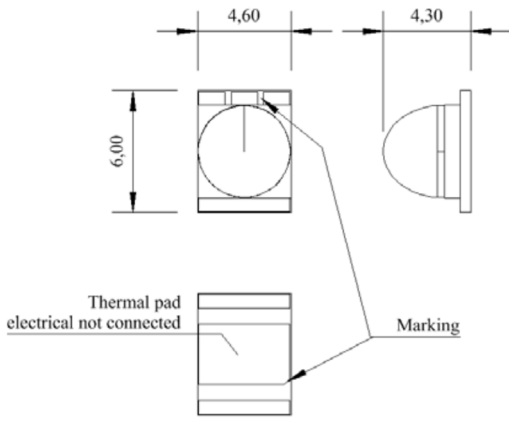
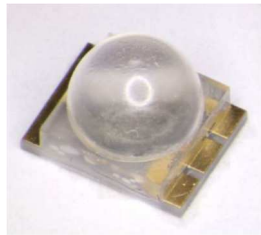
Data Sheet

page 1 of 3

High Power SMD LED**EOLS-780-227**

Rev. 03, 2020

Radiation	Type	Case
Infrared	AlGaAs	SMD 6046 (2418), ceramics

 Thermal pad electrical not connected Marking All dimensions in mm	
	Description: - size: 6.0(L) x 4.6(W) x 4.3(H) mm - high pulse current up to 1000 mA - with lens, view angle 20° - soldering pads: gold plated; only for reflow soldering - marking at anode

Maximum Ratings $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test conditions	Symbol	Value	Unit
Forward current		I_F	700	mA
Peak forward current	$t_p \leq 100 \mu\text{s}$, $\tau=1:10$	I_{FM}	1000	mA
Reverse voltage		V_R	5	V
Thermal resistance		R_{th_JA}	5	K/W
Operating temperature range		T_{amb}	-40 to +85	$^{\circ}\text{C}$
Storage temperature range		T_{stg}	-40 to +85	$^{\circ}\text{C}$

Electrostatic discharge classification (MIL-STD-883) - class 1

Optical and Electrical Characteristics $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Symbol	Conditions	Min	typ	max	Unit
Forward voltage	V_F	$I_F = 350 \text{ mA}$		1.7	2.2	V
Radiant power*	Φ_e	$I_F = 350 \text{ mA}$		52		mW
Radiant intensity*	I_e	$I_F = 350 \text{ mA}$		170		mW/sr
Peak wavelength	λ_p	$I_F = 350 \text{ mA}$	770	780	790	nm
FWHM	$\Delta\lambda_{0.5}$	$I_F = 350 \text{ mA}$		31		nm
Reverse current	I_R	$I_R = 5 \text{ V}$			100	μA

*measured on star board



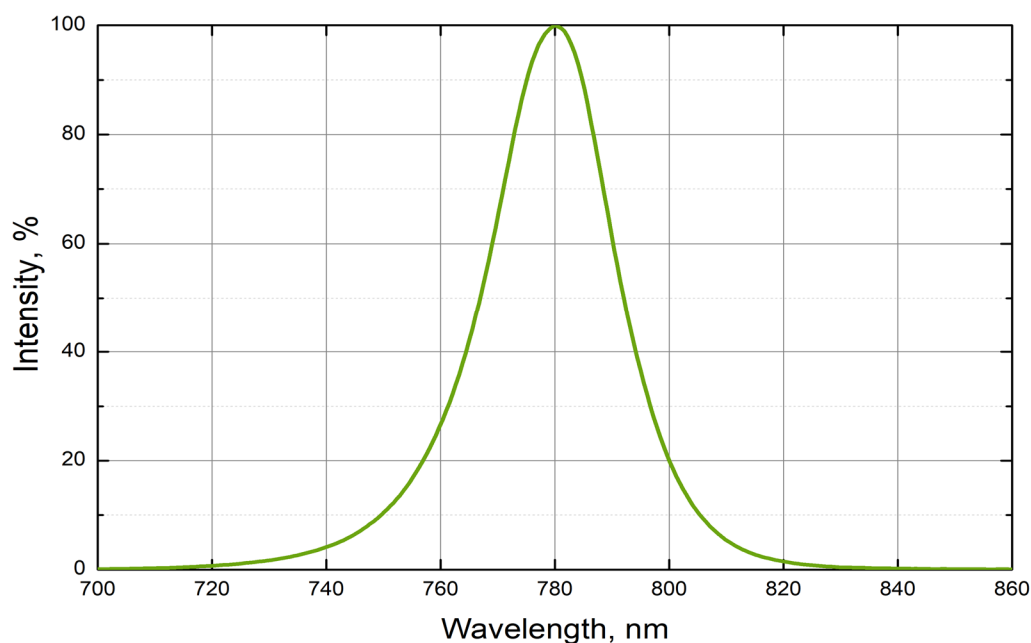
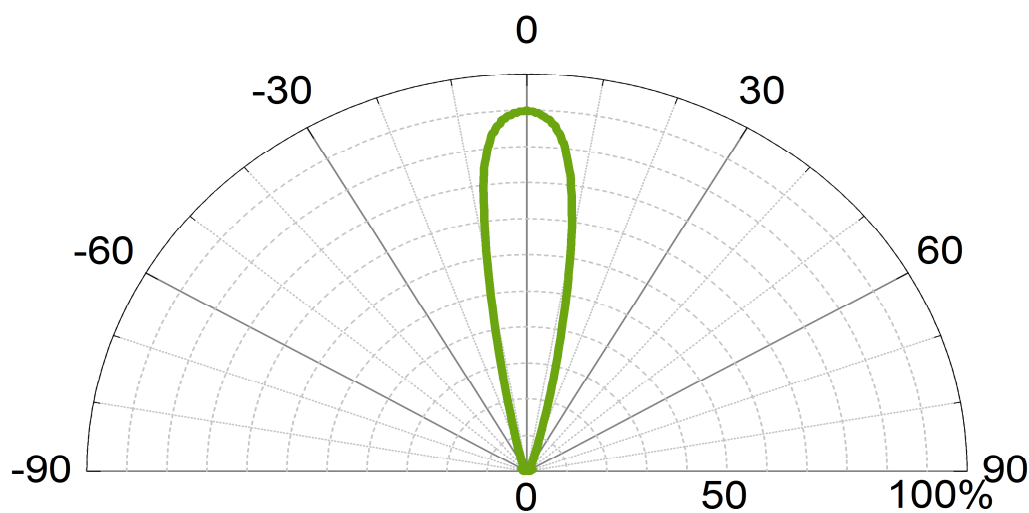
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Data Sheet

page 2 of 3

High Power SMD LED**EOLS-780-227**

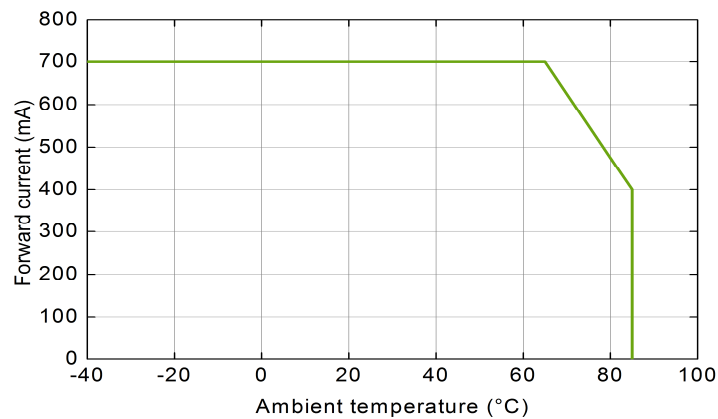
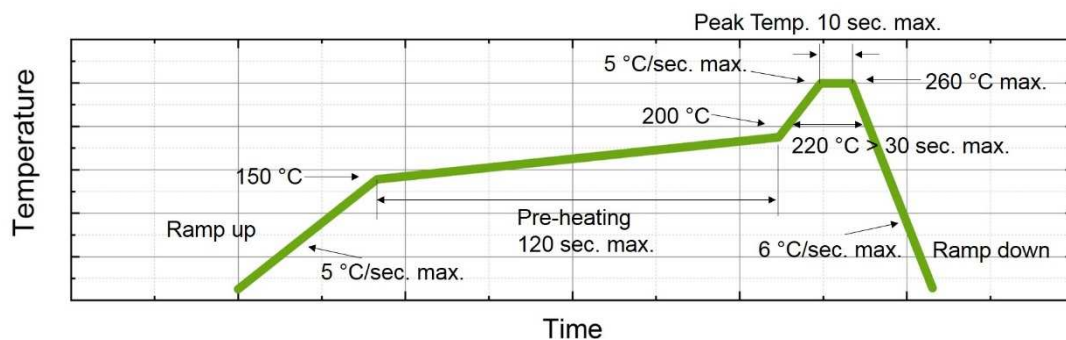
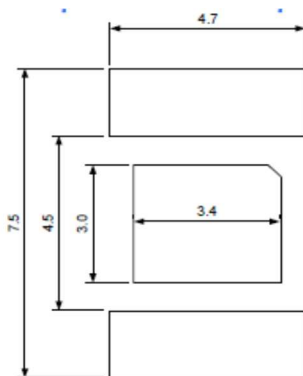
Rev. 03, 2020

**Typical radiation spectrum at 350 mA****Radiation pattern**

Data Sheet**High Power SMD LED****EOLS-780-227**

page 3 of 3

Rev. 03, 2020

**Maximum allowable forward current vs. operating temperature****Recommended reflow soldering profile****Recommended soldering pad**

Thermal pad needs to be connected to a heat sink with less than 10 K/W thermal resistance.

Art. No. 133 174

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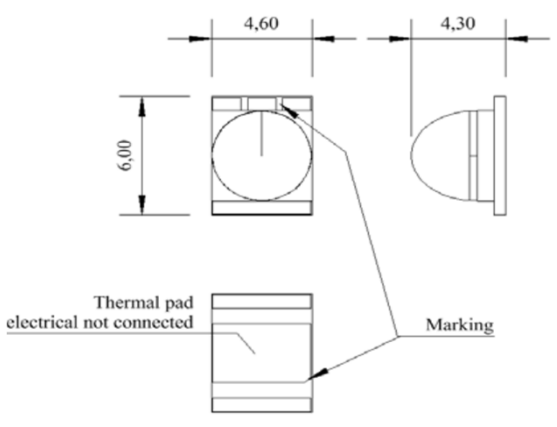
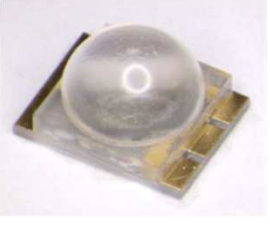
Data Sheet

page 1 of 3

High Power SMD LED**EOLS-800-227**

Rev. 02, 2017

Radiation	Type	Case
Infrared	AlGaAs	SMD 6046 (2418), ceramics

	
	Description: - size: 6.0(L) x 4.6(W) x 4.3(H) mm - high pulse current up to 1000 mA - with lens, view angle 20° - soldering pads: gold plated; only for reflow soldering - marking at cathode

Maximum Ratings $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test conditions	Symbol	Value	Unit
Forward current		I_F	700	mA
Peak forward current	$t_p \leq 100 \mu\text{s}$, $\tau=1:10$	I_{FM}	1000	mA
Reverse voltage		V_R	5	V
Thermal resistance		R_{th_JA}	5	K/W
Operating temperature range		T_{amb}	-40 to +85	$^{\circ}\text{C}$
Storage temperature range		T_{stg}	-40 to +85	$^{\circ}\text{C}$

Electrostatic discharge classification (MIL-STD-883) - class 1

Optical and Electrical Characteristics $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Symbol	Conditions	Min	typ	max	Unit
Forward voltage	V_F	$I_F = 350 \text{ mA}$		1.55	2.1	V
Radiant power*	Φ_e	$I_F = 350 \text{ mA}$		38		mW
Radiant intensity*	I_e	$I_F = 350 \text{ mA}$		120		mW/sr
Peak wavelength	λ_p	$I_F = 350 \text{ mA}$	790	800	810	nm
FWHM	$\Delta\lambda_{0.5}$	$I_F = 350 \text{ mA}$		35		nm
Reverse current	I_R	$I_R = 5 \text{ V}$			100	μA

*measured on star board



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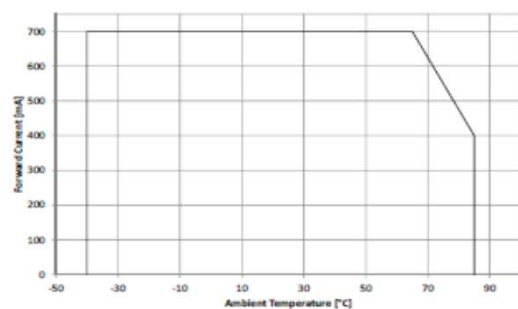
Data Sheet

page 2 of 3

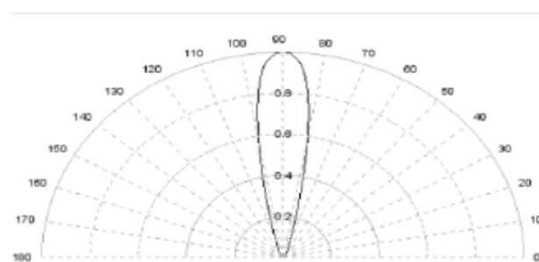
High Power SMD LED

EOLS-800-227

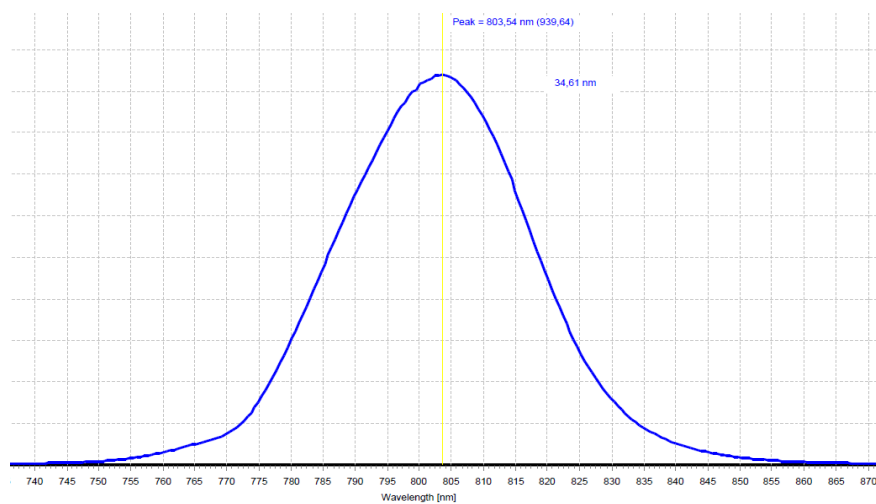
Rev. 02, 2017



Max. Forward Current vs. Ambient Temperature
Max. Flussstrom über Umgebungstemperatur



View Angle
Abstrahlung



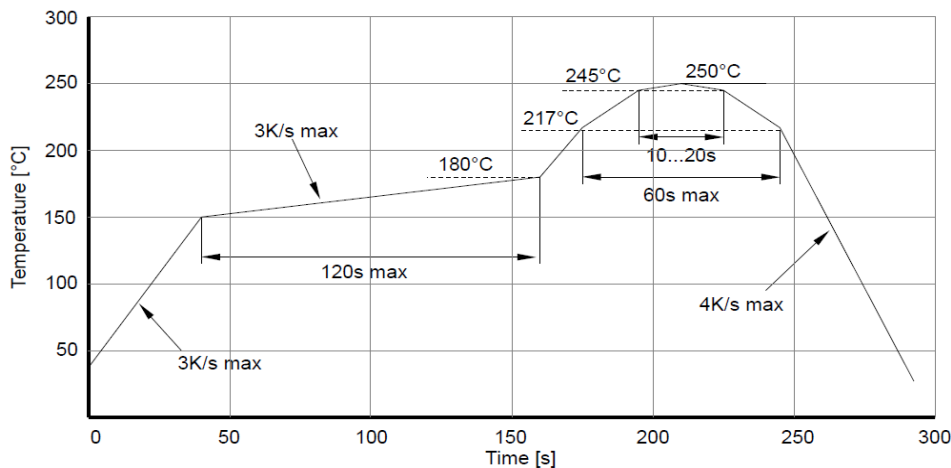
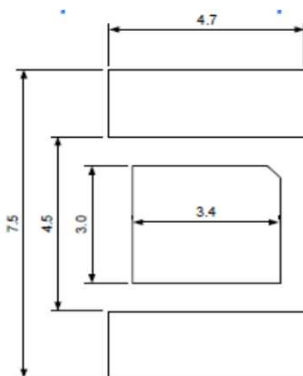
Typical radiation spectrum at 350 mA



We reserve the right to make changes to improve technical design and may do so without further notice. Parameters can vary in different applications. All operating parameters must be validated for each customer application by the customer.

Data Sheet**page 3 of 3****High Power SMD LED****EOLS-800-227**

Rev. 02, 2017

IR reflow soldering
profile for lead free
solderingIR Reflow
Lötprozess für
bleifreies Lot

Recommended soldering pad

Thermal pad needs to be connected to a heat sink
with less than 10K/W thermal resistance.

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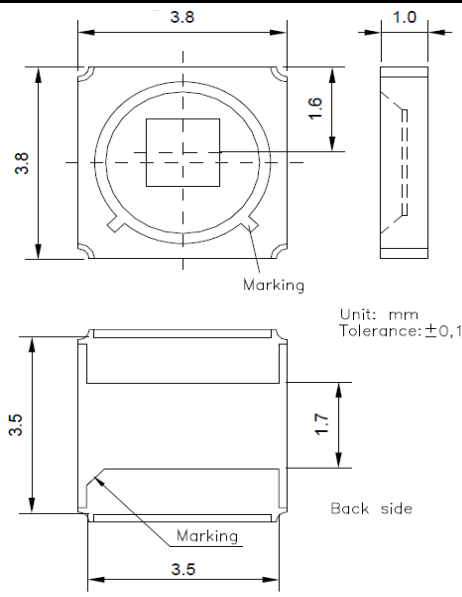
Data Sheet

page 1 of 4

Infrared SMD-LED**EOLS-800-496**

Rev. 01, 2017

Radiation	Type	Case
Infrared	AlGaAs	SMD 3838 (1515)

 Unit: mm Tolerance: $\pm 0,1$	 Description: - Size 3.8 (W) x 3.8 (L) x 1.0 (H) mm - Circuit substrate: AlN ceramics - Devices are RoHS conform - Lead free solderable, soldering pads: silver plated - High radiation intensity - Marking at anode
--	--

Maximum Ratings $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test conditions	Symbol	Value	Unit
Forward current		I_F	350	mA
Peak forward current	$t_p \leq 100 \mu\text{s}$, $\tau=1:10$	I_{FM}	500	mA
Reverse current	$V_R=5 \text{ V}$	I_R	100	μA
Reverse voltage	$I_R=100 \mu\text{A}$	V_R	5	V
Storage and operating temp. range		T_{stg}	-40 to +85	$^{\circ}\text{C}$
Thermal resistance		R_{thJA}	10	K/W

Optical and Electrical Characteristics $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Symbol	Conditions	Min	typ	max	Unit
Forward voltage	V_F	$I_F=350 \text{ mA}$		1.5	2.1	V
Radiant power	Φ_e	$I_F=350 \text{ mA}$		38		mW
Radiant Intensity	I_e	$I_F=350 \text{ mA}$	20	30		mW/sr
Peak wavelength	λ_p	$I_F=350 \text{ mA}$	790	800	810	nm
FWHM	$\Delta\lambda_{0.5}$	$I_F=350 \text{ mA}$		39		nm

We reserve the right to make changes to improve technical design and may do so without further notice. Parameters can vary in different applications. All operating parameters must be validated for each customer application by the customer.

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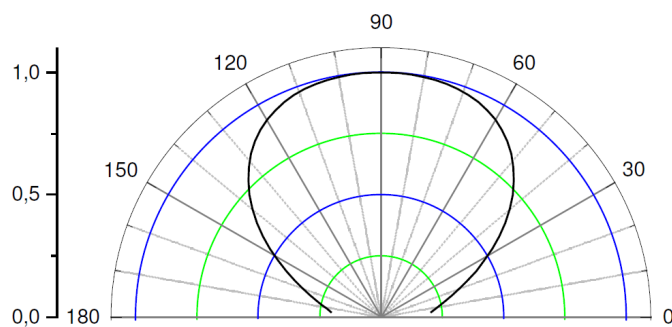
Data Sheet

Infrared SMD-LED

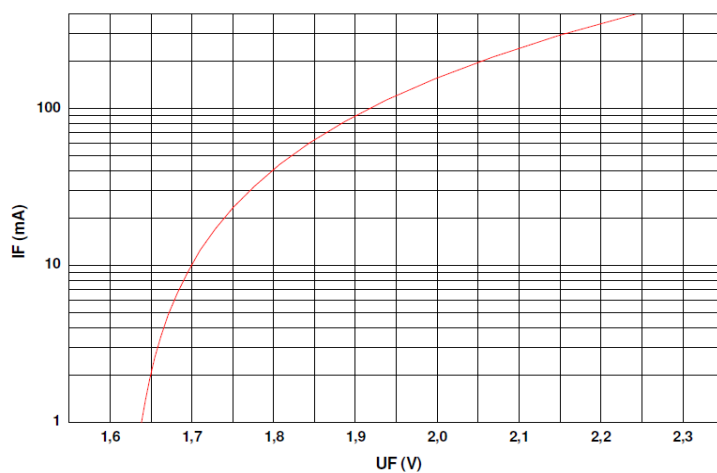
EOLS-800-496

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Rev. 01, 2017

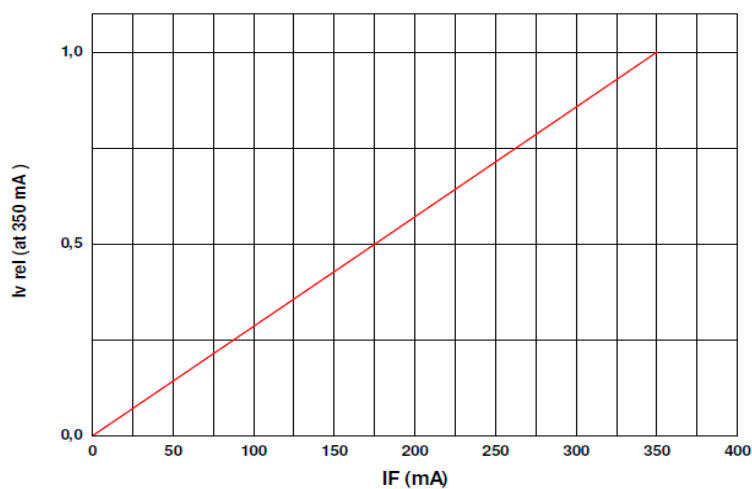
Radiation pattern



$I_F - U_F$ characteristic



$I_{e, rel} - I_F$ characteristic



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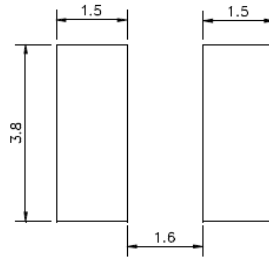
Data Sheet

Infrared SMD-LED

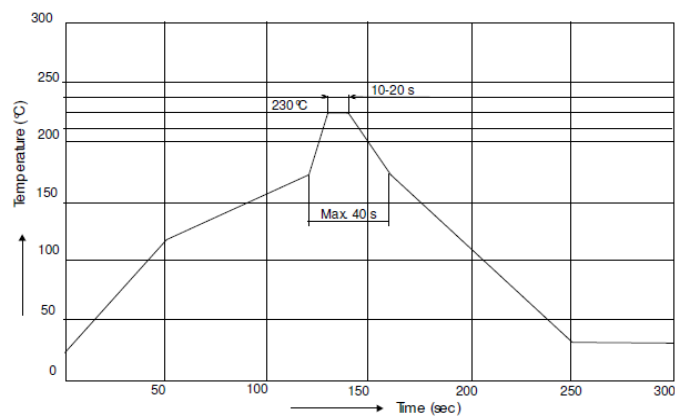
EOLS-800-496

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Rev. 01, 2017

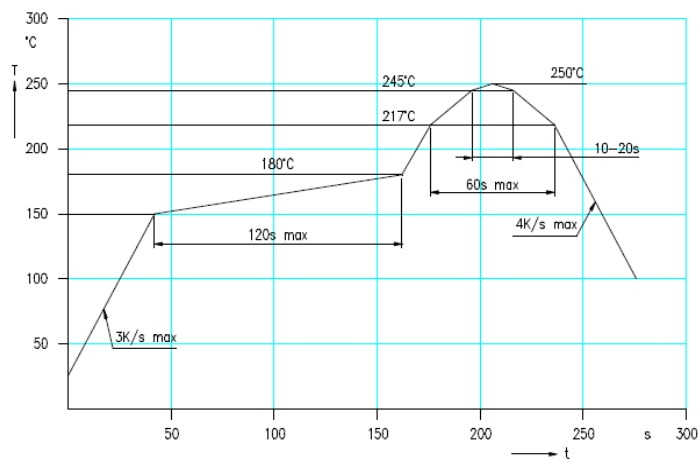
Recommended Soldering Patterns



IR reflow soldering profile



IR reflow soldering profile for lead free soldering



Manual soldering:
max power of iron 25 W / 3 s /
300°C

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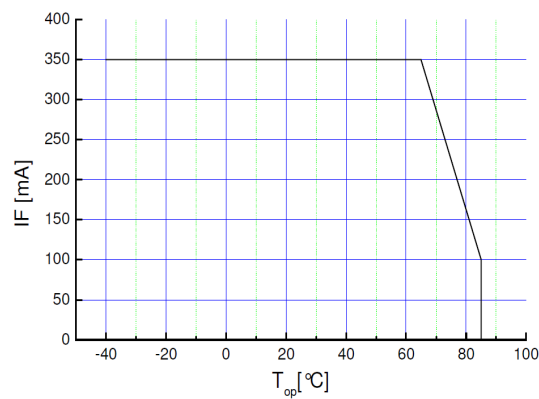
Infrared SMD-LED

EOLS-800-496

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Rev. 01, 2017

Measured according to CIE 127. All SMD-LEDs are 100% measured and selected on full automated equipment with an accuracy of $\pm 11\%$.

**Maximal
forward
current (DC)
characteristic**





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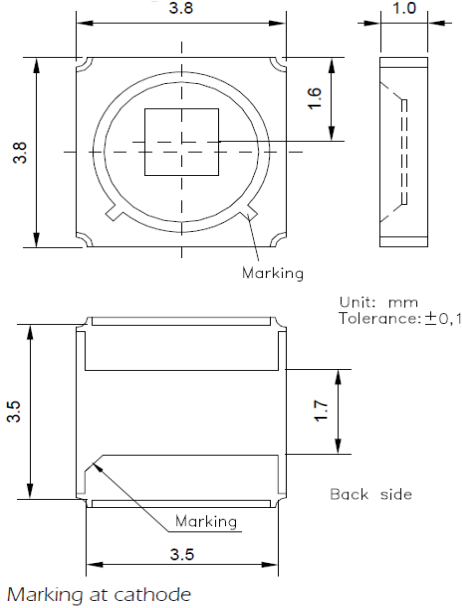
Data Sheet

page 1 of 5

High Power IR LED**EOLS-810-496**

Rev. 02, 2017

Radiation	Type	Case
Infrared	AlGaAs	SMD 3838 (1515)

	 Description: - Size 3.8 (W) x 3.8 (L) x 1.0 (H) mm - Circuit substrate: AlN ceramics - Devices are RoHS conform - Lead free solderable, soldering pads: silver plated - High radiation intensity
--	---

Maximum Ratings $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test conditions	Symbol	Value	Unit
Forward current		I_F	350	mA
Peak forward current	$t_p \leq 100 \mu\text{s}$, $\tau=1:10$	I_{FM}	1000	mA
Reverse current	$V_R=5 \text{ V}$	I_R	100	μA
Reverse voltage	$I_R=100 \mu\text{A}$	V_R	5	V
Storage and operating temp. range		T_{stg}	-40 to +85	$^{\circ}\text{C}$
Thermal resistance		R_{thJA}	10	K/W

Optical and Electrical Characteristics $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

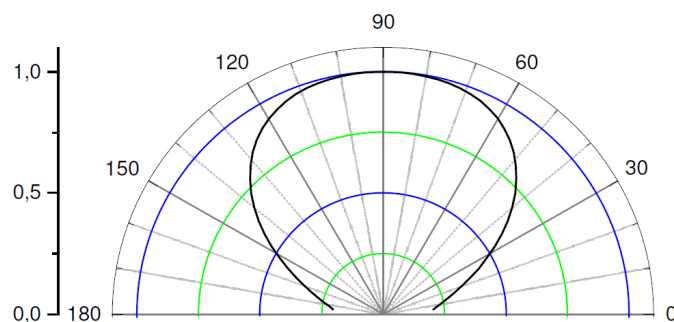
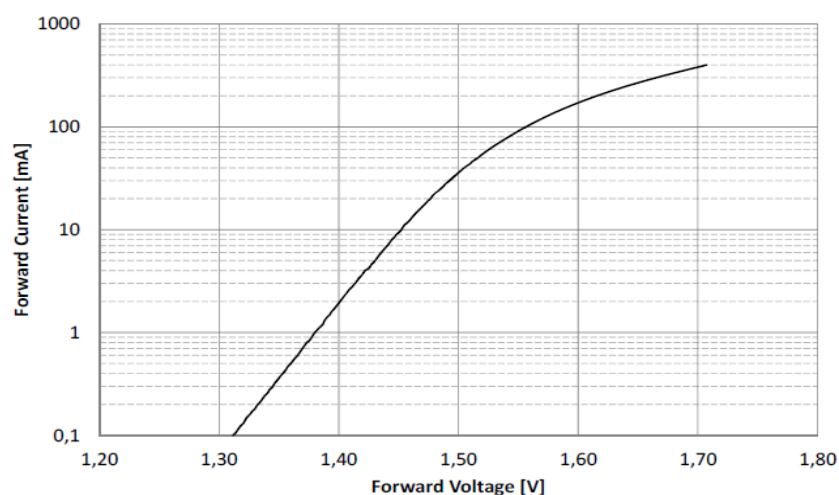
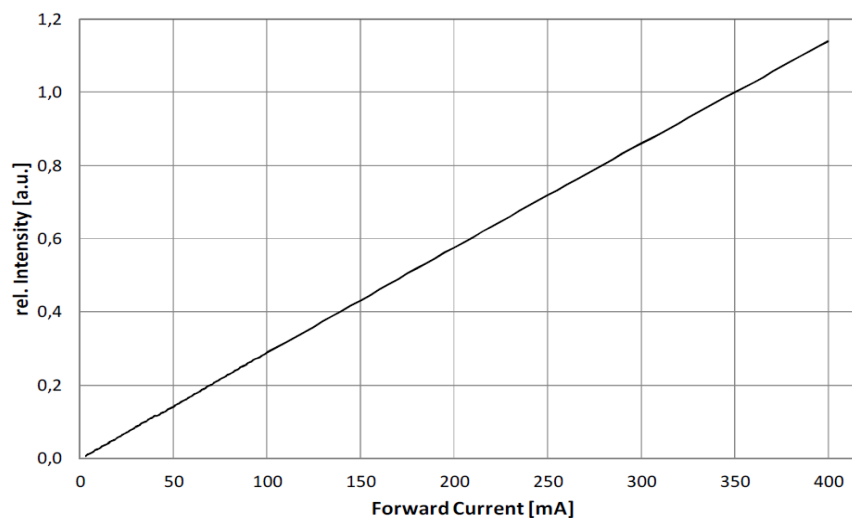
Parameter	Symbol	Conditions	Min	typ	max	Unit
Forward voltage	V_F	$I_F=350 \text{ mA}$		1.7	2.1	V
Radiant power	Φ_e	$I_F=350 \text{ mA}$		38		mW
Radiant Intensity	I_e	$I_F=350 \text{ mA}$		25		mW/sr
Peak wavelength	λ_p	$I_F=350 \text{ mA}$	800	810	820	nm
FWHM	$\Delta\lambda_{0,5}$	$I_F=350 \text{ mA}$		39		nm

We reserve the right to make changes to improve technical design and may do so without further notice. Parameters can vary in different applications. All operating parameters must be validated for each customer application by the customer.

Data Sheet**High Power IR LED****EOLS-810-496**

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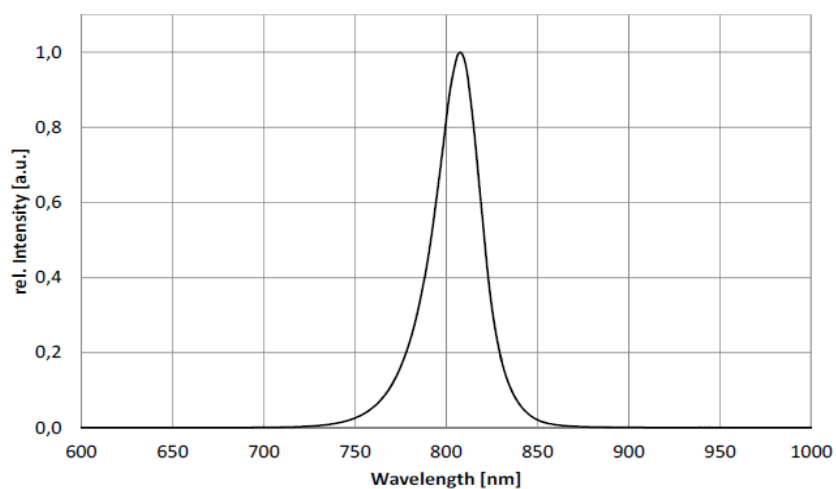
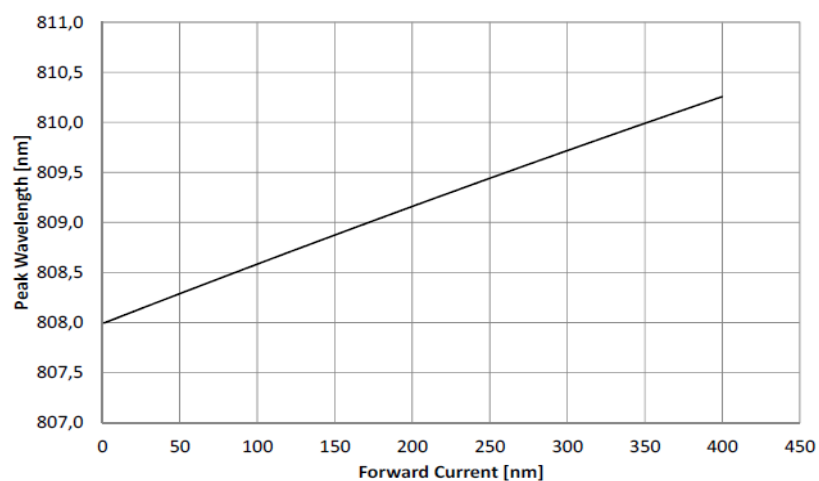
Rev. 02, 2017

Radiation pattern **$I_F - U_F$
characteristic** **$I_{e, rel} - I_F$
characteristic**

Data Sheet**High Power IR LED****EOLS-810-496**

page 3 of 5

Rev. 02, 2017

Spectrum @ 350 mAFWHM $\Delta\lambda=30$ nm (@ 350 mA)**Peak wavelength vs. forward current**

We reserve the right to make changes to improve technical design and may do so without further notice. Parameters can vary in different applications. All operating parameters must be validated for each customer application by the customer.

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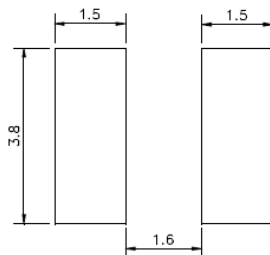
High Power IR LED

EOLS-810-496

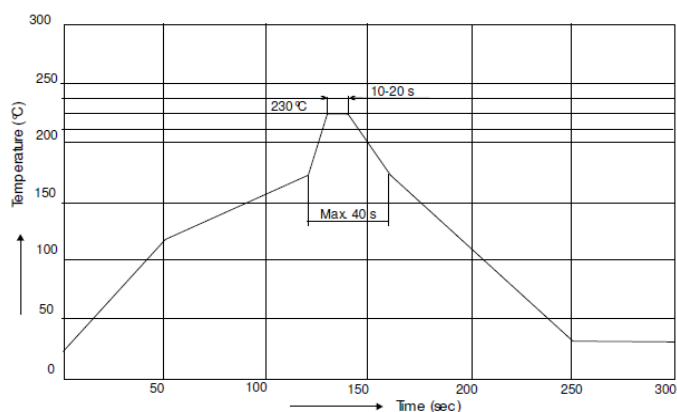
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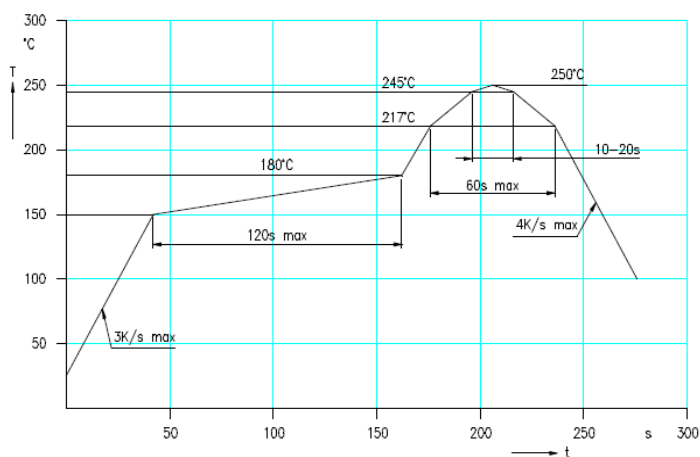
Recommended Soldering Patterns



IR reflow soldering profile



IR reflow soldering profile for lead free soldering



Manual soldering:
max power of iron 25 W / 3 s /
300°C



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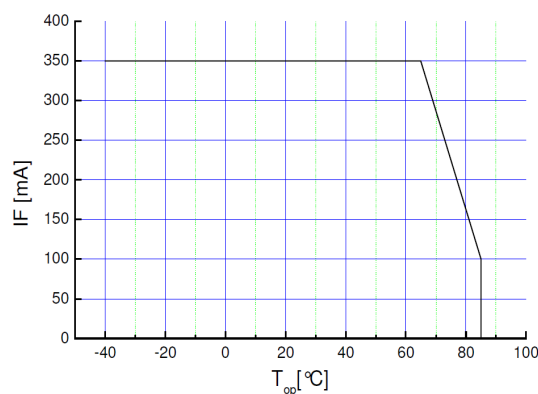
High Power IR LED

EOLS-810-496

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Rev. 02, 2017

Measured according to CIE 127. All SMD-LEDs are 100% measured and selected on full automated equipment with an accuracy of $\pm 11\%$.

Maximal forward current (DC) characteristic



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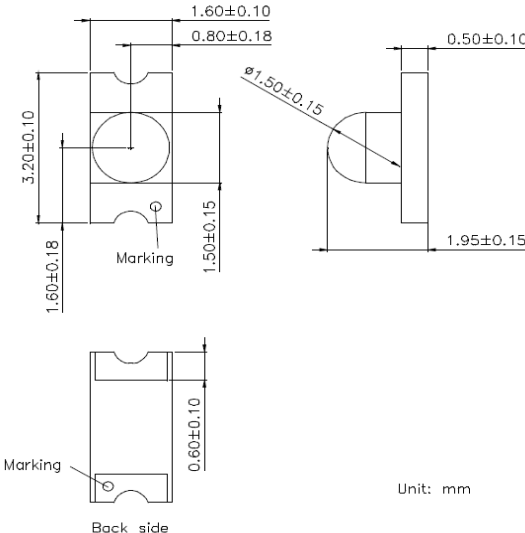
page 1 of 3

Infrared SMD LED

EOLS-810-843

Rev. 03, 2019

Radiation	Type	Case
Infrared	AlGaAs	SMD 3216 (1206)

	 <table><tr><th>Description:</th></tr><tr><td>- Size 1206: 3.2 (L) x 1.6 (W) x 1.95 (H) mm</td></tr><tr><td>- Circuit substrate: glass laminated epoxy</td></tr><tr><td>- Devices are RoHS conform</td></tr><tr><td>- Lead free solderable, soldering pads: gold plated</td></tr><tr><td>- Marking at anode</td></tr></table>	Description:	- Size 1206: 3.2 (L) x 1.6 (W) x 1.95 (H) mm	- Circuit substrate: glass laminated epoxy	- Devices are RoHS conform	- Lead free solderable, soldering pads: gold plated	- Marking at anode
Description:							
- Size 1206: 3.2 (L) x 1.6 (W) x 1.95 (H) mm							
- Circuit substrate: glass laminated epoxy							
- Devices are RoHS conform							
- Lead free solderable, soldering pads: gold plated							
- Marking at anode							

Maximum Ratings

 $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test Conditions	Symbol	Value	Unit
Peak forward current	$t_p \leq 100 \mu\text{s}$, $\tau = 1:10$	I_{FP}	150	mA
Continuous forward current		I_F	30	mA
Reverse voltage		V_R	5	V
Operating temperature range		T_{amb}	-40 to +85	$^{\circ}\text{C}$
Storage temperature range		T_{stg}	-40 to +85	$^{\circ}\text{C}$
Thermal resistance		R_{thJA}	450	K/W

Optical and Electrical Characteristics

 $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

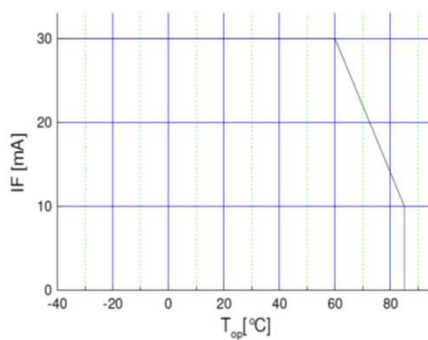
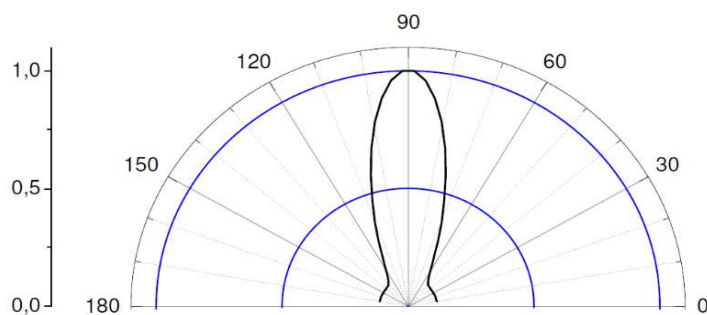
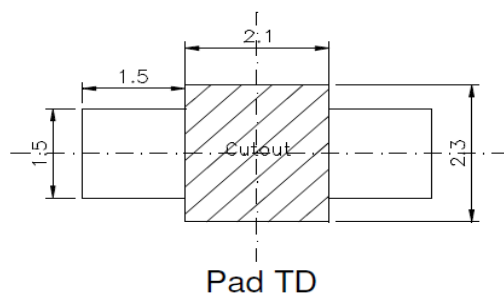
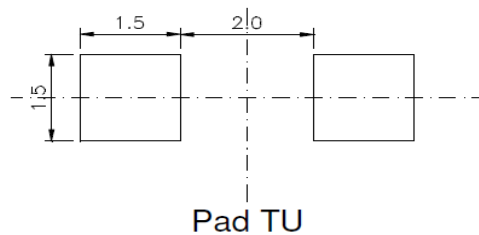

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Forward voltage	V_F	$I_F = 30 \text{ mA}$		1.55	2	V
Reverse current	I_R	$V_R = 5 \text{ V}$			10	μA
Radiant intensity	I_e	$I_F = 30 \text{ mA}$	5.6	12		mW/sr
Peak wavelength	λ_p	$I_F = 30 \text{ mA}$	800	810	820	nm
FWHM	$\Delta\lambda_{0.5}$	$I_F = 30 \text{ mA}$		28		nm
Viewing angle	ϕ	$I_F = 30 \text{ mA}$		40		deg
Rise and fall time	t_r, t_f	$I_F = 30 \text{ mA}$		35	160	ns

We reserve the right to make changes to improve technical design and may do so without further notice. Parameters can vary in different applications. All operating parameters must be validated for each customer application by the customer.

Data Sheet**Infrared SMD LED****EOLS-810-843**

page 2 of 3

Rev. 03, 2019

**Maximal
forward
current (DC)
characteristic****Radiation pattern****Recommended Soldering Patterns**

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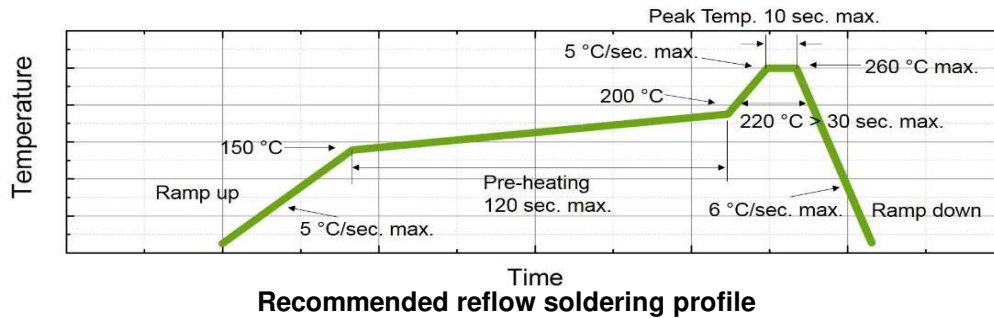
Data Sheet

Infrared SMD LED

EOLS-810-843

page 3 of 3

Rev. 03, 2019



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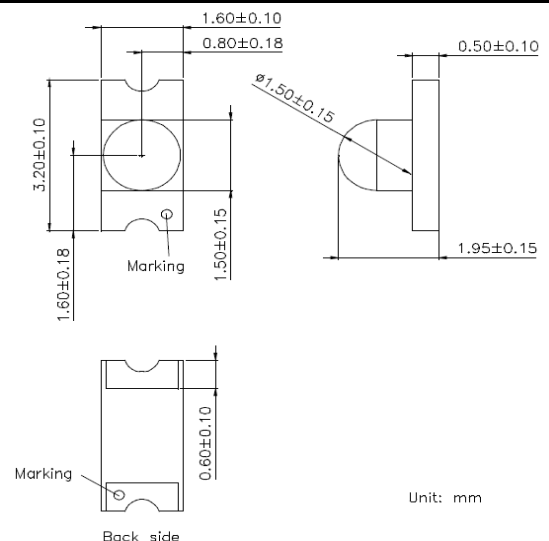
Data Sheet

page 1 of 3

Infrared SMD-LED**EOLS-840-843**

Rev. 02, 2017

Radiation	Type	Case
Infrared	AlGaAs	SMD 3216 (1206)

 Mechanical drawing of the EOLS-840-843 SMD LED. The drawing shows the top and side views of the component. Dimensions are given in mm: 1.60±0.10, 0.80±0.18, 0.50±0.10, 1.95±0.15, 1.50±0.15, 3.20±0.10, 1.60±0.18, 0.60±0.10, and 1.50±0.15. The drawing also shows the marking and the back side of the component. Unit: mm.	 Photograph of the EOLS-840-843 SMD LED. The component is a small, rectangular, gold-plated package with a clear, dome-shaped lens on top.
Description: - Size 1206: 3.2 (L) x 1.6 (W) x 1.95 (H) mm - Circuit substrate: glass laminated epoxy - Devices are RoHS conform - Lead free solderable, soldering pads: gold plated - Marking at anode	

Maximum Ratings $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test Conditions	Symbol	Value	Unit
Peak forward current	$t_p \leq 100 \mu\text{s}$, $\tau = 1:10$	I_{FP}	150	mA
Continuous forward current		I_F	30	mA
Reverse voltage		V_R	5	V
Operating temperature range		T_{amb}	-40 to +85	$^{\circ}\text{C}$
Storage temperature range		T_{stg}	-55 to +85	$^{\circ}\text{C}$
Thermal resistance		R_{thJA}	450	K/W

Optical and Electrical Characteristics $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Forward voltage	V_F	$I_F = 30 \text{ mA}$		1.6	2	V
Reverse current	I_R	$V_R = 5 \text{ V}$			100	μA
Radiant power	Φ_e	$I_F = 30 \text{ mA}$		13.5		mW
Radiant intensity	I_e	$I_F = 30 \text{ mA}$	5.3	7.6		mW/sr
Peak wavelength	λ_p	$I_F = 30 \text{ mA}$	830	840	850	nm
Spectral bandwidth	$\Delta\lambda_{0.5}$	$I_F = 30 \text{ mA}$		40		nm
Viewing angle	ϕ	$I_F = 30 \text{ mA}$		40		deg
Rise and fall time	t_r, t_f	$I_F = 30 \text{ mA}$		35	160	ns

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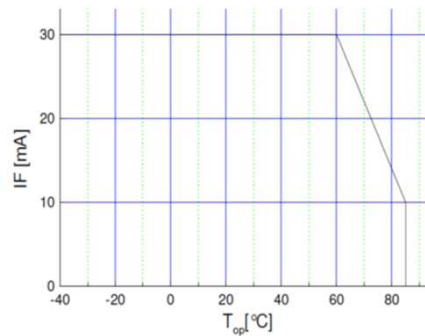
Data Sheet

Infrared SMD-LED

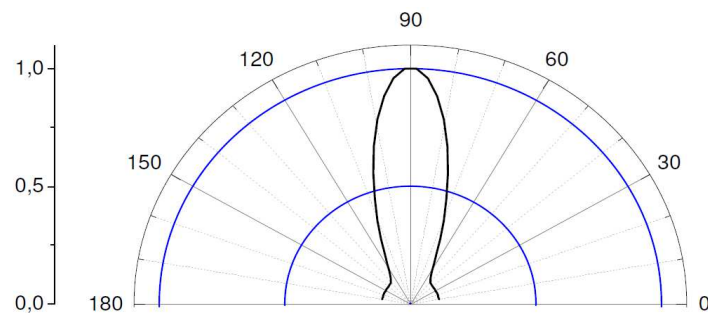
EOLS-840-843

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Rev. 02, 2017

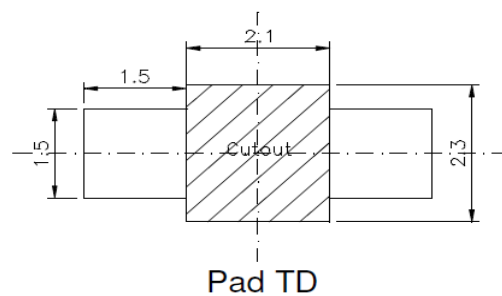
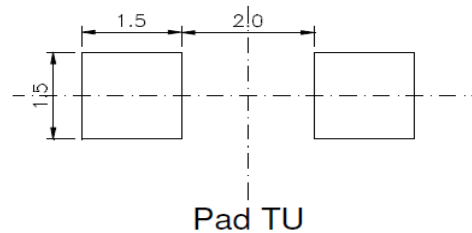
Maximal forward current (DC) characteristic



Radiation pattern



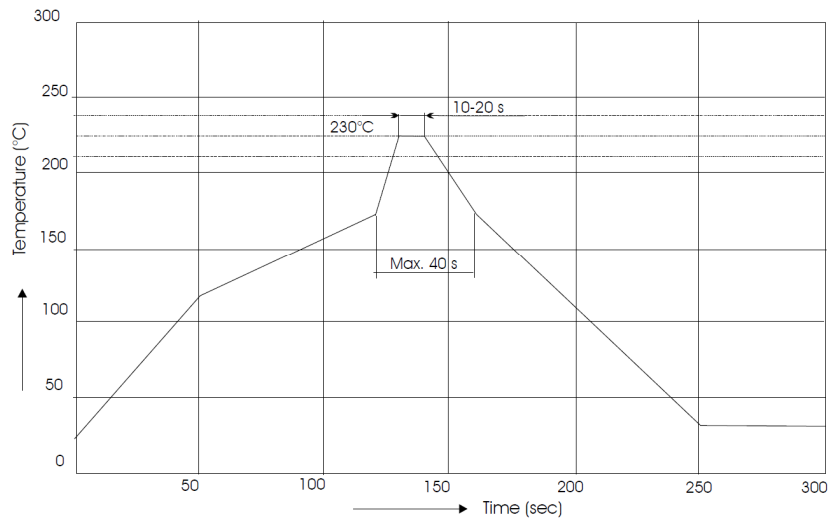
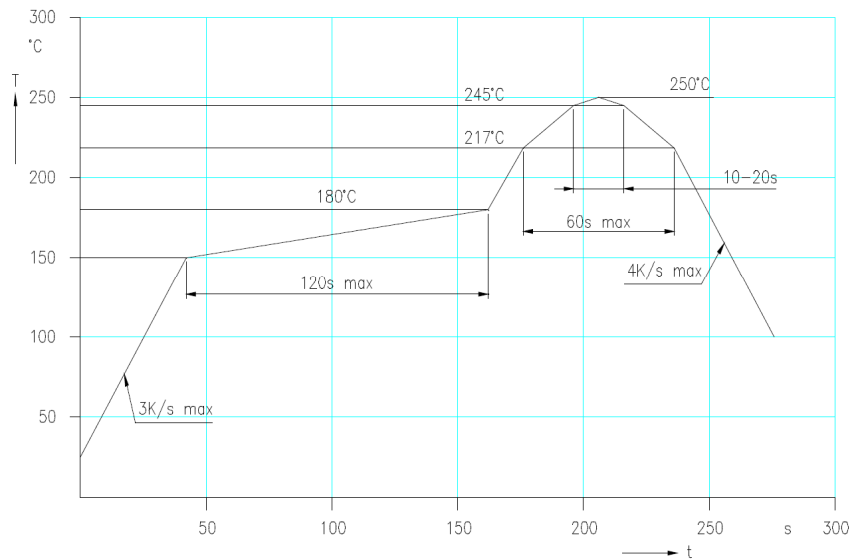
Recommended Soldering Patterns



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Data Sheet**Infrared SMD-LED****EOLS-840-843****page 3 of 3**

Rev. 02, 2017

**IR reflow
soldering
profile****IR reflow
soldering
profile for lead
free soldering****Manual soldering:****max power of iron 25 W / 3 s /****300°C**

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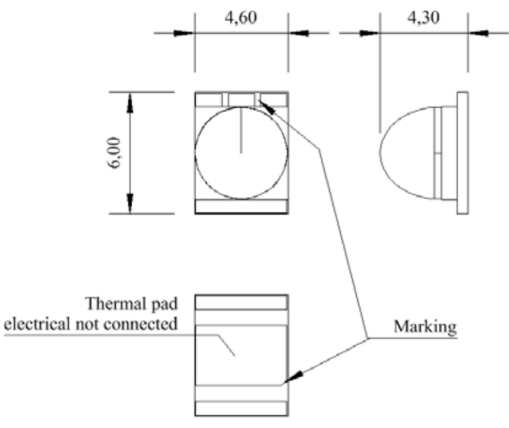
Data Sheet

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High Power SMD LED**EOLS-855-227**

Rev. 01, 2020

Radiation	Type	Case
Infrared	AlGaAs	SMD 6046 (2418), ceramics

 Thermal pad electrical not connected Marking All dimensions in mm	
	Description: - size: 6.0(L) x 4.6(W) x 4.3(H) mm - circuit substrate: AlN ceramics - with glass lens, view angle 20° - soldering pads: gold plated; only for reflow soldering - marking at anode, ROHS and REACH conform

Maximum Ratings $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test conditions	Symbol	Value	Unit
Forward current		I_F	1000	mA
Peak forward current	$t_p \leq 100 \mu\text{s}$, $\tau=1:10$	I_{FM}	1000	mA
Reverse voltage		V_R	5	V
Thermal resistance		$R_{th,JA}$	5	K/W
Operating temperature range		T_{amb}	-40 to +85	$^{\circ}\text{C}$
Storage temperature range		T_{stg}	-40 to +85	$^{\circ}\text{C}$

Electrostatic discharge classification (MIL-STD-883) - class 1

Optical and Electrical Characteristics $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Symbol	Conditions	Min	typ	max	Unit
Forward voltage	V_F	$I_F = 350 \text{ mA}$		1.6	1.9	V
Radiant power*	Φ_e	$I_F = 350 \text{ mA}$				mW
Radiant intensity*	I_e	$I_F = 350 \text{ mA}$		910		mW/sr
Peak wavelength	λ_p	$I_F = 350 \text{ mA}$	840	855	870	nm
FWHM	$\Delta\lambda_{0.5}$	$I_F = 350 \text{ mA}$		25		nm
Reverse current	I_R	$I_R = 5 \text{ V}$			100	μA

*measured on star board



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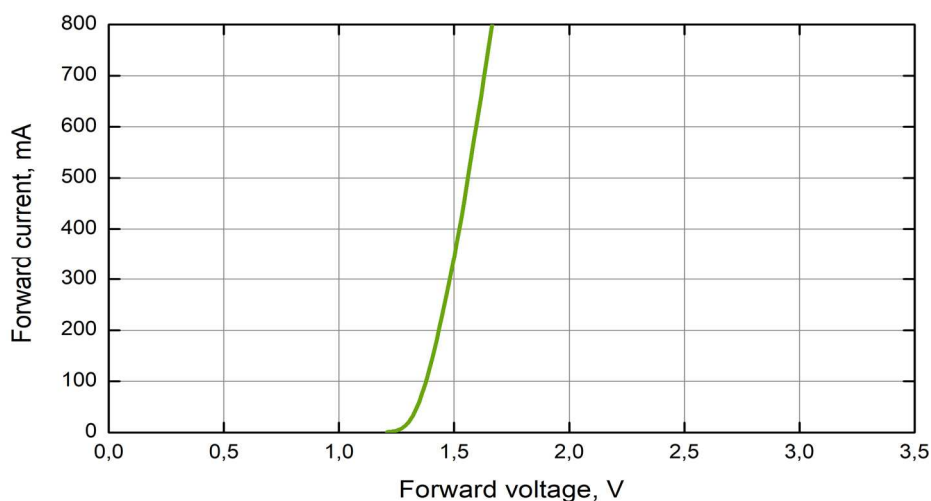
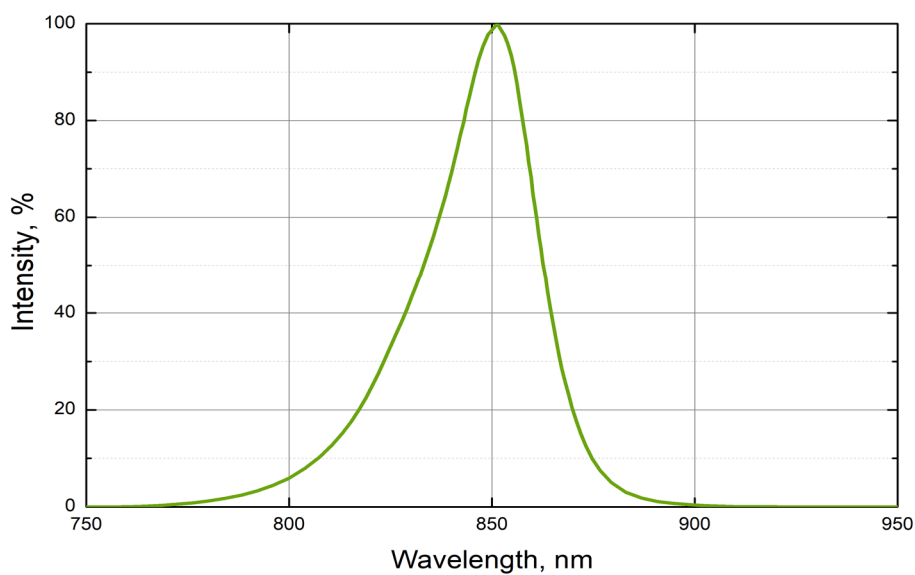
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High Power SMD LED**EOLS-855-227**

Rev. 01, 2020

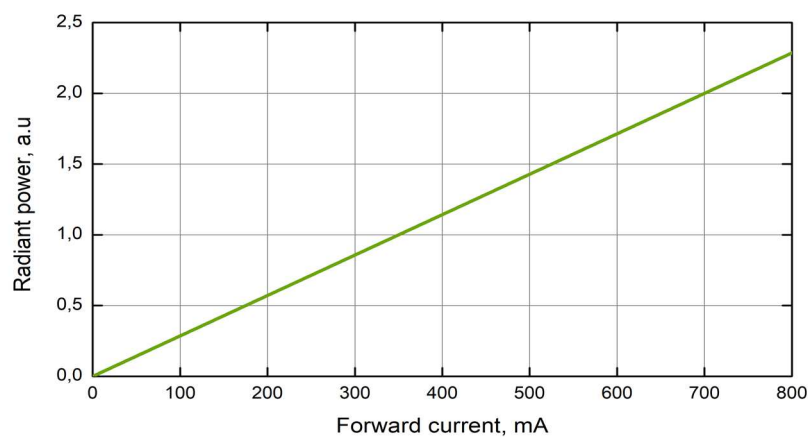
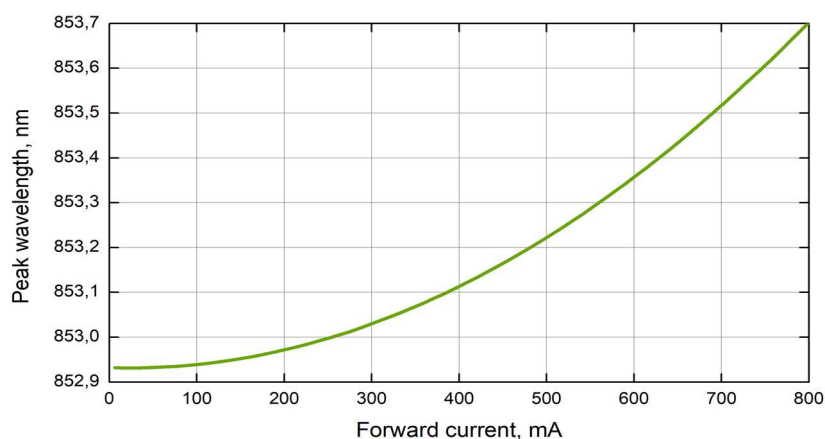
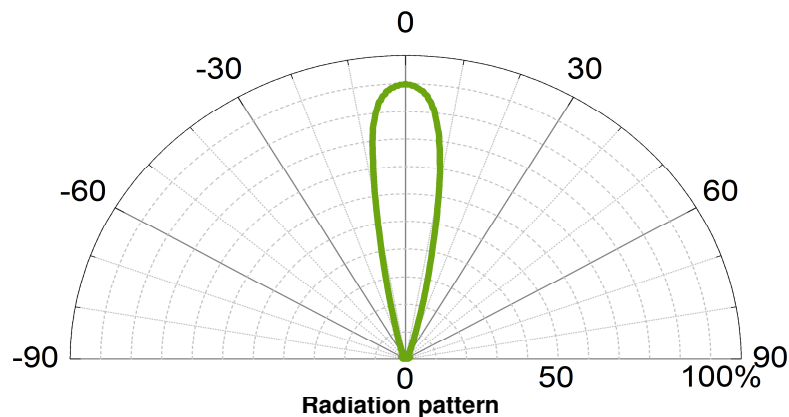
**Forward current vs. forward voltage****Typical radiation spectrum at 350 mA**

Data Sheet

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High Power SMD LED**EOLS-855-227**

Rev. 01, 2020

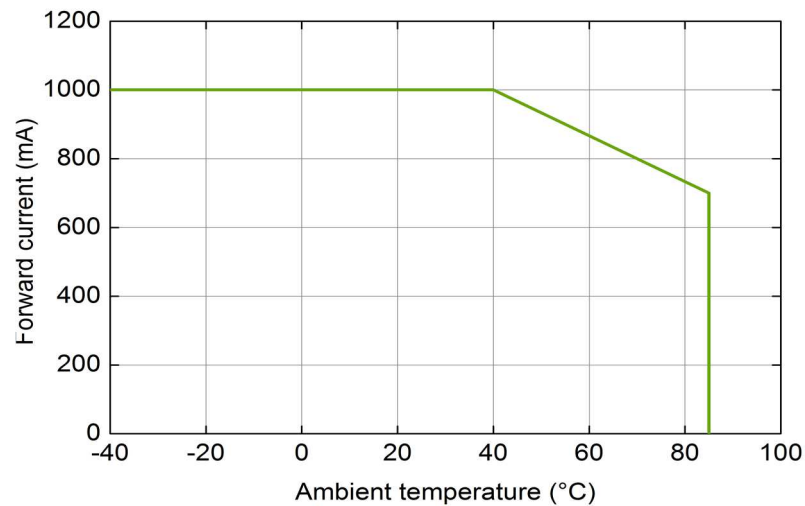
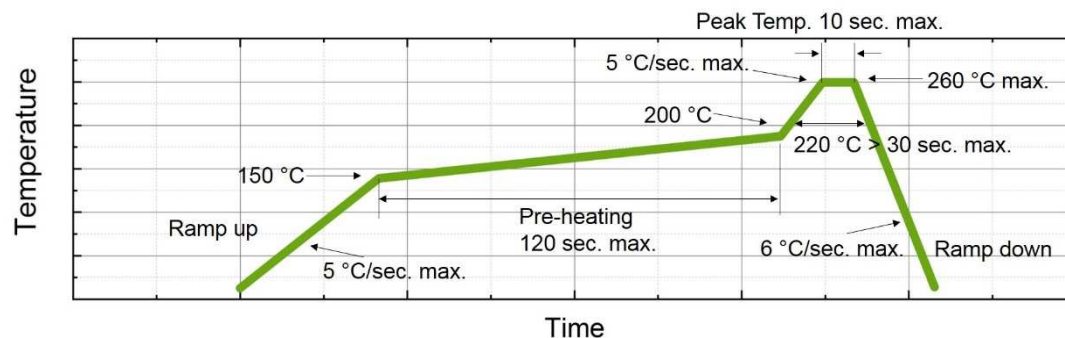
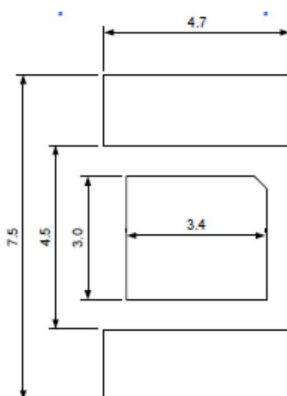
**Radiant power vs. forward current****Peak wavelength vs. forward current****Radiation pattern**

Data Sheet

page 4 of 4

High Power SMD LED**EOLS-855-227**

Rev. 01, 2020

**Maximum allowable forward current vs. operating temperature****Recommended reflow soldering profile****Recommended soldering pattern**

Thermal pad needs to be connected to a heat sink with less than 10 K/W thermal resistance.

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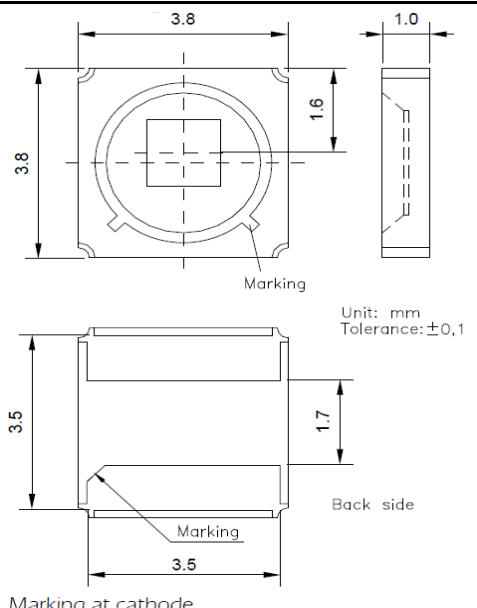
Data Sheet

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High Power IR LED**EOLS-855-496**

Rev. 02, 2017

Radiation	Type	Case
Infrared	AlGaAs	SMD 3838 (1515)

	 Description: - Size 3.8 (W) x 3.8 (L) x 1.0 (H) mm - Circuit substrate: AlN ceramics - Devices are RoHS conform - Lead free solderable, soldering pads: silver plated - High radiation intensity
--	---

Maximum Ratings $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test conditions	Symbol	Value	Unit
Forward current		I_F	500	mA
Peak forward current	$t_p \leq 100 \mu\text{s}$, $\tau=1:10$	I_{FM}	1000	mA
Reverse current	$V_R=5 \text{ V}$	I_R	100	μA
Reverse voltage	$I_R=100 \mu\text{A}$	V_R	5	V
Storage and operating temp. range		T_{stg}	-40 to +85	$^{\circ}\text{C}$
Thermal resistance		R_{thJA}	10	K/W

Optical and Electrical Characteristics $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

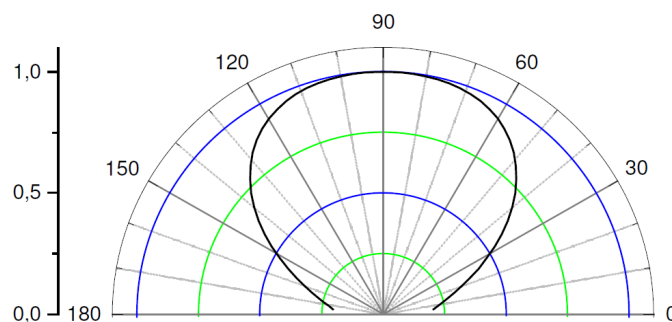
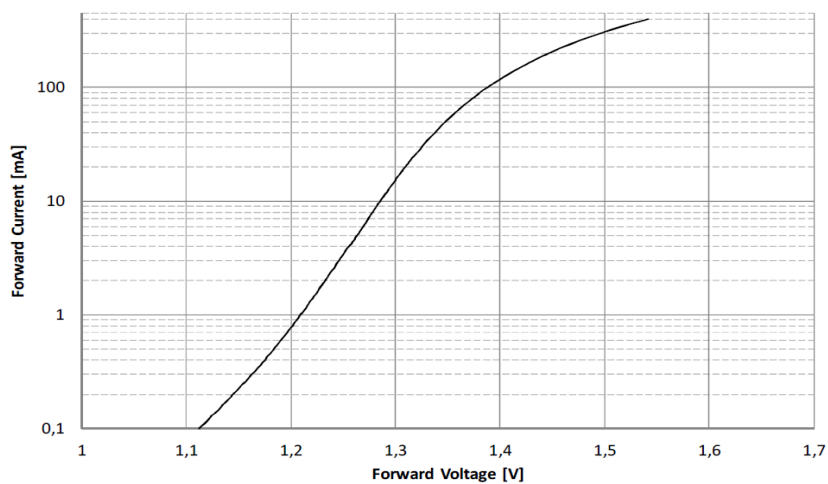
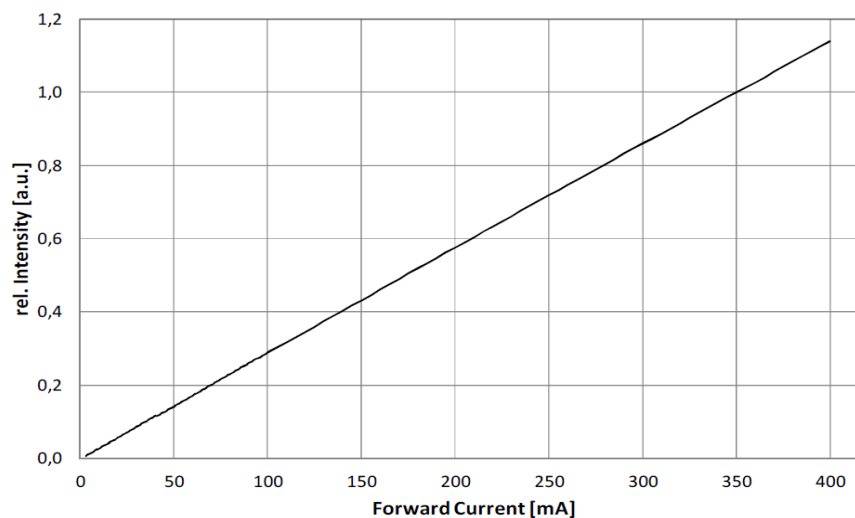
Parameter	Symbol	Conditions	Min	typ	max	Unit
Forward voltage	V_F	$I_F = 350 \text{ mA}$		1.5	1.9	V
Radiant power	Φ_e	$I_F = 350 \text{ mA}$	110			mW
Radiant Intensity	I_e	$I_F = 350 \text{ mA}$	45	60		mW/sr
Peak wavelength	λ_p	$I_F = 350 \text{ mA}$	840	855	870	nm
FWHM	$\Delta\lambda_{0.5}$	$I_F = 350 \text{ mA}$		39		nm

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Data Sheet**High Power IR LED****EOLS-855-496**

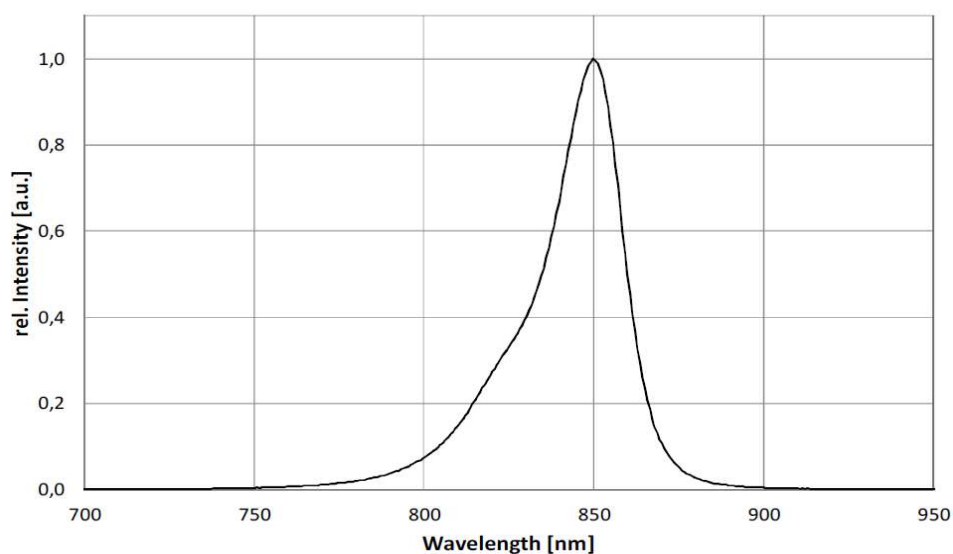
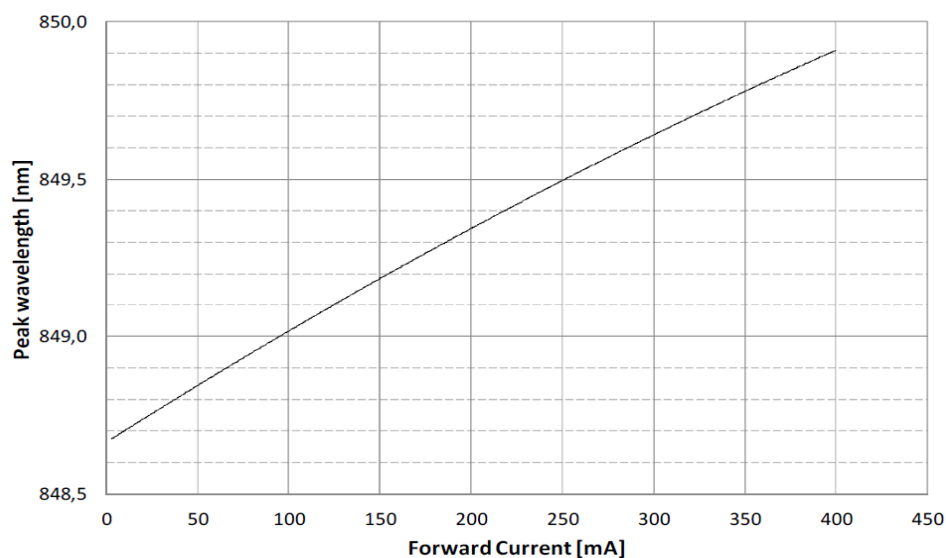
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Rev. 02, 2017

Radiation pattern **$I_F - U_F$
characteristic** **$I_{e, rel} - I_F$
characteristic**

Data Sheet**High Power IR LED****EOLS-855-496****page 3 of 5**

Rev. 02, 2017

Spectrum @ 350 mA**Peak wavelength vs. forward current**

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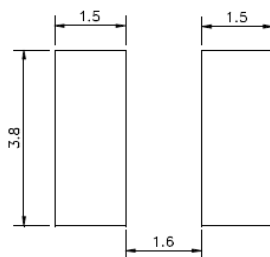
High Power IR LED

EOLS-855-496

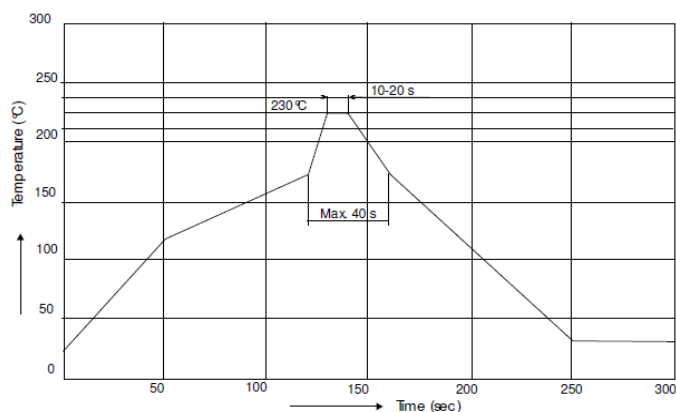
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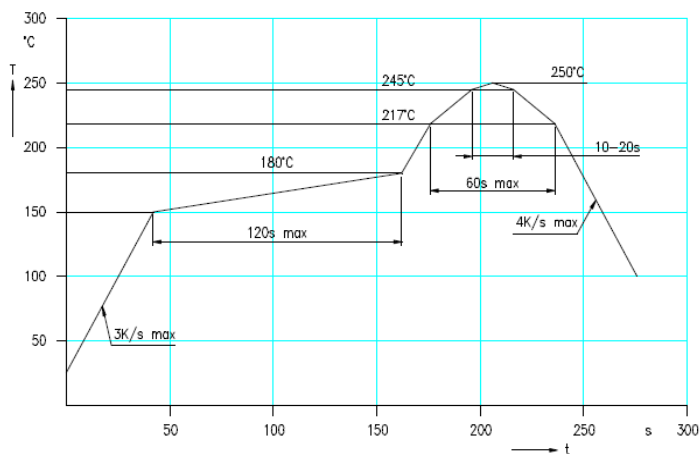
Recommended Soldering Patterns



IR reflow soldering profile



IR reflow soldering profile for lead free soldering



Manual soldering:
max power of iron 25 W / 3 s /
300°C

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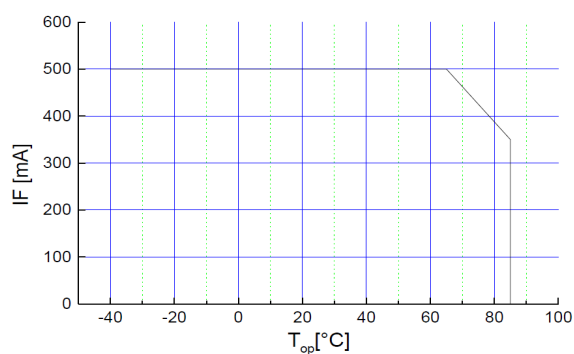
High Power IR LED

EOLS-855-496

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Rev. 02, 2017

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**Maximal
forward
current (DC)
characteristic**





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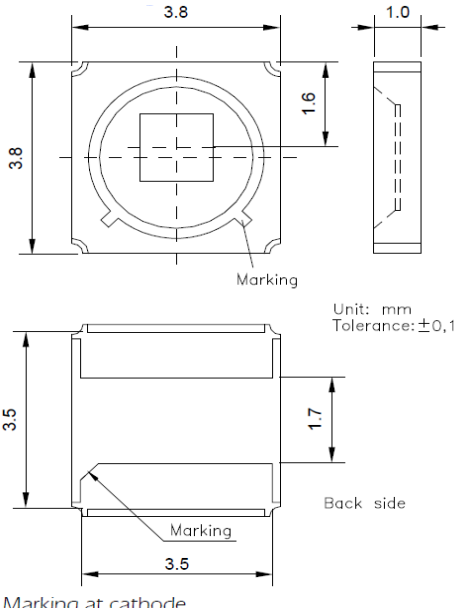
Data Sheet

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High Power IR LED**EOLS-870-496**

Rev. 03, 2017

Radiation	Type	Case
Infrared	AlGaAs	SMD 3838 (1515)

 Unit: mm Tolerance: ±0,1	 Description: - Size 3.8 (W) x 3.8 (L) x 1.0 (H) mm - Circuit substrate: AlN ceramics - Devices are RoHS conform - Lead free solderable, soldering pads: silver plated - High radiation intensity - Marking at anode
--	--

Maximum Ratings $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test conditions	Symbol	Value	Unit
Forward current		I_F	350	mA
Peak forward current	$t_p \leq 100 \mu\text{s}$, $\tau=1:10$	I_{FM}	350	mA
Reverse current	$V_R=5 \text{ V}$	I_R	100	μA
Reverse voltage	$I_R=100 \mu\text{A}$	V_R	5	V
Storage and operating temp. range		T_{stg}	-40 to +85	$^{\circ}\text{C}$
Thermal resistance		R_{thJA}	10	K/W

Optical and Electrical Characteristics $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Symbol	Conditions	Min	typ	max	Unit
Forward voltage	V_F	$I_F = 350 \text{ mA}$		1.5	2	V
Radiant power	Φ_e	$I_F = 350 \text{ mA}$		38		mW
Radiant Intensity	I_e	$I_F = 350 \text{ mA}$	20	30		mW/sr
Peak wavelength	λ_p	$I_F = 350 \text{ mA}$	860	870	880	nm
FWHM	$\Delta\lambda_{0.5}$	$I_F = 350 \text{ mA}$		46		nm

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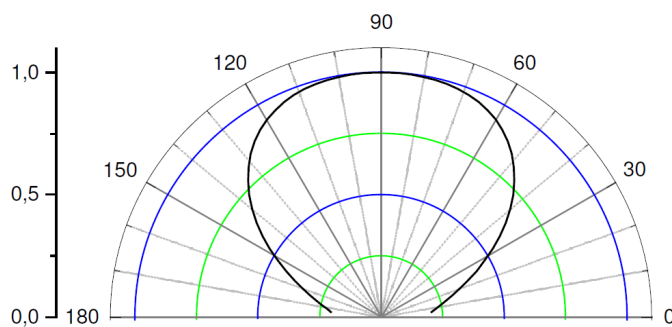
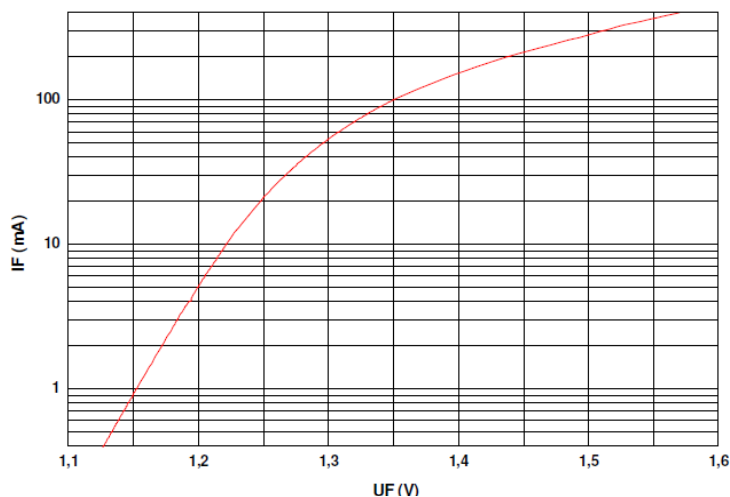
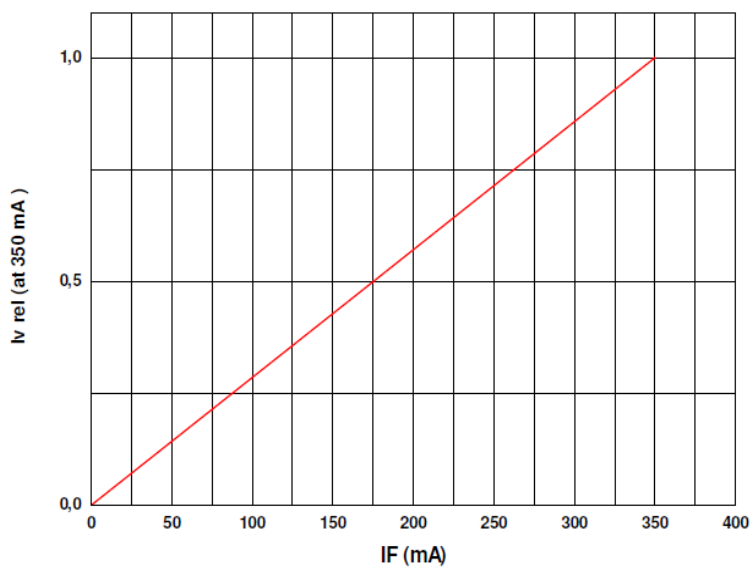
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Data Sheet**High Power IR LED****EOLS-870-496**

page 2 of 4

Rev. 03, 2017

Radiation pattern **$I_F - U_F$
characteristic** **$I_{e, rel} - I_F$
characteristic**

Data Sheet

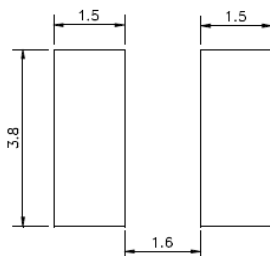
High Power IR LED

EOLS-870-496

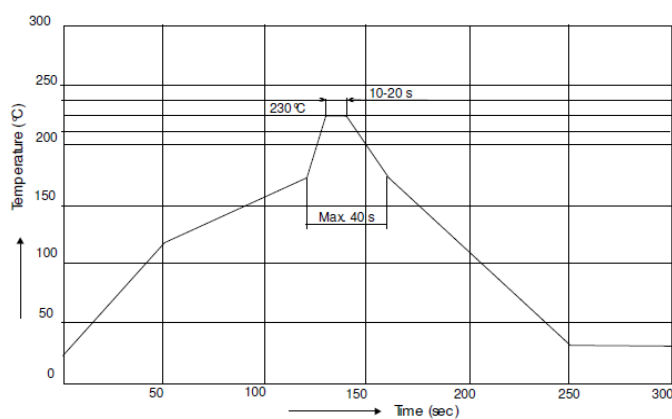
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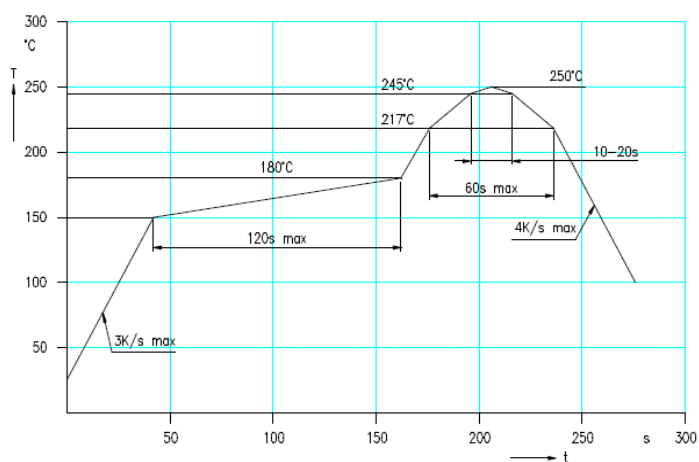
Recommended Soldering Patterns



IR reflow soldering profile



IR reflow soldering profile for lead free soldering



Manual soldering:

max power of iron 25 W / 3 s /

300°C

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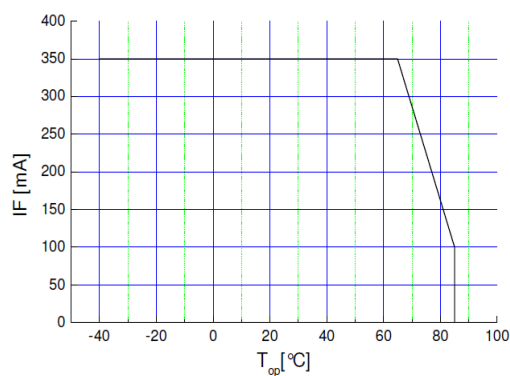
High Power IR LED

EOLS-870-496

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Rev. 03, 2017

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**Maximal
forward
current (DC)
characteristic**



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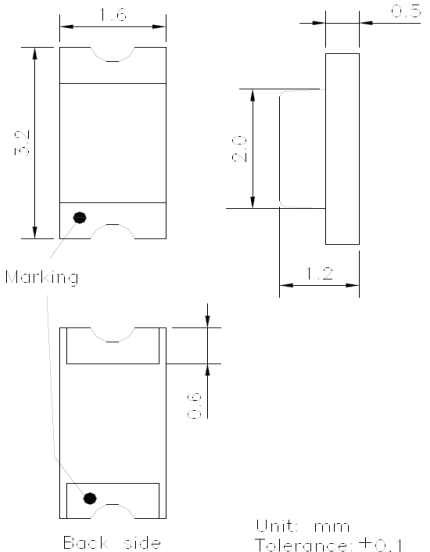
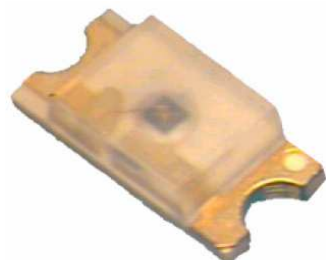
Data Sheet

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SMD-LED**EOLS-880-195**

Rev. 03, 2017

Radiation	Type	Case
infrared	AlGaAs	SMD 3216 (1206)

 Technical drawing of the SMD-LED showing dimensions in mm. The drawing includes a top view, a side view, and a back-side view. Dimensions are: 1.6 mm (width), 0.5 mm (height), 1.2 mm (length), 0.6 mm (height), 0.6 mm (height), 0.6 mm (height). Marking is shown at the cathode. Unit: mm, Tolerance: $\pm 0,1$.	 Photograph of the SMD-LED component, showing its rectangular shape and gold-plated soldering pads.
	Description: - Size 1206: 3.2 (L) x 1.6 (W) x 1.2 (H) mm - Circuit substrate: glass laminated epoxy - Devices are RoHS conform - Lead free solderable, soldering pads: gold plated - Marking at cathode - High radiation intensity

Maximum Ratings $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test conditions	Symbol	Value	Unit
Forward current		I_F	50	mA
Peak forward current	$t \leq 100 \mu\text{s}$, $T = 1 \text{ ms}$	I_{FM}	100	mA
Reverse voltage	$I_R = 100 \mu\text{A}$	I_{RM}	5	V
Operating temperature range		T_{amb}	-40 to +85	$^{\circ}\text{C}$
Storage temperature range		T_{stg}	-55 to +85	$^{\circ}\text{C}$
Thermal resistance		R_{thJA}	450	K/W

Optical and Electrical Characteristics $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Forward voltage	V_F	$I_F = 50 \text{ mA}$		1.5	1.8	V
Radiant power	Φ_e	$I_F = 50 \text{ mA}$		5		mW
Radiant intensity	I_e	$I_F = 50 \text{ mA}$	1.2	2.5		mW/sr
Peak wavelength	λ_p	$I_F = 50 \text{ mA}$	860	875	890	nm
FWHM	$\Delta\lambda_{0,5}$	$I_F = 50 \text{ mA}$		80		nm
Viewing angle	φ	$I_F = 50 \text{ mA}$		120		deg.
Rise and fall times	t_r, t_f	$I_F = 50 \text{ mA}$	20		80	ns

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Data Sheet

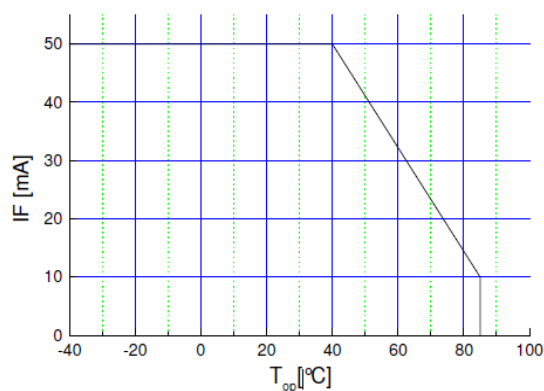
SMD-LED

EOLS-880-195

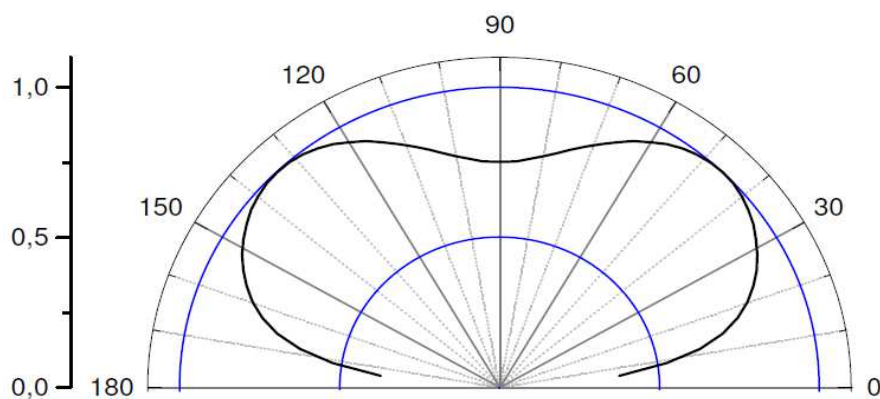
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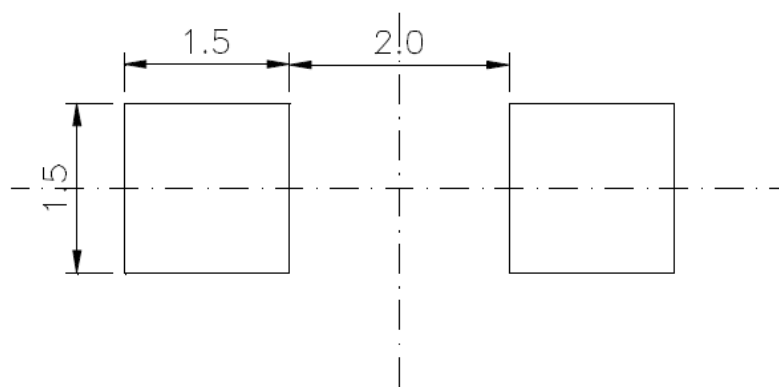
Maximal forward current (DC) characteristic



Radiation pattern



Recommended Soldering Pattern

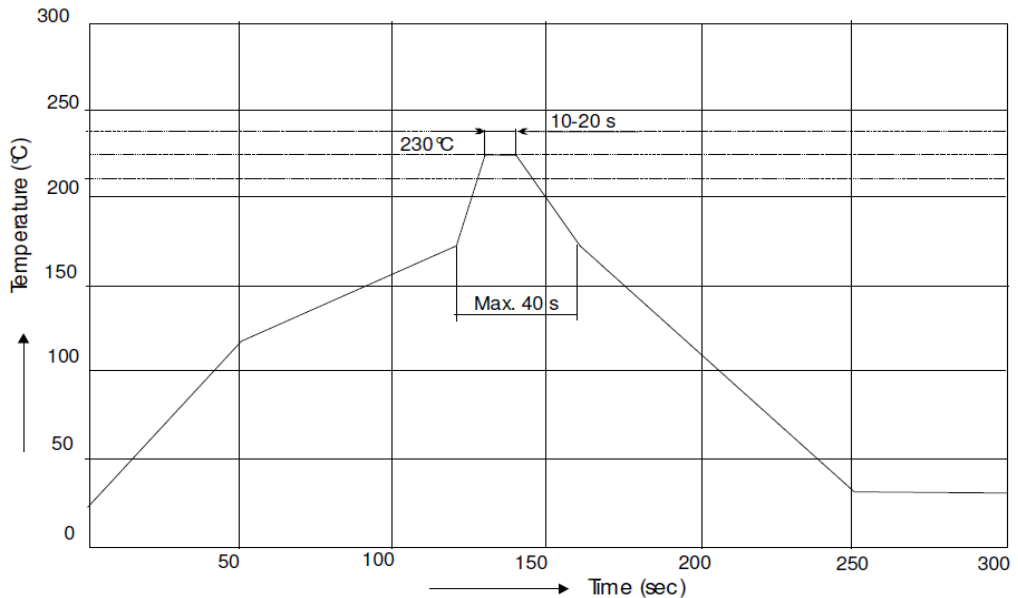
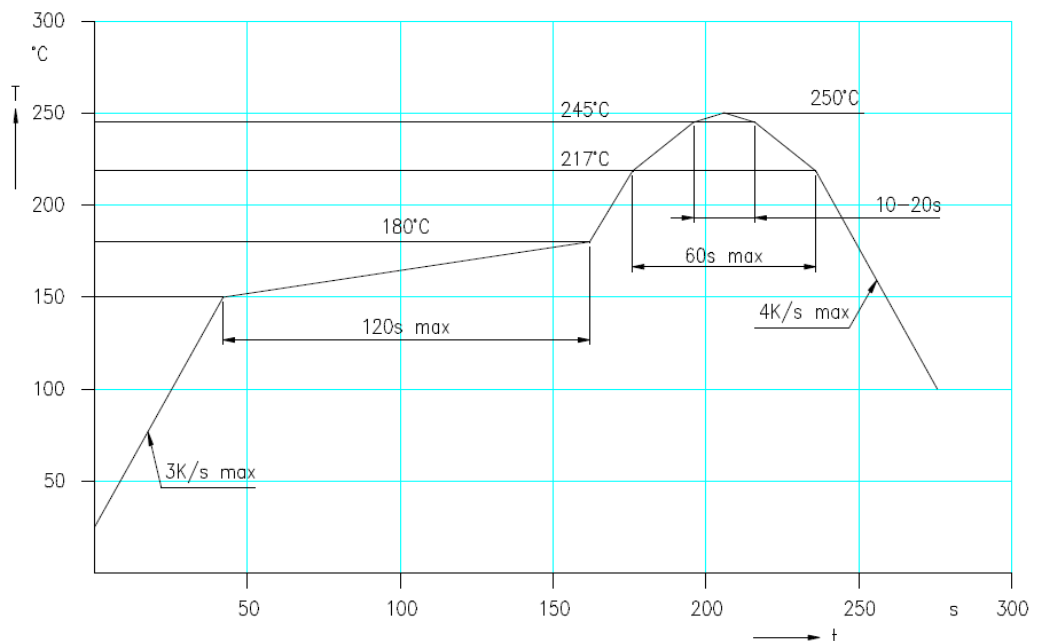


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Data Sheet**SMD-LED****EOLS-880-195**

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Rev. 03, 2017

**IR reflow
soldering
profile****IR reflow
soldering
profile for lead
free soldering****Manual soldering:**

max power of iron 25 W / 3 s / 300°C

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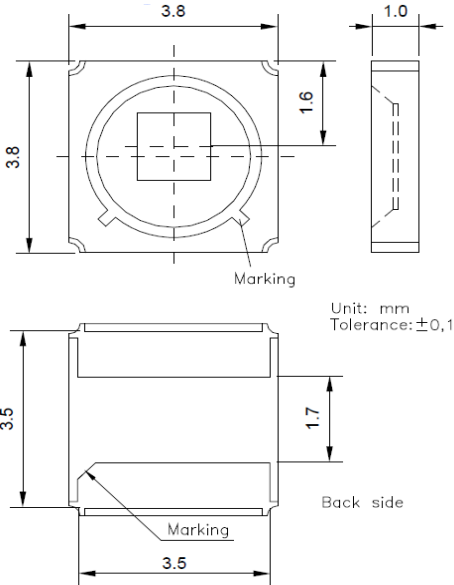
Data Sheet

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High Power IR LED**EOLS-880-496**

Rev. 03, 2017

Radiation	Type	Case
Infrared	AlGaAs	SMD 3838 (1515)

	 Description: - Size 3.8 (W) x 3.8 (L) x 1.0 (H) mm - Circuit substrate: AlN ceramics - Devices are RoHS conform - Lead free solderable, soldering pads: silver plated - High radiation intensity - Marking at anode
--	--

Maximum Ratings $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test conditions	Symbol	Value	Unit
Forward current		I_F	350	mA
Peak forward current	$t_p \leq 100 \mu\text{s}$, $\tau=1:10$	I_{FM}	350	mA
Reverse current	$V_R=5 \text{ V}$	I_R	100	μA
Reverse voltage	$I_R=100 \mu\text{A}$	V_R	5	V
Storage and operating temp. range		T_{stg}	-40 to +85	$^{\circ}\text{C}$
Thermal resistance		R_{thJA}	10	K/W

Optical and Electrical Characteristics $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

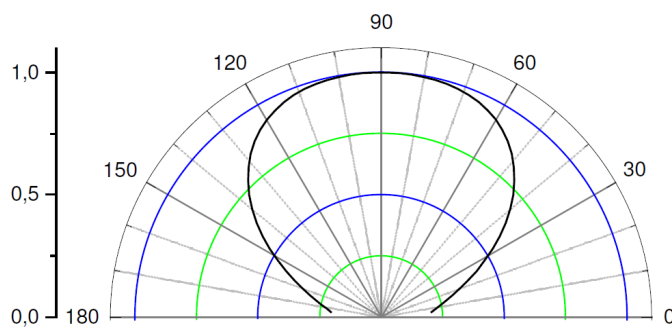
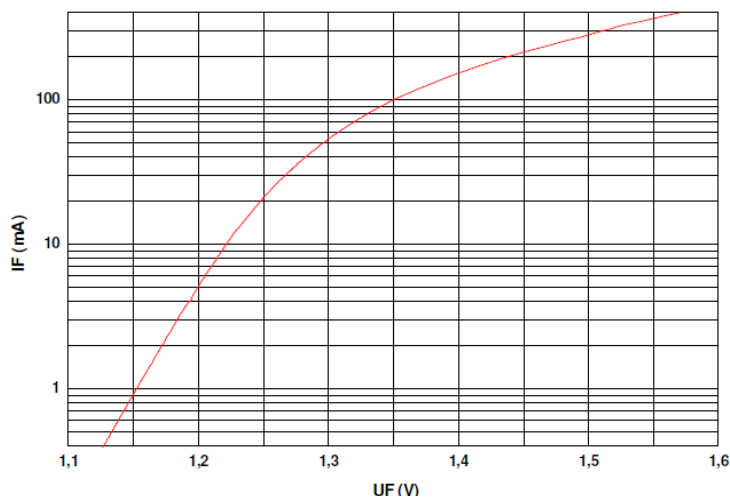
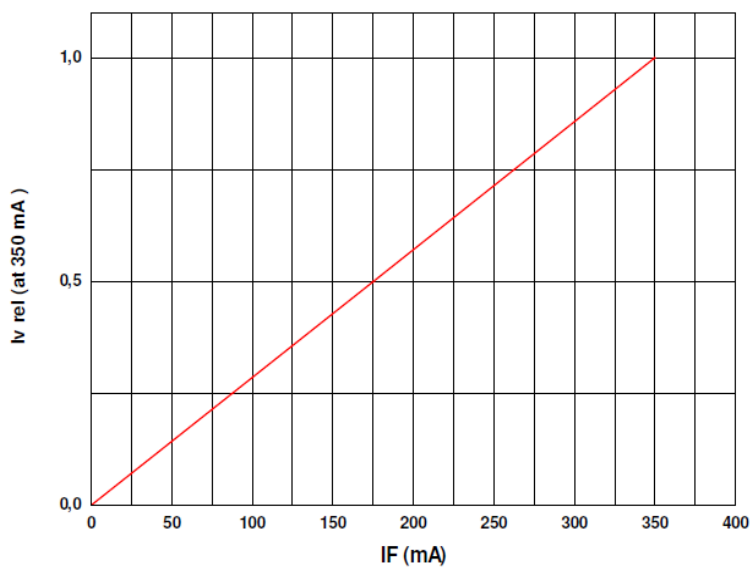
Parameter	Symbol	Conditions	Min	typ	max	Unit
Forward voltage	V_F	$I_F=350 \text{ mA}$		1.5	2	V
Radiant power	Φ_e	$I_F=350 \text{ mA}$		38		mW
Radiant Intensity	I_e	$I_F=350 \text{ mA}$	20	30		mW/sr
Peak wavelength	λ_p	$I_F=350 \text{ mA}$	870	880	890	nm
FWHM	$\Delta\lambda_{0,5}$	$I_F=350 \text{ mA}$		39		nm

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Data Sheet**High Power IR- LED****EOLS-880-496**

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Rev. 03, 2017

Radiation pattern **$I_F - U_F$
characteristic** **$I_{e, rel} - I_F$
characteristic**

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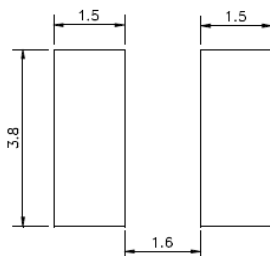
Data Sheet

High Power IR- LED

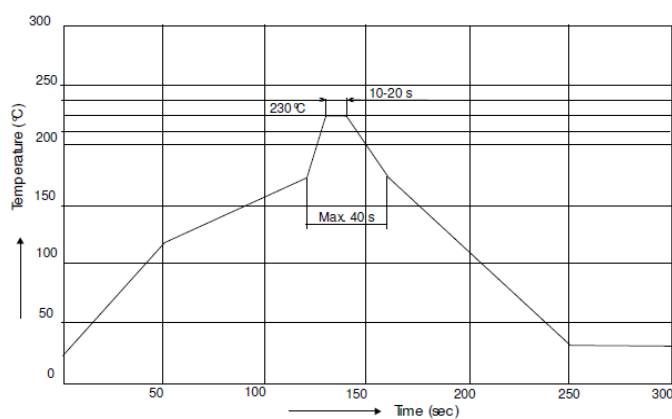
EOLS-880-496

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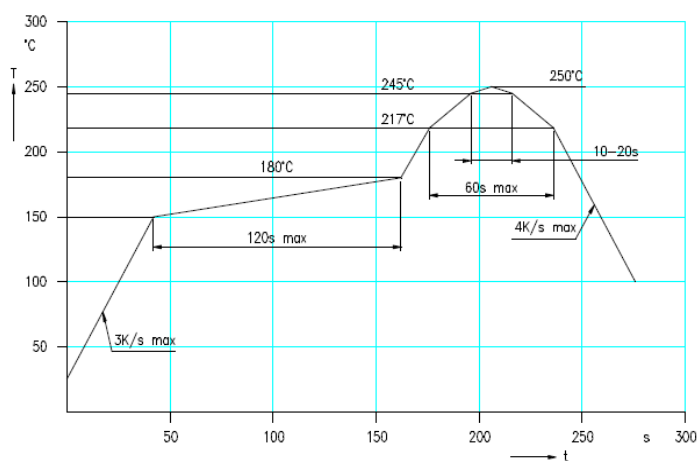
Recommended Soldering Patterns



IR reflow soldering profile



IR reflow soldering profile for lead free soldering



Manual soldering: max power of iron 25 W / 3 s / 300°C

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Data Sheet

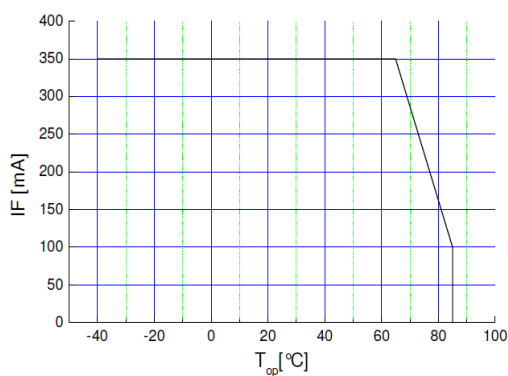
High Power IR- LED

EOLS-880-496

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Rev. 03, 2017

Measured according to CIE 127. All SMD-LEDs are 100% measured and selected on full automated equipment with an accuracy of $\pm 11\%$.

Maximal
forward
current (DC)
characteristic



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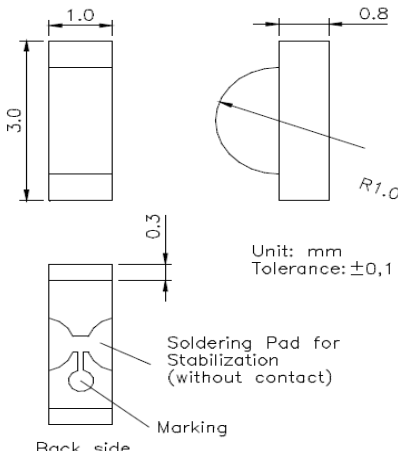
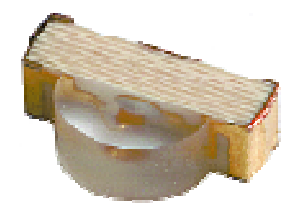
page 1 of 3

SMD-LED side view

EOLS-880-590

Rev. 03, 2017

Radiation	Type	Case
infrared	side view	SMD 3018 (1008)

 Unit: mm Tolerance: $\pm 0,1$ Soldering Pad for Stabilization (without contact) Marking Back side	
	Description: - Size 1008: 3.0 (L) x 1.8 (W) x 1.0 (H) mm - Circuit substrate: glass laminated epoxy - Devices are RoHS conform - Lead free solderable, soldering pads: gold plated - Marking at cathode

Maximum Ratings

$T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test Conditions	Symbol	Value	Unit
Peak forward current	$t_p \leq 100 \mu\text{s}$, $\tau = 1:10$	I_{FP}	250	mA
Continuous forward current		I_F	50	mA
Reverse voltage		V_R	5	V
Operating temperature range		T_{amb}	-40 to +85	$^{\circ}\text{C}$
Storage temperature range		T_{stg}	-55 to +85	$^{\circ}\text{C}$
Thermal resistance		R_{thJA}	500	K/W

Optical and Electrical Characteristics

$T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Forward voltage	V_F	$I_F = 50 \text{ mA}$		1.4	1.7	V
Reverse current	I_R	$V_R = 5 \text{ V}$			100	μA
Radiant power	Φ_e	$I_F = 50 \text{ mA}$		5		mW
Radiant intensity	I_e	$I_F = 50 \text{ mA}$	1.2	2.5		mW/sr
Peak wavelength	λ_p	$I_F = 50 \text{ mA}$	860	875	890	nm
Spectral bandwidth	$\Delta\lambda_{0.5}$	$I_F = 50 \text{ mA}$		40		nm
Viewing angle	ϕ	$I_F = 20 \text{ mA}$		160		deg
Rise and fall time	t_r, t_f	$I_F = 20 \text{ mA}$		20	80	ns

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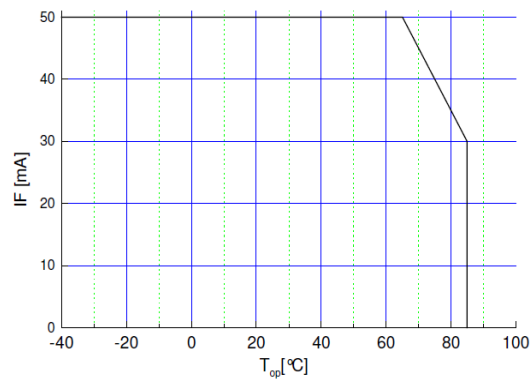
Data Sheet

SMD-LED side view

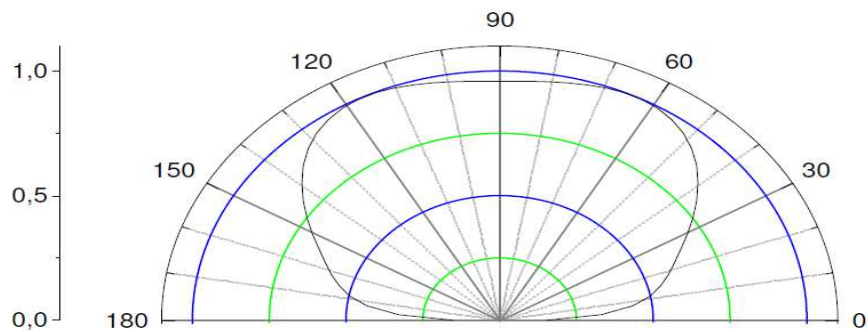
EOLS-880-590

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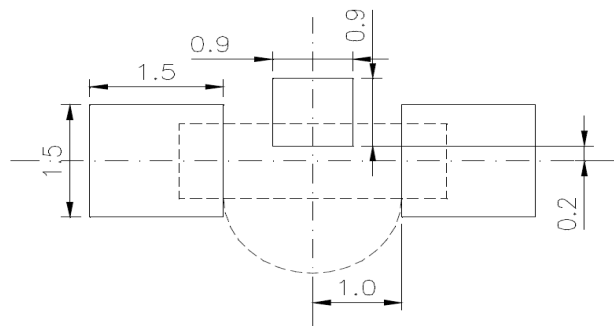
Maximal forward current (DC) characteristic



Radiation pattern



Recommended Soldering Patterns



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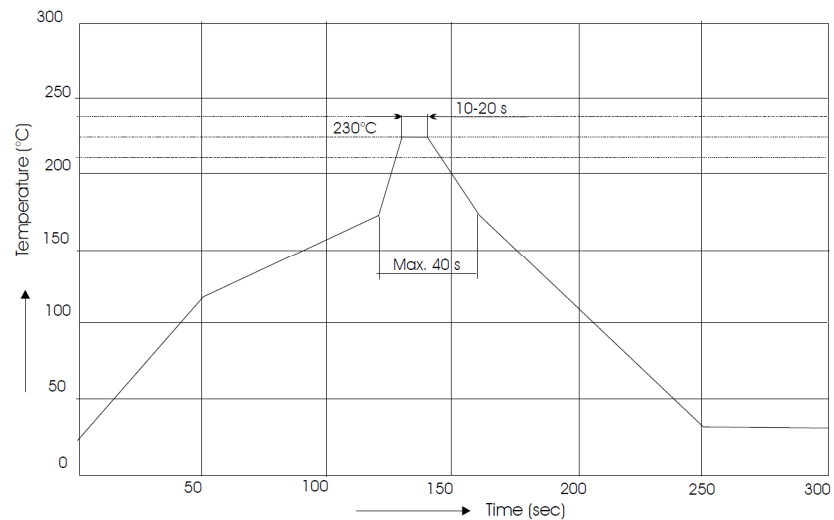
Data Sheet

SMD-LED side view

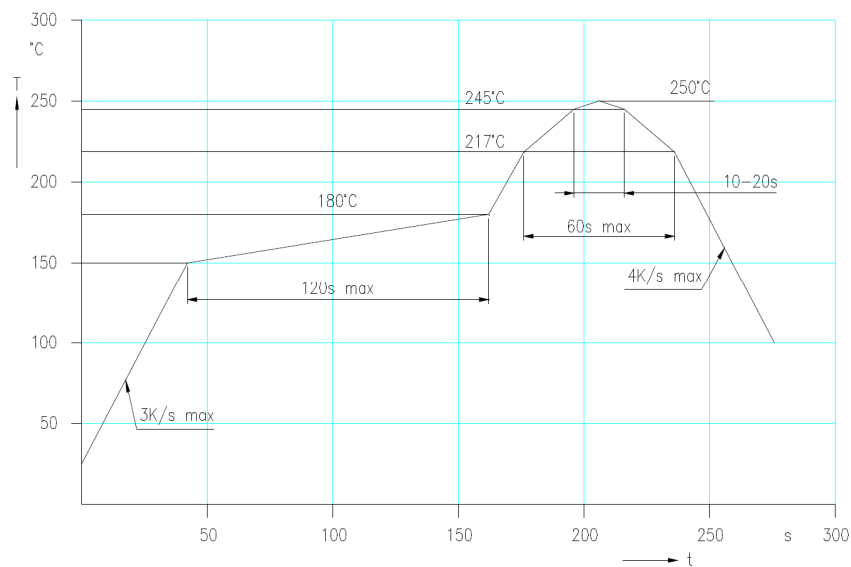
EOLS-880-590

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Rev. 03, 2017

IR reflow soldering profile



IR reflow soldering profile for lead free soldering



Manual soldering:
max power of iron 25 W / 3 s / 300°C

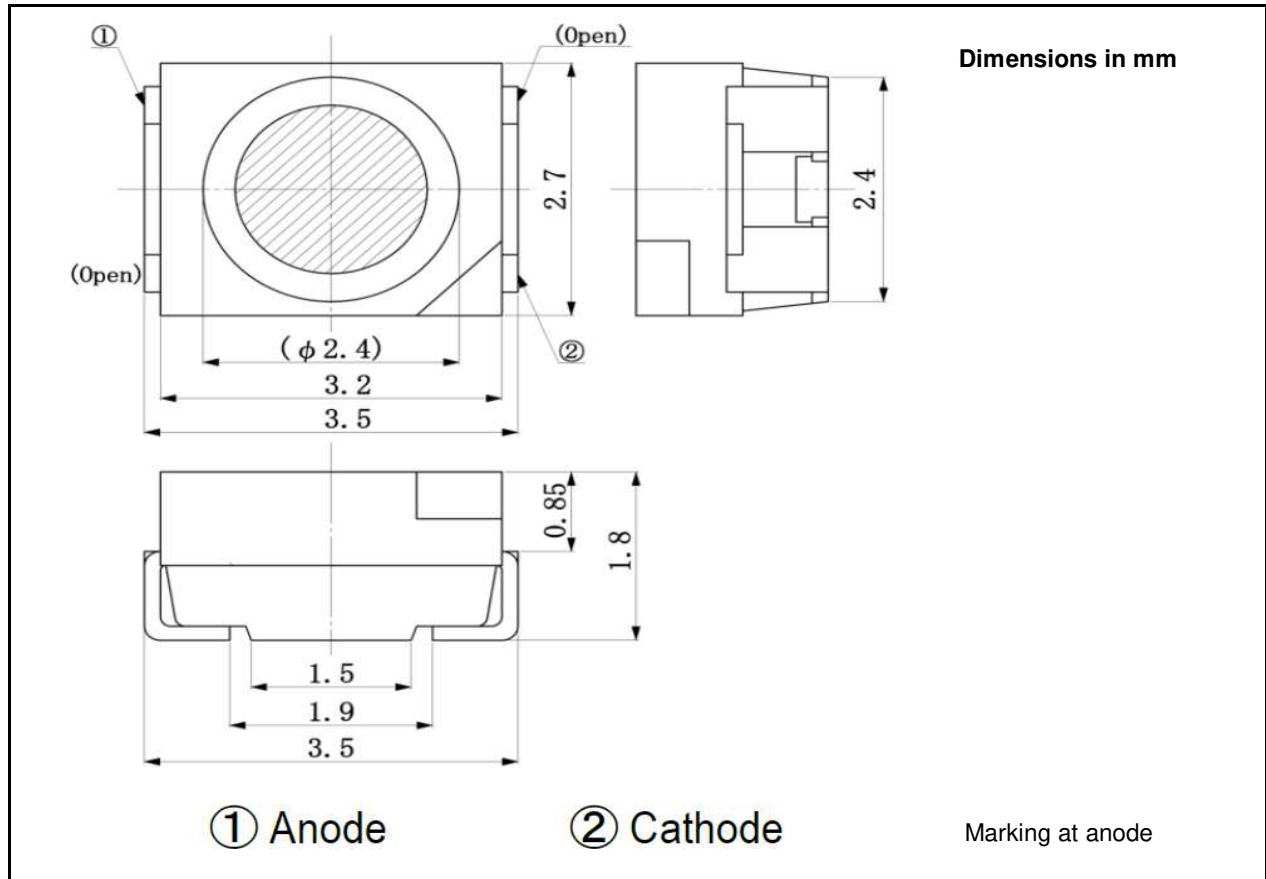
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Infrared SMD-LED**EOLS-915-995**

Radiation	Type	Case
Infrared	InGaAs/InP, MQW	SMD 3527 (1411), PLCC4

**Maximum Ratings** $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test Conditions	Symbol	Value	Unit
Peak forward current	$t_p \leq 100 \mu\text{s}$, $T = 1 \text{ ms}$	I_{FP}	100	mA
Continuous forward current		I_F	80	mA
Reverse voltage		V_R	5	V
Operating temperature range		T_{amb}	-20 to +80	$^{\circ}\text{C}$
Storage temperature range		T_{stg}	-30 to +100	$^{\circ}\text{C}$
Power dissipation		P_D	120	mW
Thermal resistance		R_{thJA}	10	K/W
Lead soldering temperature	$T = 5 \text{ s}$, 3 mm from body	T_{sld}	260	$^{\circ}\text{C}$



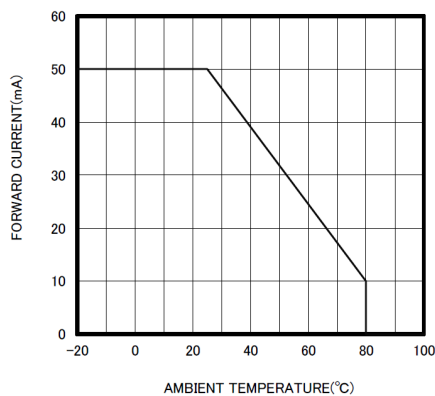
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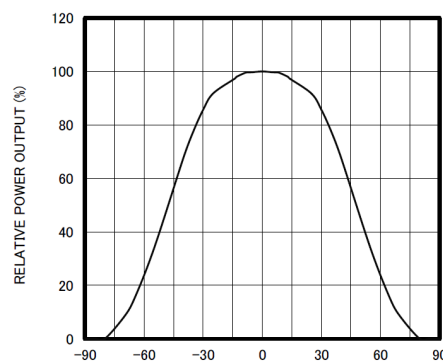
Infrared SMD-LED**EOLS-915-995****Optical and Electrical Characteristics** $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test cond.	Symbol	Min	Typ	Max	Unit
Forward voltage	$I_F = 20\text{ mA}$	V_F		1.25	1.5	V
Reverse current	$V_R = 5\text{ V}$	I_R			100	μA
Radiant power	$I_F = 20\text{ mA}$	Φ_e	4	4.5		mW
Peak wavelength	$I_F = 20\text{ mA}$	λ_p	915		920	nm
FWHM	$I_F = 20\text{ mA}$	$\Delta\lambda_{0.5}$		55		nm
Viewing angle	$I_F = 20\text{ mA}$	ϕ		± 45		deg
Switching times	$I_F = 20\text{ mA}$	t_r, t_f		400		ns

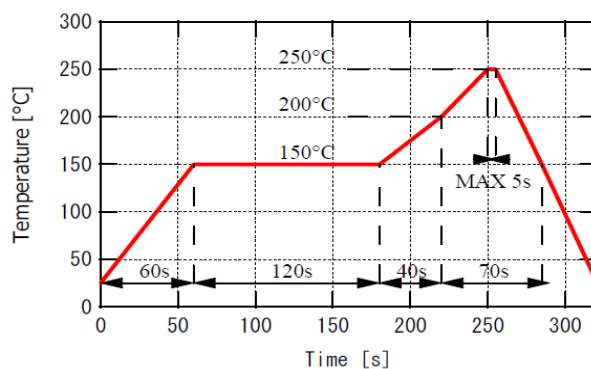
THERMAL DERATING CURVE



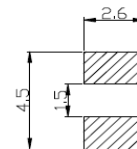
RADIATION PATTERN



Recommended reflow soldering profile



Recommended Land Layout (Unit: mm)



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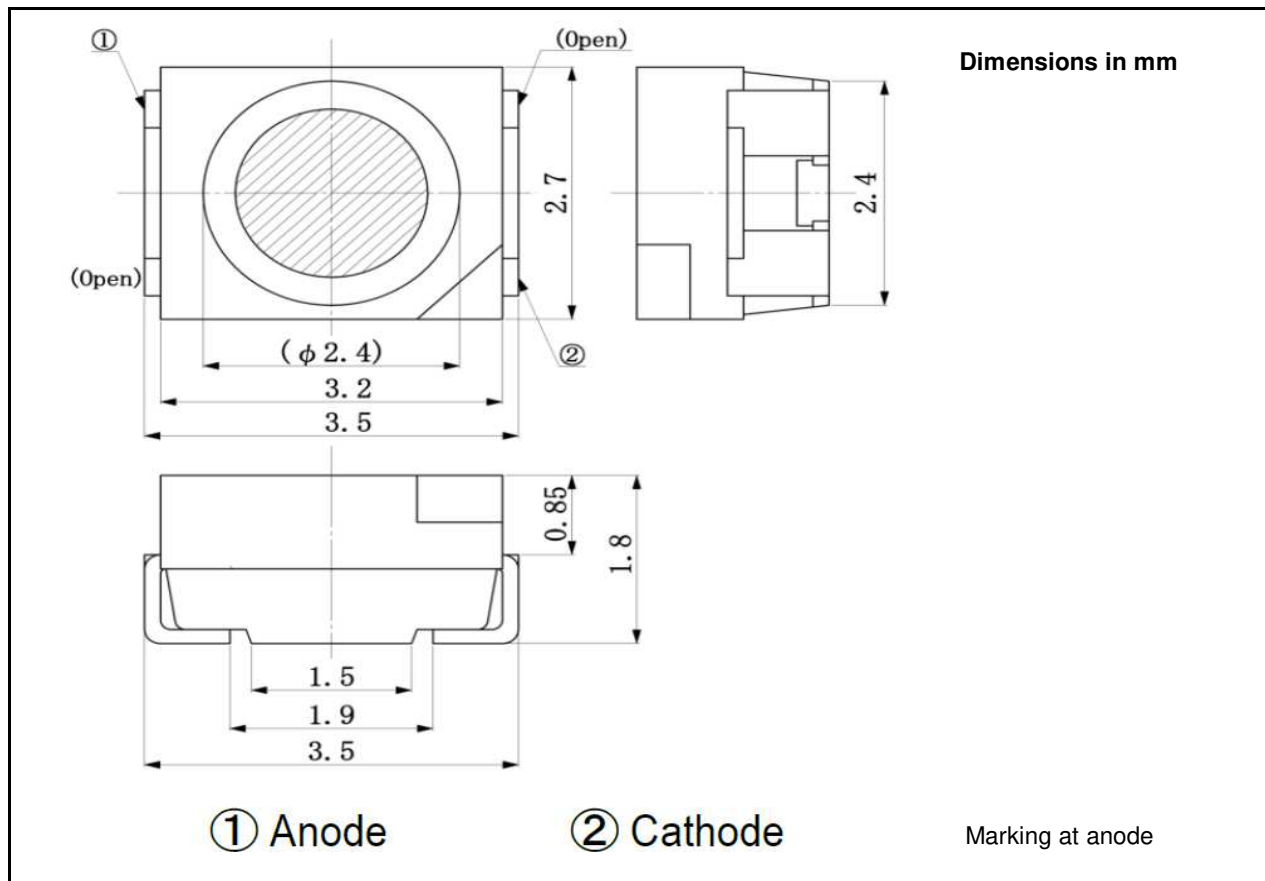
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Infrared SMD-LED**EOLS-920-995**

Rev. 01, 2017

Radiation	Type	Case
Infrared	InGaAs/InP, MQW	SMD 3527 (1411), PLCC4

**Maximum Ratings** $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test Conditions	Symbol	Value	Unit
Peak forward current	$t_p \leq 100 \mu\text{s}$, $T = 1 \text{ ms}$	I_{FP}	100	mA
Continuous forward current		I_F	80	mA
Reverse voltage		V_R	5	V
Operating temperature range		T_{amb}	-20 to +80	$^{\circ}\text{C}$
Storage temperature range		T_{stg}	-30 to +100	$^{\circ}\text{C}$
Power dissipation		P_D	120	mW
Thermal resistance		R_{thJA}	10	K/W
Lead soldering temperature	$T = 5 \text{ s}$, 3 mm from body	T_{sld}	260	$^{\circ}\text{C}$

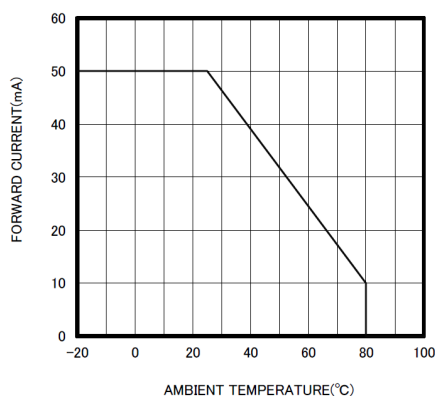


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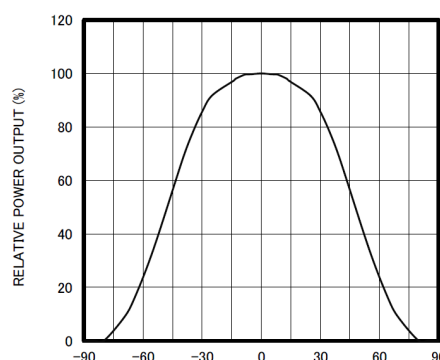
Optical and Electrical Characteristics
 $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test cond.	Symbol	Min	Typ	Max	Unit
Forward voltage	$I_F = 20\text{ mA}$	V_F		1.25	1.5	V
Reverse current	$V_R = 5\text{ V}$	I_R			100	μA
Radiant power	$I_F = 20\text{ mA}$	Φ_e	4	4.5		mW
Peak wavelength	$I_F = 20\text{ mA}$	λ_p		920		nm
FWHM	$I_F = 20\text{ mA}$	$\Delta\lambda_{0.5}$		55		nm
Viewing angle	$I_F = 20\text{ mA}$	ϕ		± 45		deg
Switching times	$I_F = 20\text{ mA}$	t_r, t_f		400		ns

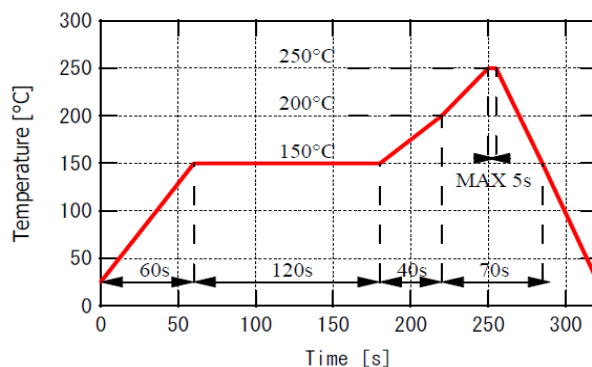
THERMAL DERATING CURVE



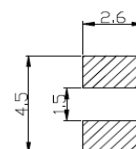
RADIATION PATTERN



Recommended reflow soldering profile



Recommended Land Layout (Unit: mm)



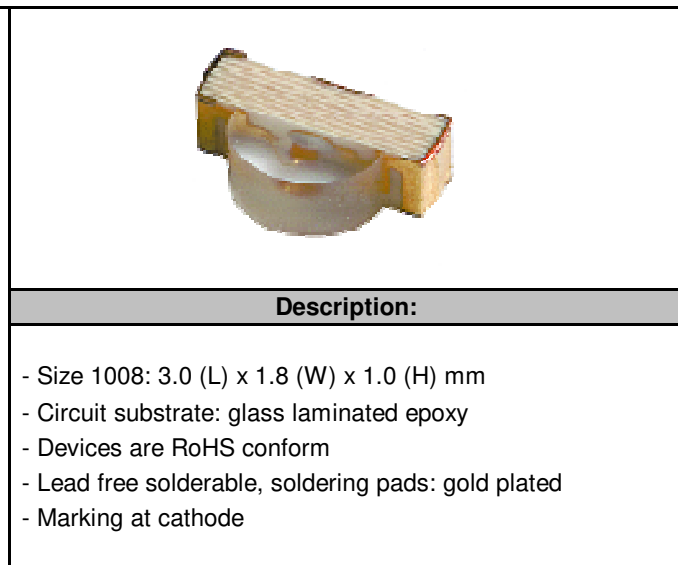
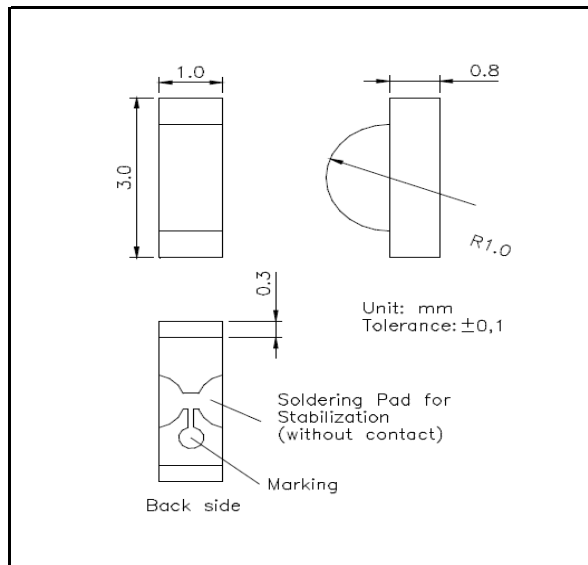
Data Sheet

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SMD-LED side view**EOLS-940-590**

Rev. 03, 2017

Radiation	Type	Case
infrared	side view	SMD 3018 (1008)

**Maximum Ratings** $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test Conditions	Symbol	Value	Unit
Peak forward current	$t_p \leq 100 \mu\text{s}$, $\tau = 1:10$	I_{FP}	250	mA
Continuous forward current		I_F	50	mA
Reverse voltage		V_R	5	V
Operating temperature range		T_{amb}	-40 to +85	$^{\circ}\text{C}$
Storage temperature range		T_{stg}	-55 to +85	$^{\circ}\text{C}$
Thermal resistance		R_{thJA}	450	K/W

Optical and Electrical Characteristics $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Forward voltage	V_F	$I_F = 20 \text{ mA}$		1.2	1.4	V
Reverse current	I_R	$V_R = 5 \text{ V}$			100	μA
Radiant power	Φ_e	$I_F = 20 \text{ mA}$		4.6		mW
Radiant intensity	I_e	$I_F = 20 \text{ mA}$		2.3		mW/sr
Peak wavelength	λ_p	$I_F = 20 \text{ mA}$	930	940	950	nm
Spectral bandwidth	$\Delta\lambda_{0.5}$	$I_F = 20 \text{ mA}$		40		nm
Viewing angle	ϕ	$I_F = 20 \text{ mA}$		160		deg
Rise and fall time	t_r, t_f	$I_F = 20 \text{ mA}$		500		μs

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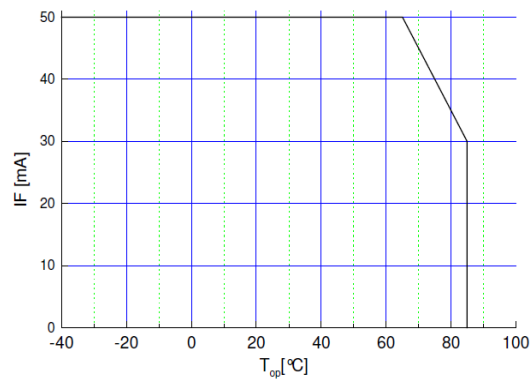
Data Sheet

SMD-LED side view

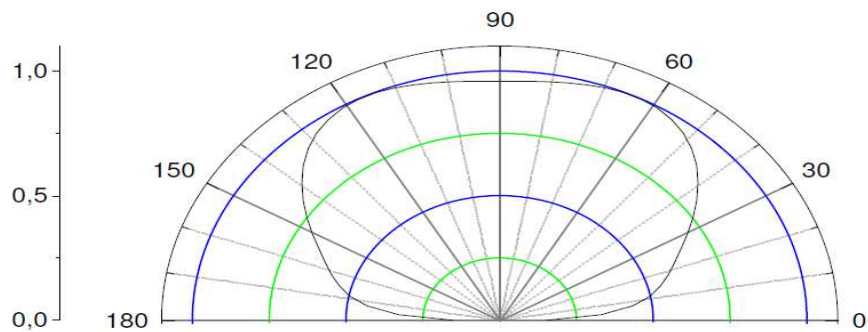
EOLS-940-590

page 2 of 3
Rev. 03, 2017

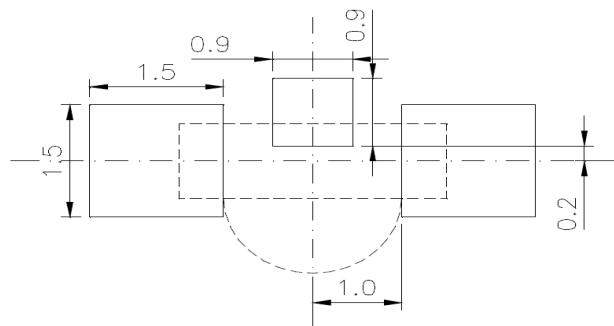
Maximal forward current (DC) characteristic



Radiation pattern



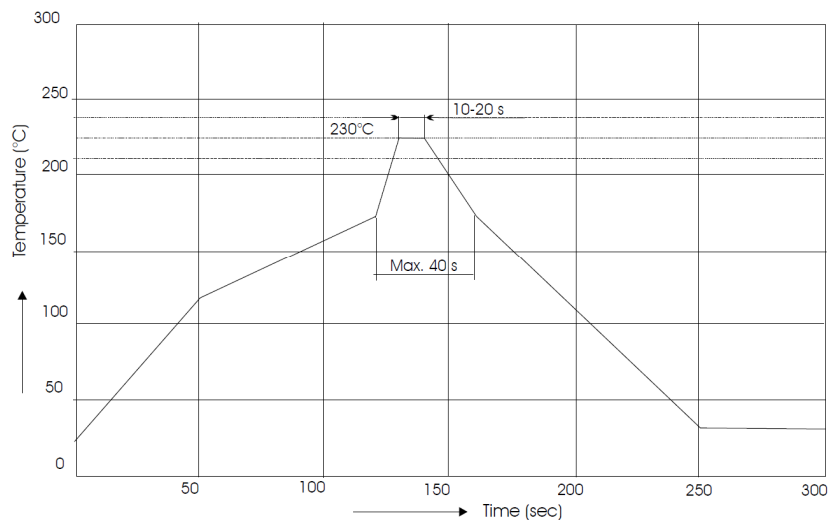
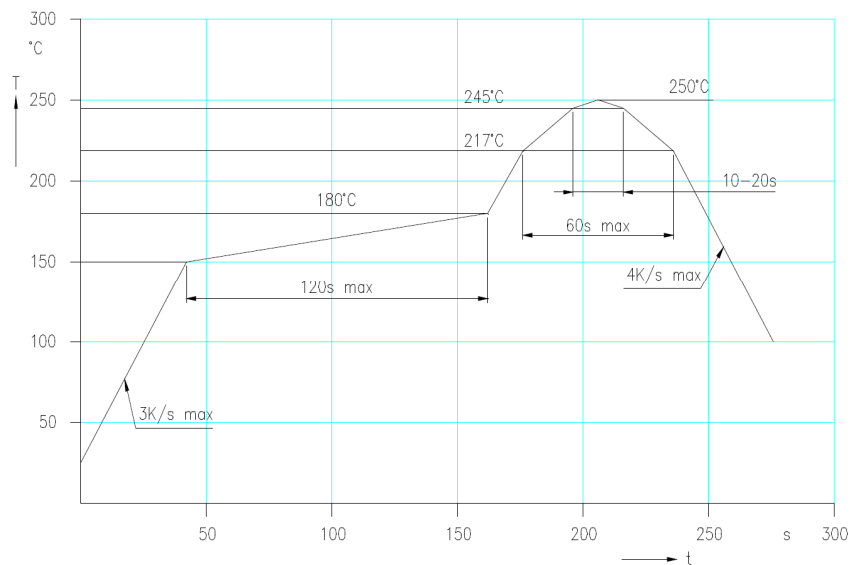
Recommended Soldering Patterns



We reserve the right to make changes to improve technical design and may do so without further notice. Parameters can vary in different applications.
All operating parameters must be validated for each customer application by the customer.

Data Sheet**SMD-LED side view****EOLS-940-590****page 3 of 3**

Rev. 03, 2017

**IR reflow
soldering
profile****IR reflow
soldering
profile for lead
free soldering****Manual soldering:****max power of iron 25 W / 3 s / 300°C**

Art. No. 133 028



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Data Sheet

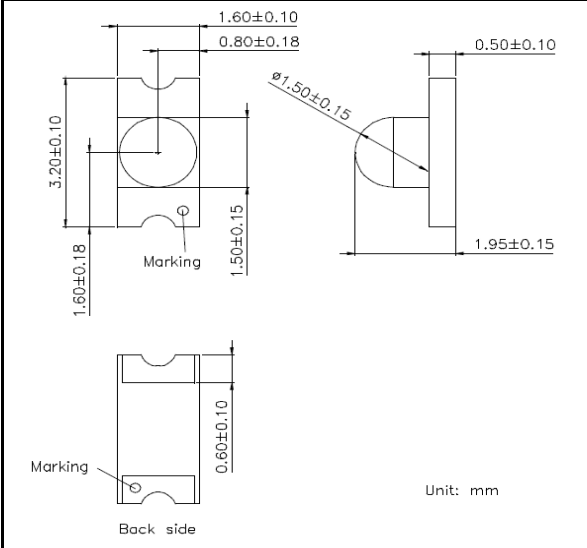
page 1 of 3

Infrared SMD LED

EOLS-940-843

Rev. 04, 2019

Radiation	Type	Case
infrared	GaAs	SMD 3216 (1206), with lens

	 Description: - Size 1206: 3.2 (L) x 1.6 (W) x 1.95 (H) mm - Circuit substrate: glass laminated epoxy - Devices are RoHS conform - Lead free solderable, soldering pads: gold plated - Marking at cathode
--	---

Maximum Ratings

 $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test Conditions	Symbol	Value	Unit
Peak forward current	$t_p \leq 100 \mu\text{s}$, $\tau = 1:10$	I_{FP}	100	mA
Continuous forward current		I_F	50	mA
Reverse voltage		V_R	5	V
Operating temperature range		T_{amb}	-40 to +85	$^{\circ}\text{C}$
Storage temperature range		T_{stg}	-40 to +85	$^{\circ}\text{C}$
Thermal resistance		R_{thJA}	450	K/W

Optical and Electrical Characteristics

 $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified


Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Forward voltage	V_F	$I_F = 50 \text{ mA}$		1.4	1.8	V
Reverse current	I_R	$V_R = 5 \text{ V}$			10	μA
Radiant power	Φ_e	$I_F = 50 \text{ mA}$		13.5		mW
Radiant intensity	I_e	$I_F = 50 \text{ mA}$	18	28		mW/sr
Peak wavelength	λ_p	$I_F = 50 \text{ mA}$	925	940	955	nm
Spectral bandwidth	$\Delta\lambda_{0.5}$	$I_F = 50 \text{ mA}$		30		nm
Viewing angle	φ	$I_F = 20 \text{ mA}$		40		deg

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Data Sheet

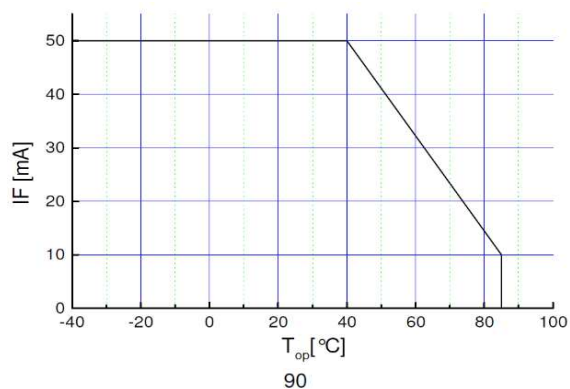
Infrared SMD LED

EOLS-940-843

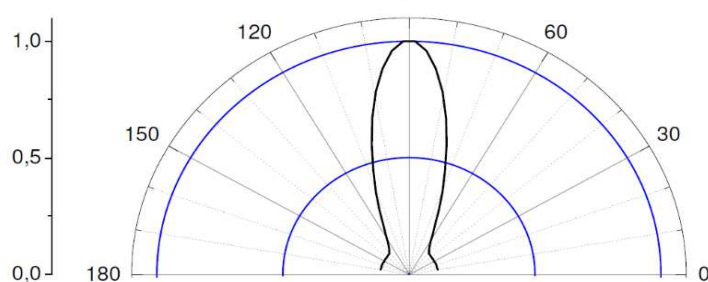
page 2 of 3

Rev. 04, 2019

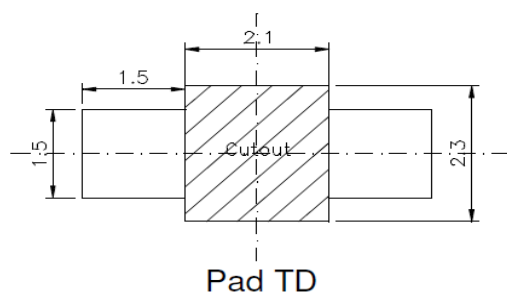
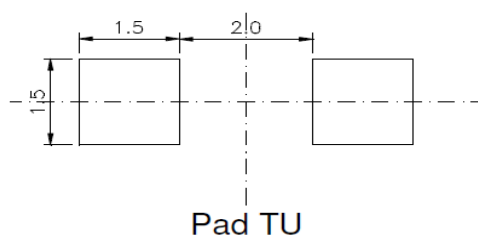
Maximal forward current (DC) characteristic



Radiation pattern



Recommended Soldering Patterns



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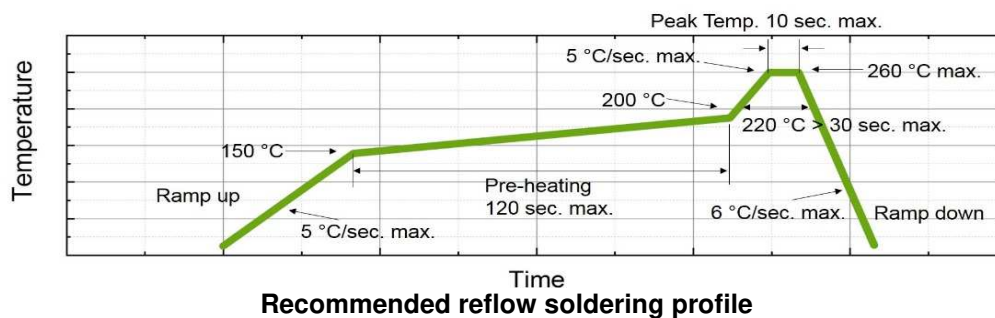
Data Sheet

Infrared SMD LED

EOLS-940-843

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Rev. 04, 2019





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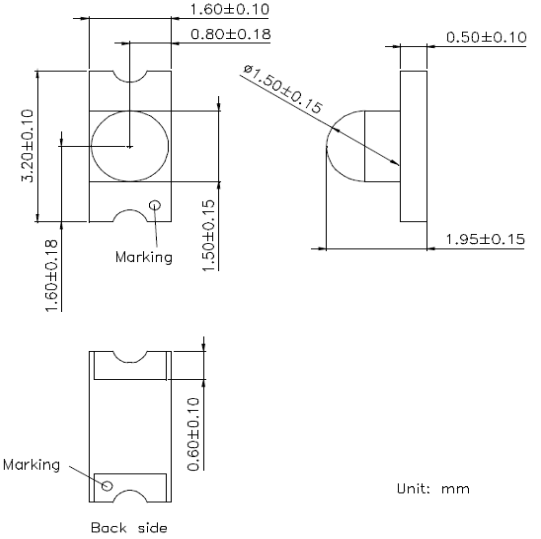
Data Sheet

page 1 of 3

Infrared SMD-LED**EOLS-950-843**

Rev. 03, 2017

Radiation	Type	Case
infrared	GaAs	SMD 3216 (1206)

 Unit: mm	 Description: - Size 1206: 3.2 (L) x 1.6 (W) x 1.95 (H) mm - Circuit substrate: glass laminated epoxy - Devices are RoHS conform - Lead free solderable, soldering pads: gold plated - Marking at cathode
--	---

Maximum RatingsT_{amb} = 25°C, unless otherwise specified

Parameter	Test Conditions	Symbol	Value	Unit
Peak forward current	$t_p \leq 100 \mu s, \tau = 1:10$	I_{FP}	250	mA
Continuous forward current		I_F	50	mA
Reverse voltage		V_R	5	V
Operating temperature range		T_{amb}	-40 to +85	°C
Storage temperature range		T_{stg}	-55 to +85	°C
Thermal resistance		R_{thJA}	500	K/W

Optical and Electrical CharacteristicsT_{amb} = 25°C, unless otherwise specified

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Forward voltage	V_F	$I_F = 50 \text{ mA}$		1.3	1.6	V
Reverse current	I_R	$V_R = 5 \text{ V}$			100	μA
Radiant power	Φ_e	$I_F = 50 \text{ mA}$	1.8	4.6		mW
Peak wavelength	λ_p	$I_F = 50 \text{ mA}$	940	950	960	nm
Spectral bandwidth	$\Delta\lambda_{0.5}$	$I_F = 50 \text{ mA}$		40		nm
Switching time	t_r, t_f	$I_F = 50 \text{ mA}$		20		ns
Viewing angle	φ	$I_F = 20 \text{ mA}$		40		deg

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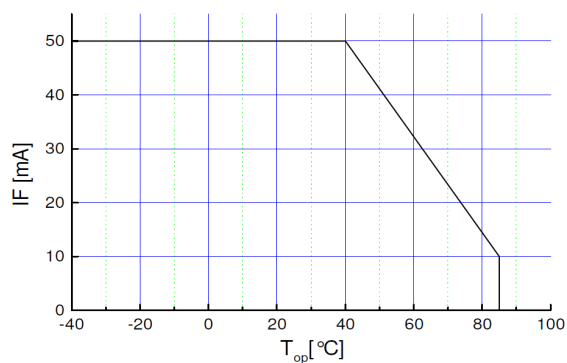
Data Sheet

Infrared SMD-LED

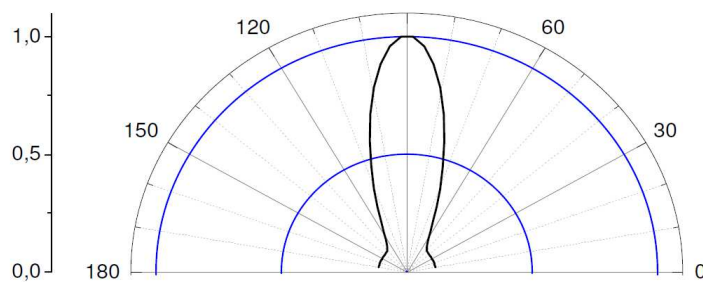
EOLS-950-843

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Rev. 03, 2017

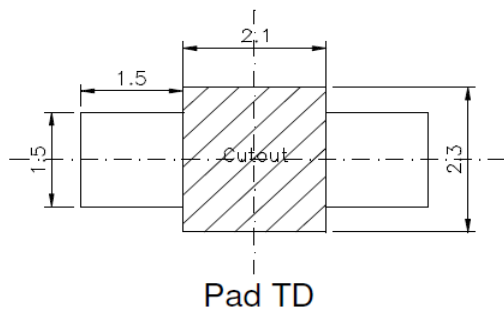
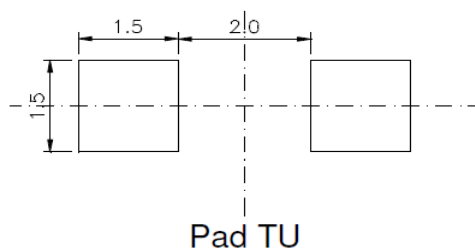
Maximal forward current (DC) characteristic



Radiation pattern



Recommended Soldering Patterns



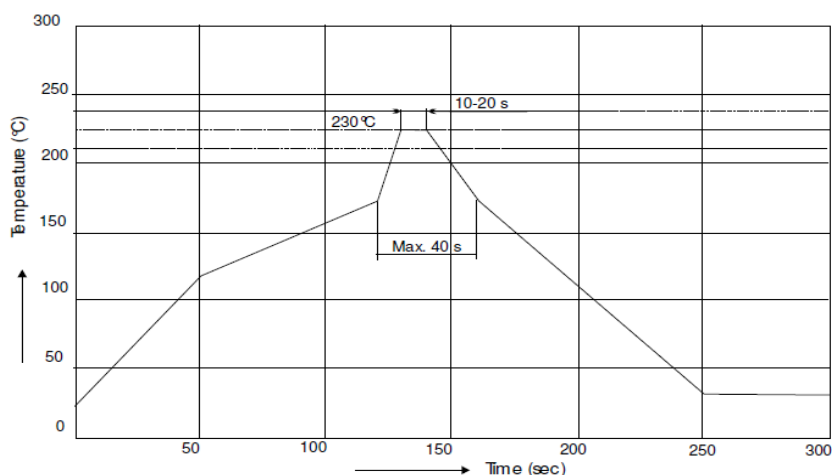
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Infrared SMD-LED

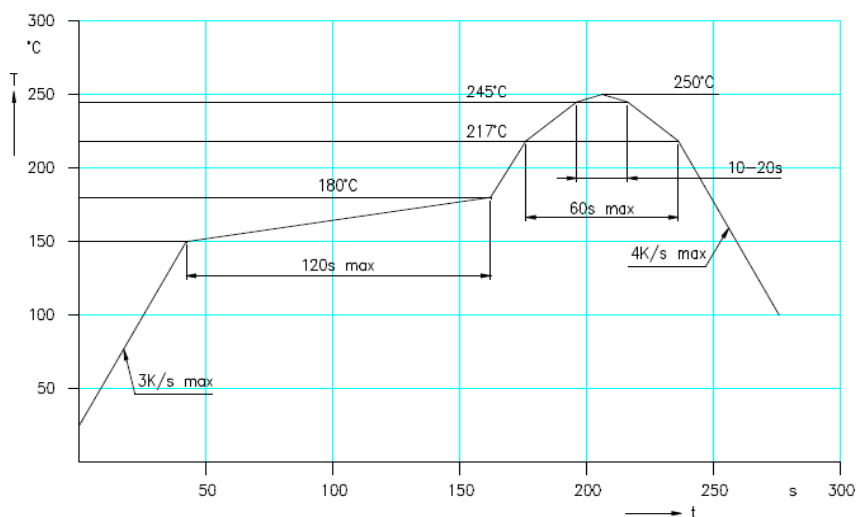
EOLS-950-843

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Rev. 03, 2017

IR reflow soldering profile



IR reflow soldering profile for lead free soldering



Manual soldering:
max power of iron 25 W / 3 s / 300°C

Art. No. xxx xxx



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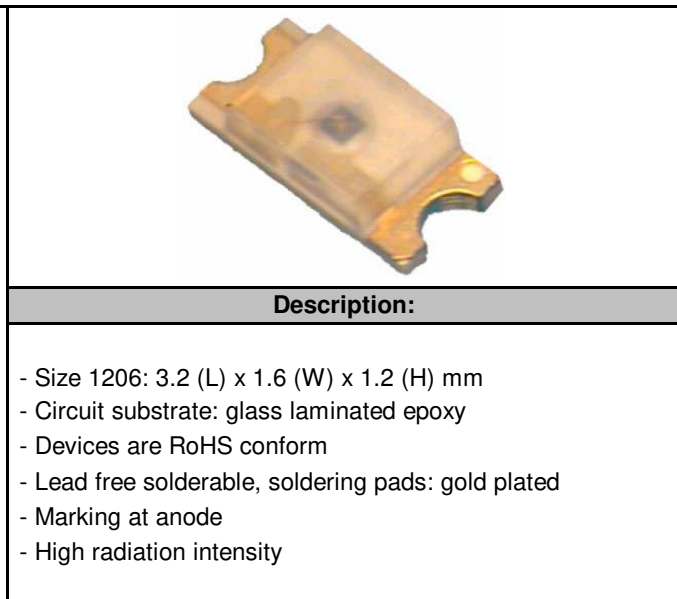
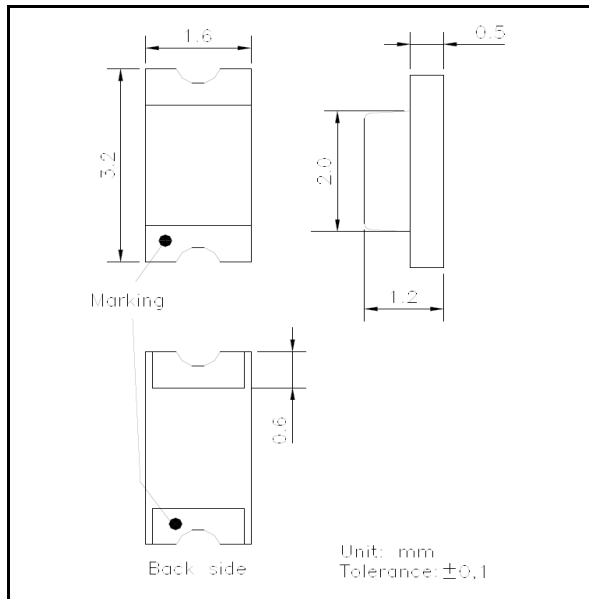
Data Sheet

page 1 of 3

SMD-LED**EOLS-970-195**

Rev. 04, 2017

Radiation	Type	Case
infrared	GaAs	SMD 3216 (1206)

**Maximum Ratings** $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test conditions	Symbol	Value	Unit
Forward current		I_F	50	mA
Peak forward current	$t \leq 100 \mu\text{s}$, $T = 1 \text{ ms}$	I_{FM}	200	mA
Reverse voltage	$I_R = 100 \mu\text{A}$	I_{RM}	5	V
Operating temperature range		T_{amb}	-40 to +85	$^{\circ}\text{C}$
Storage temperature range		T_{stg}	-40 to +85	$^{\circ}\text{C}$
Thermal resistance		R_{thJA}	450	K/W

Optical and Electrical Characteristics $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Forward voltage	V_F	$I_F = 50 \text{ mA}$		1.3	1.45	V
Radiant power	Φ_e	$I_F = 50 \text{ mA}$	2.1			mW
Radiant intensity	I_e	$I_F = 50 \text{ mA}$	0.7	1.4		mW/sr
Peak wavelength	λ_p	$I_F = 50 \text{ mA}$	955	970	985	nm
FWHM	$\Delta\lambda_{0.5}$	$I_F = 50 \text{ mA}$		40		nm
Viewing angle	φ	$I_F = 50 \text{ mA}$		120		deg.

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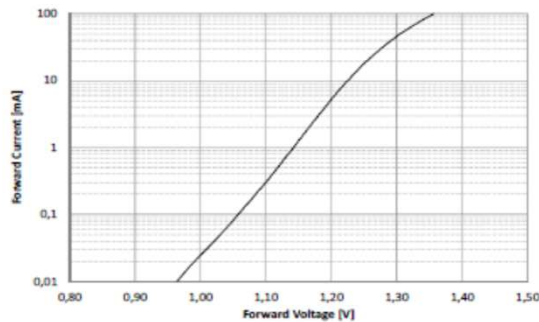


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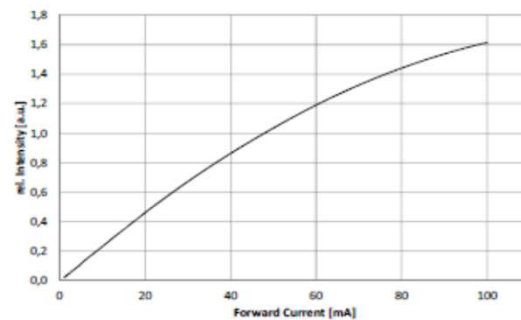
SMD-LED

EOLS-970-195

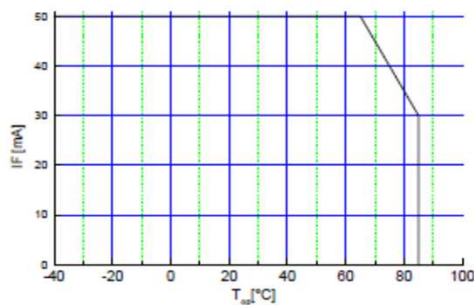
page 2 of 3
Rev. 04, 2017



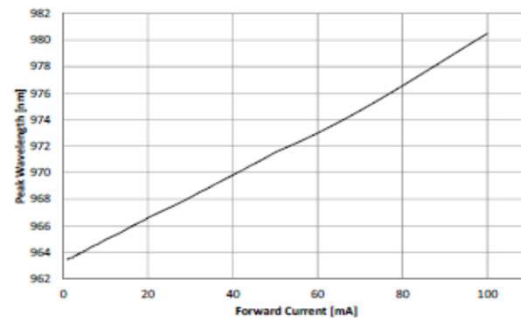
Forward Current vs. Forward Voltage
Flussstrom über Flussspannung



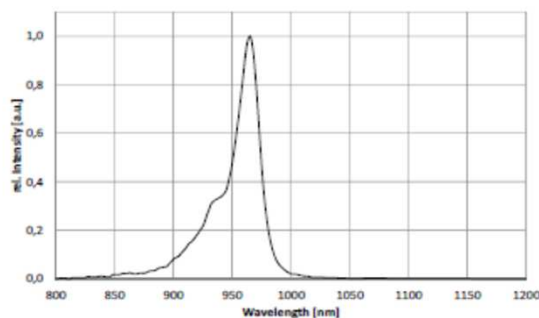
Intensity vs. Forward Current
Strahlstärke über Flussstrom



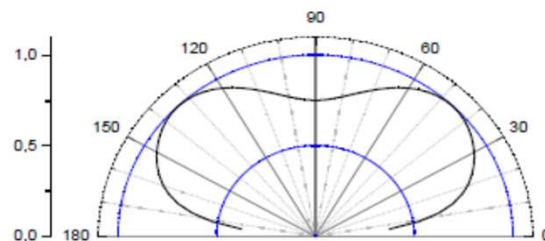
Max. Forward Current vs. Ambient Temperature
Max. Flussstrom über Umgebungstemperatur



Forward Current vs. Shift Peak Wavelength
Flussstrom gegen Verschiebung der Wellenlänge



Spectrum @ 50mA
Spektrum



View Angle
Abstrahlung

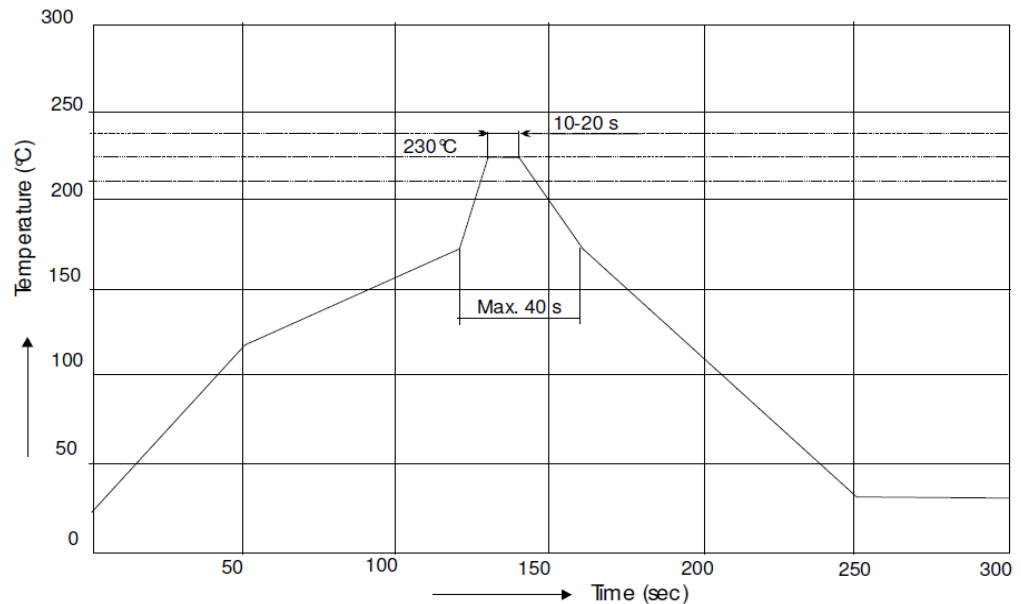
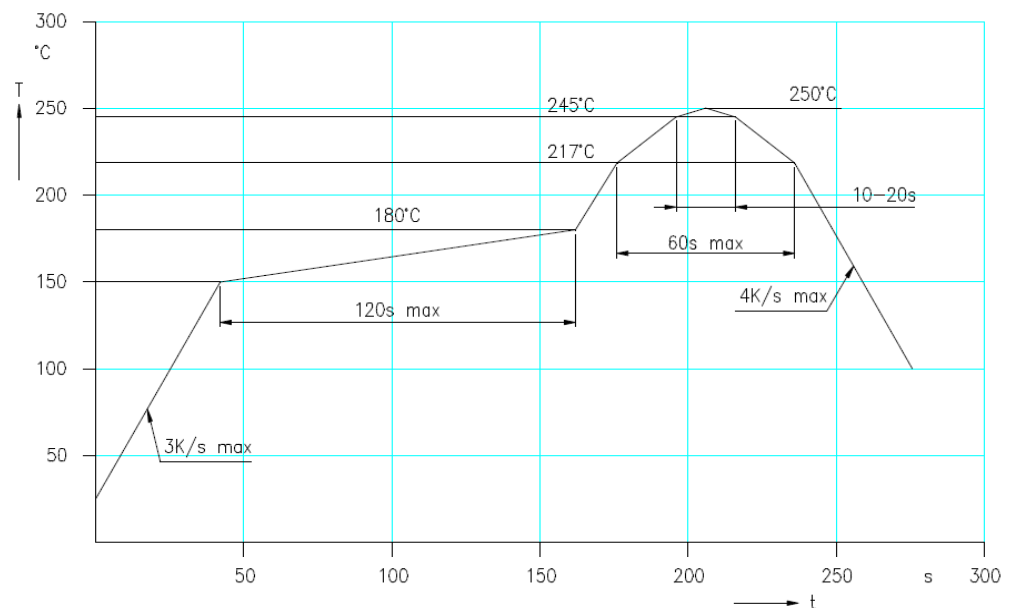


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All operating parameters must be validated for each customer application by the customer.

Data Sheet**SMD-LED****EOLS-970-195**

page 3 of 3

Rev. 04, 2017

**IR reflow
soldering
profile****IR reflow
soldering
profile for lead
free soldering****Manual soldering:**

max power of iron 25 W / 3 s / 300°C

Art. No. 133 014



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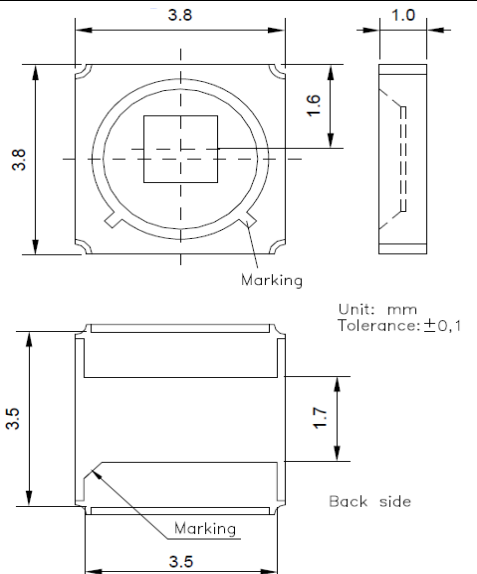
Data Sheet

page 1 of 4

High Power IR SMD LED**EOLS-1020-496**

Rev. 02, 2017

Radiation	Type	Case
Infrared	GaAs	SMD 3838 (1515)

	 Description: - Size 3.8 (W) x 3.8 (L) x 1.0 (H) mm - Circuit substrate: AlN ceramics - Devices are RoHS conform - Lead free solderable, soldering pads: silver plated - High radiation intensity - Marking at anode
--	--

Maximum Ratings $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test conditions	Symbol	Value	Unit
Forward current		I_F	500	mA
Peak forward current	$t \leq 100 \mu\text{s}$, $T = 1 \text{ ms}$	I_{FM}	1000	mA
Reverse voltage	$I_R = 100 \mu\text{A}$	I_{RM}	5	V
Operating temperature range		T_{amb}	-40 to +85	$^{\circ}\text{C}$
Storage temperature range		T_{stg}	-40 to +85	$^{\circ}\text{C}$
Thermal resistance		R_{thJA}	10	K/W

Optical and Electrical Characteristics $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Forward voltage	V_F	$I_F = 350 \text{ mA}$		1.2	1.5	V
Radiant power	Φ_e	$I_F = 350 \text{ mA}$		38		mW
Radiant intensity	I_e	$I_F = 350 \text{ mA}$	8.5		17	mW/sr
Peak wavelength	λ_p	$I_F = 350 \text{ mA}$	1005	1020	1035	nm
FWHM	$\Delta\lambda_{0,5}$	$I_F = 350 \text{ mA}$		40		nm
Viewing angle	φ	$I_F = 350 \text{ mA}$		120		deg.

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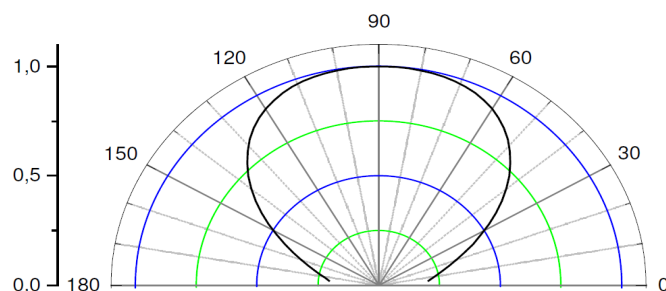
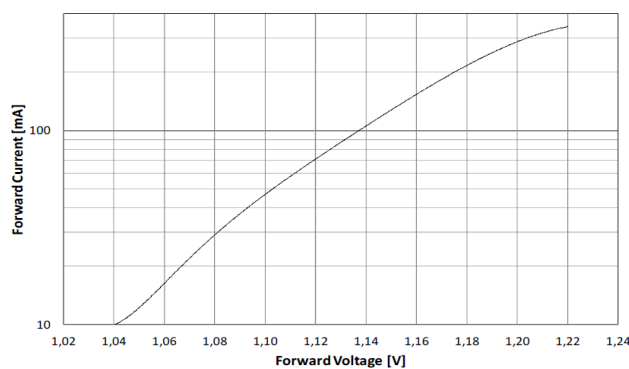
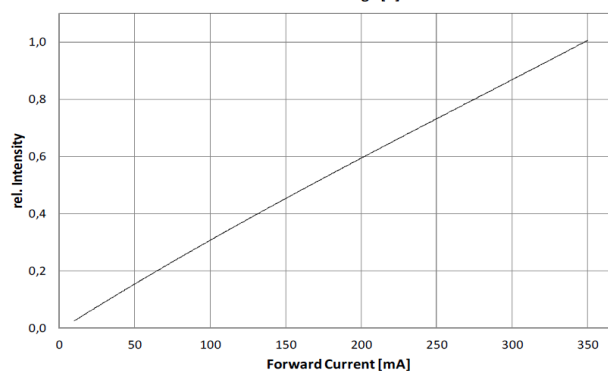
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Data Sheet**High Power IR SMD LED****EOLS-1020-496**

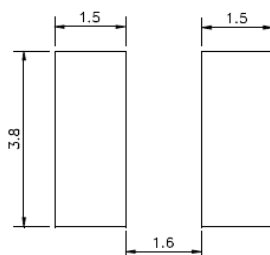
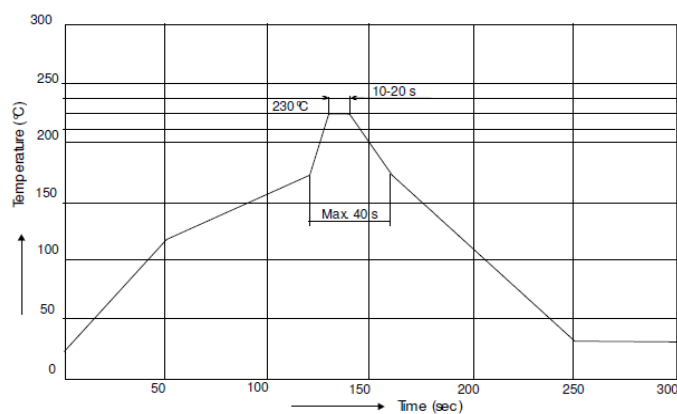
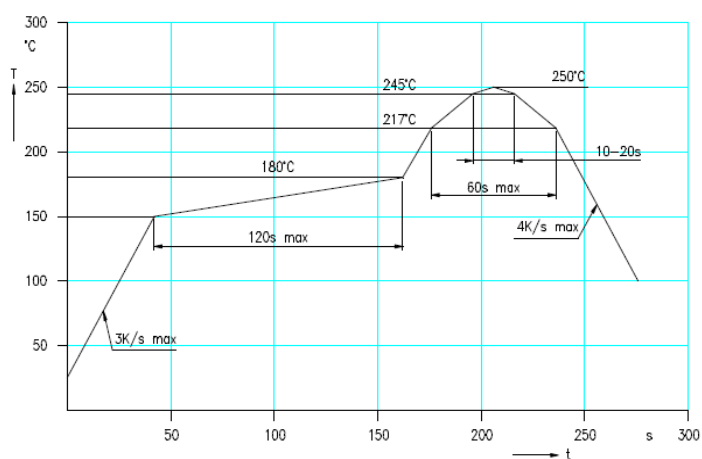
page 2 of 4

Rev. 02, 2017

Radiation pattern **$I_F - U_F$
characteristic** **$I_{e, rel} - I_F$
characteristic****Spectrum @ 350 mA**

Data Sheet**page 3 of 4****High Power IR SMD LED****EOLS-1020-496**

Rev. 02, 2017

Recommended Soldering Pattern**IR reflow
soldering
profile****IR reflow
soldering
profile for lead
free soldering****Manual soldering: max power of iron 25 W / 3 s / 300°C**

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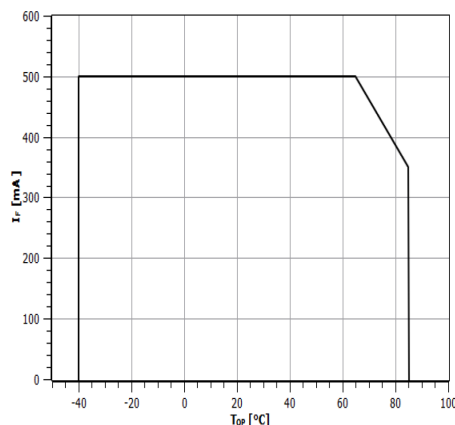
Data Sheet

High Power IR SMD LED

EOLS-1020-496

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Rev. 02, 2017

**Maximal
forward
current (DC)
characteristic**



All SMD-LEDs are 100% measured according to CIE 127 and selected on full automated equipment with an accuracy of $\pm 11\%$.



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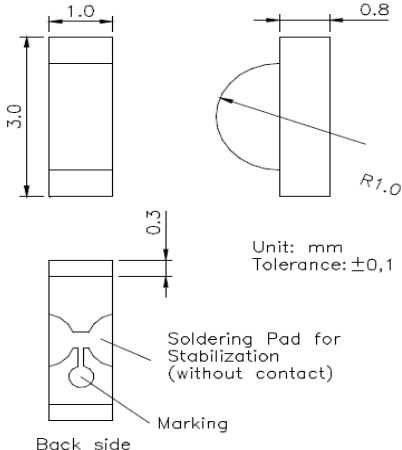
Data Sheet

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SMD-LED**EOLS-1020-590**

Rev. 03, 2017

Radiation	Type	Case
infrared	standard	SMD 3018 (1008)

 Unit: mm Tolerance: $\pm 0,1$ Soldering Pad for Stabilization (without contact) Marking Back side	 Description: - Size 1008: 3.0 (L) x 1.8 (W) x 1.0 (H) mm - Circuit substrate: glass laminated epoxy - Devices are RoHS conform - Lead free solderable, soldering pads: gold plated - Marking at cathode
---	--

Maximum Ratings $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test Conditions	Symbol	Value	Unit
Peak forward current	$t_p \leq 100 \mu\text{s}$ $\tau = 1:10$	I_{FP}	250	mA
Continuous forward current		I_F	50	mA
Reverse voltage		V_R	5	V
Operating temperature range		T_{amb}	-40 to +85	$^{\circ}\text{C}$
Storage temperature range		T_{stg}	-55 to +85	$^{\circ}\text{C}$
Thermal resistance		R_{thJA}	500	K/W

Optical and Electrical Characteristics $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Forward voltage	V_F	$I_F = 50 \text{ mA}$		1.3	1.5	V
Reverse current	I_R	$V_R = 5 \text{ V}$			100	μA
Radiant power	Φ_e	$I_F = 50 \text{ mA}$		10		mW
Radiant intensity	I_e	$I_F = 50 \text{ mA}$		5		mW/sr
Peak wavelength	λ_p	$I_F = 50 \text{ mA}$	1005	1020	1035	nm
Spectral bandwidth	$\Delta\lambda_{0.5}$	$I_F = 50 \text{ mA}$		40		nm
Switching time	t_r, t_f	$I_F = 50 \text{ mA}$		20		ns

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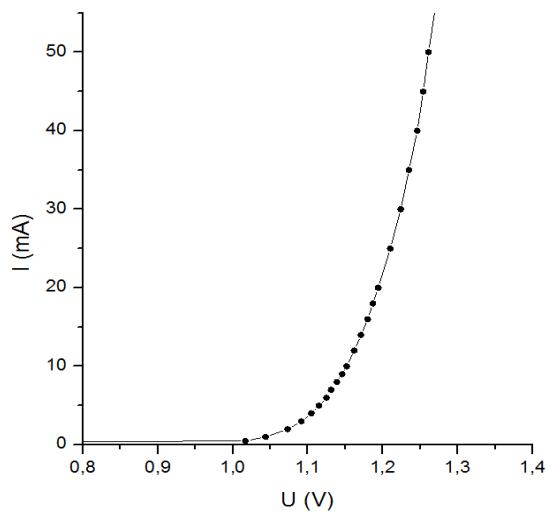
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Data Sheet

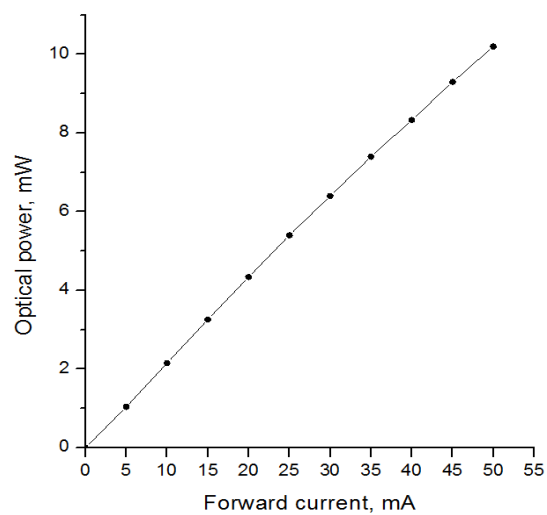
page 2 of 4

SMD-LED**EOLS-1020-590**

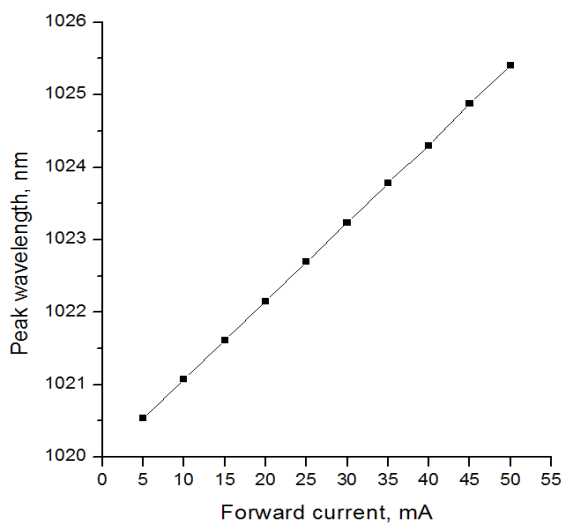
Rev. 03, 2017



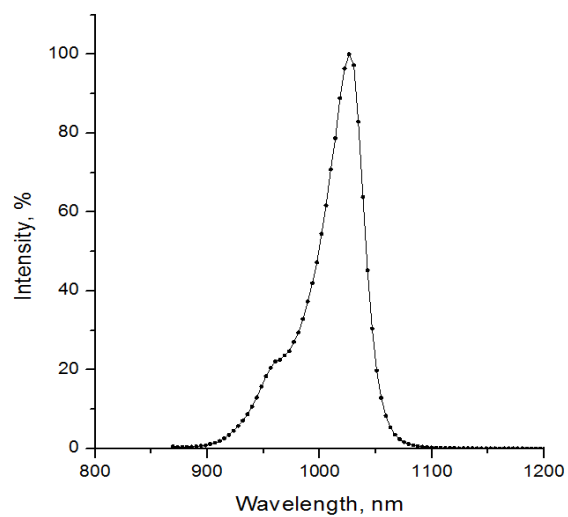
Forward current vs. voltage



Optical power vs. forward current



Peak wavelength vs. forward current



Typical spectrum at 50 mA



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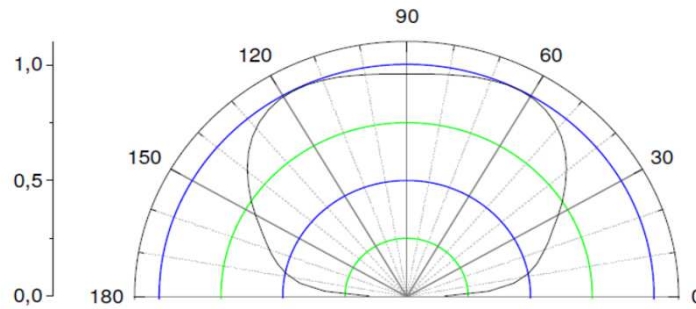
Data Sheet

SMD-LED

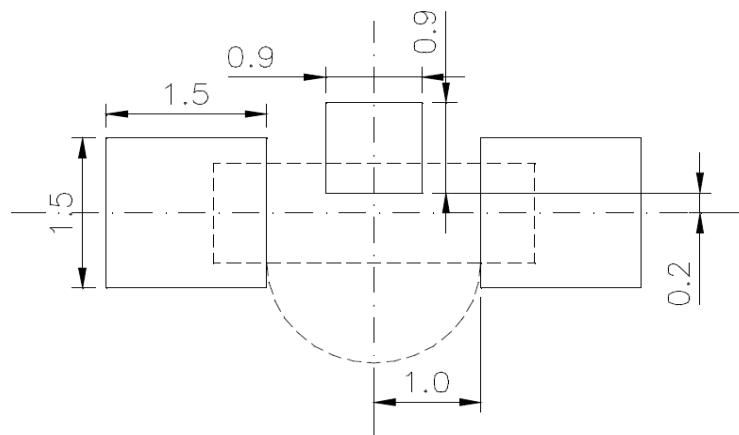
EOLS-1020-590

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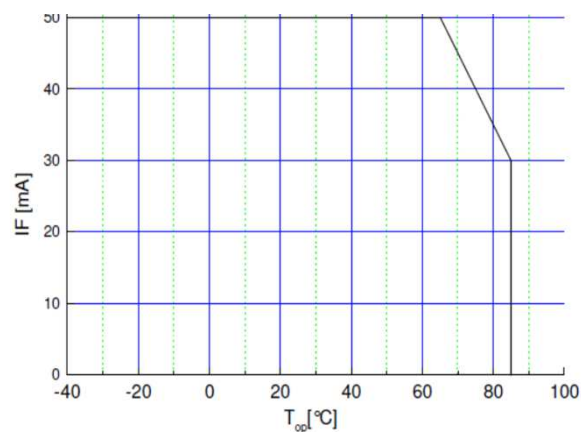
Radiation pattern



Recommended Soldering Patterns



Maximal forward current (DC) characteristic



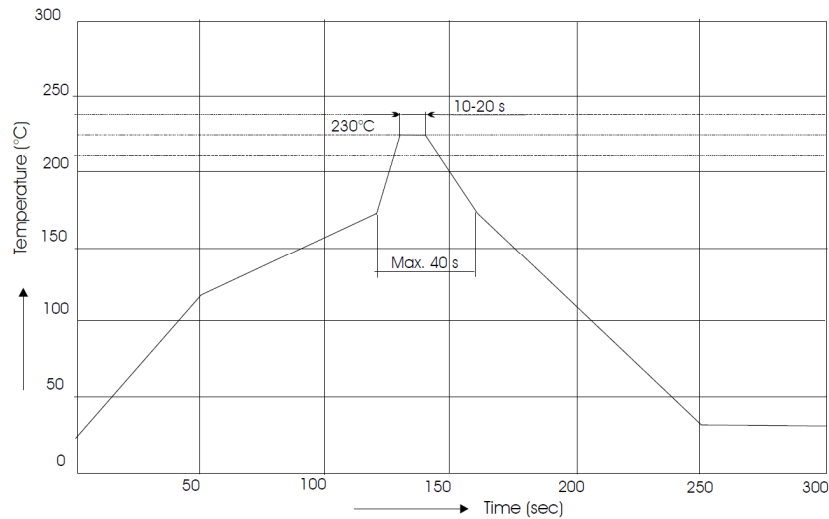
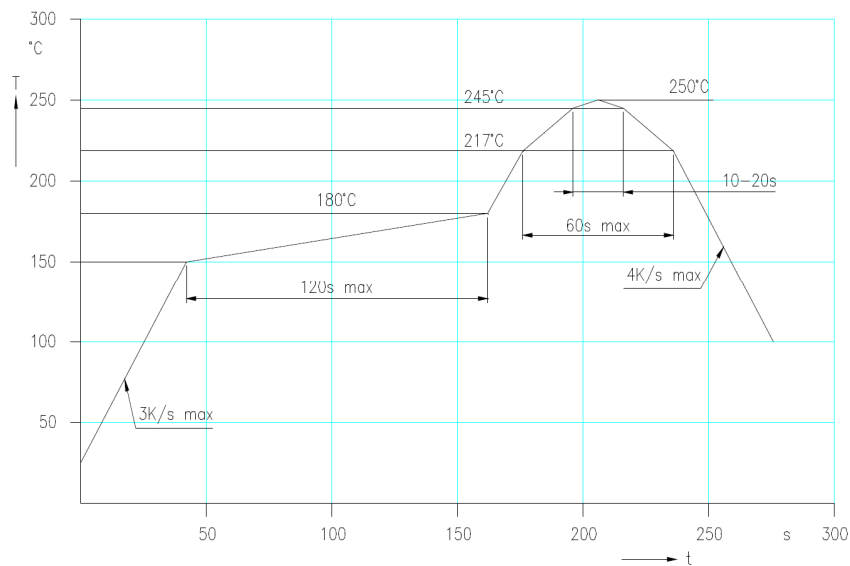
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All operating parameters must be validated for each customer application by the customer.

Data Sheet

page 4 of 4

SMD-LED**EOLS-1020-590**

Rev. 03, 2017

**IR reflow
soldering
profile****IR reflow
soldering
profile for lead
free soldering**

Manual soldering:
max power of iron 25 W / 3 s / 300°C



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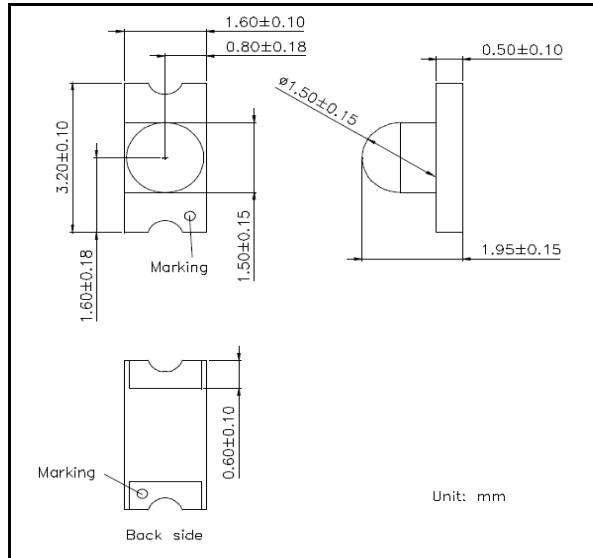
Data Sheet

page 1 of 4

Infrared SMD-LED**EOLS-1020-843**

Rev. 01, 2017

Radiation	Type	Case
infrared	InGaAs/InP, MQW	SMD 3216 (1206)

**Description:**

- Size 1206: 3.2 (L) x 1.6 (W) x 1.95 (H) mm
- Circuit substrate: glass laminated epoxy
- Devices are RoHS conform
- Lead free solderable, soldering pads: gold plated
- Marking at cathode

Maximum Ratings $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test Conditions	Symbol	Value	Unit
Peak forward current	$t_p \leq 100 \mu\text{s}$, $\tau = 1:10$	I_{FP}	250	mA
Continuous forward current		I_F	50	mA
Reverse voltage		V_R	5	V
Operating temperature range		T_{amb}	-40 to +85	$^{\circ}\text{C}$
Storage temperature range		T_{stg}	-55 to +85	$^{\circ}\text{C}$
Thermal resistance		R_{thJA}	500	K/W

Optical and Electrical Characteristics $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Forward voltage	V_F	$I_F = 50 \text{ mA}$		1.3	1.5	V
Reverse current	I_R	$V_R = 5 \text{ V}$			100	μA
Radiant power	Φ_e	$I_F = 50 \text{ mA}$		10		mW
Peak wavelength	λ_p	$I_F = 50 \text{ mA}$	1005	1020	1035	nm
Spectral bandwidth	$\Delta\lambda_{0.5}$	$I_F = 50 \text{ mA}$		40		nm
Switching time	t_r, t_f	$I_F = 50 \text{ mA}$		20		ns
Viewing angle	ϕ	$I_F = 20 \text{ mA}$		40		deg

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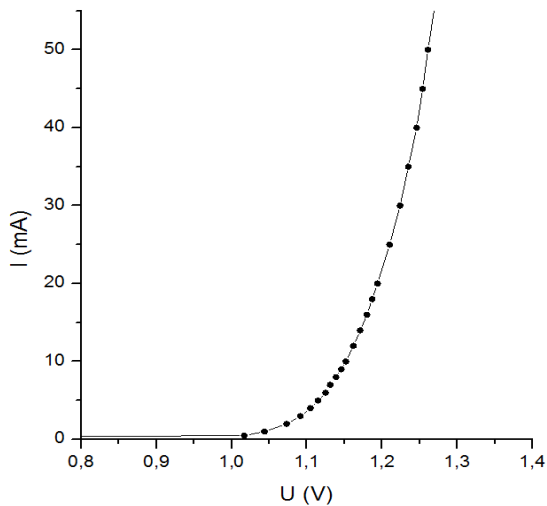
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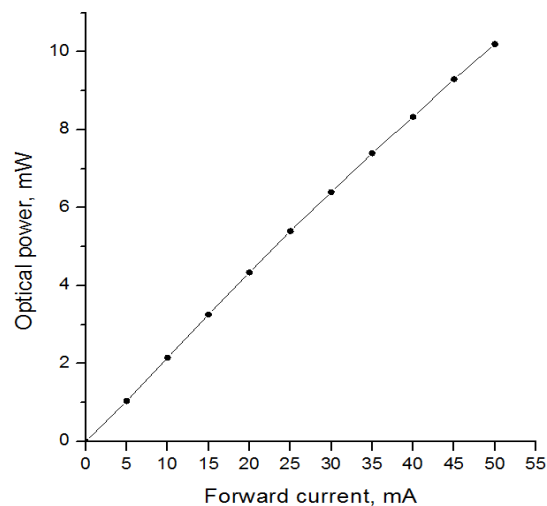
Data Sheet**Infrared SMD-LED****EOLS-1020-843**

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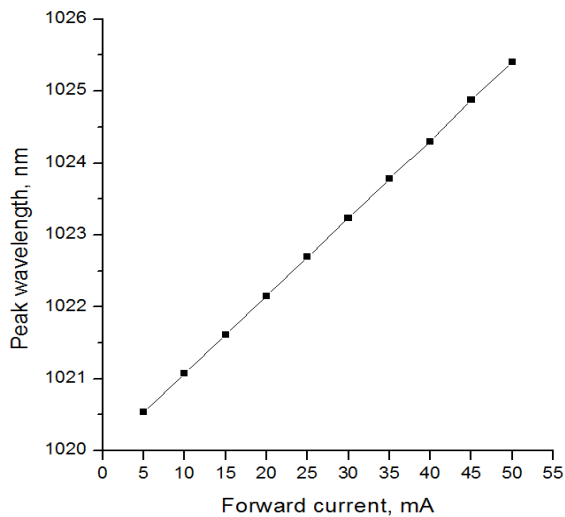
Rev. 01, 2017



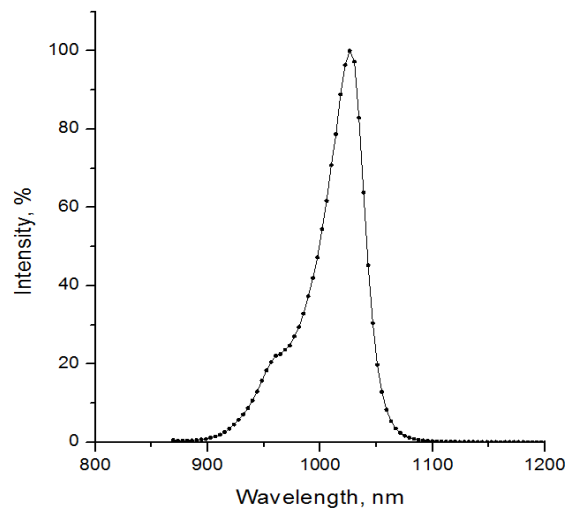
Forward current vs. voltage



Optical power vs. forward current



Peak wavelength vs. forward current



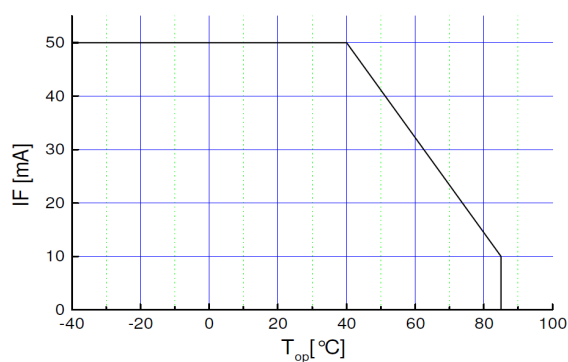
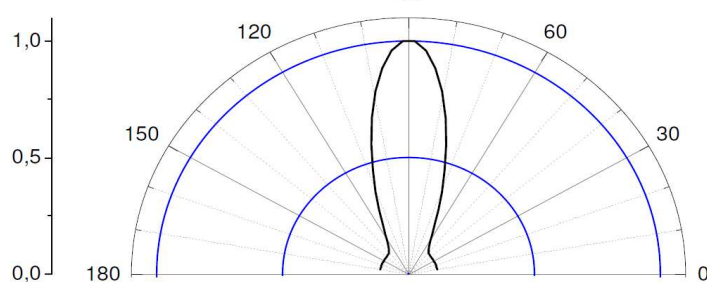
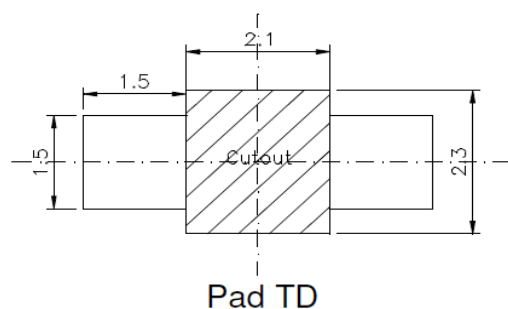
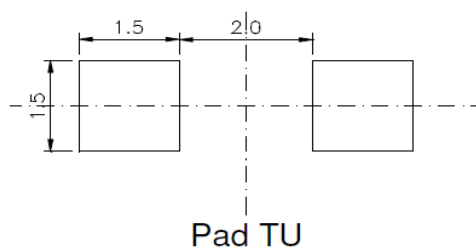
Typical spectrum at 50 mA



Data Sheet**Infrared SMD-LED****EOLS-1020-843**

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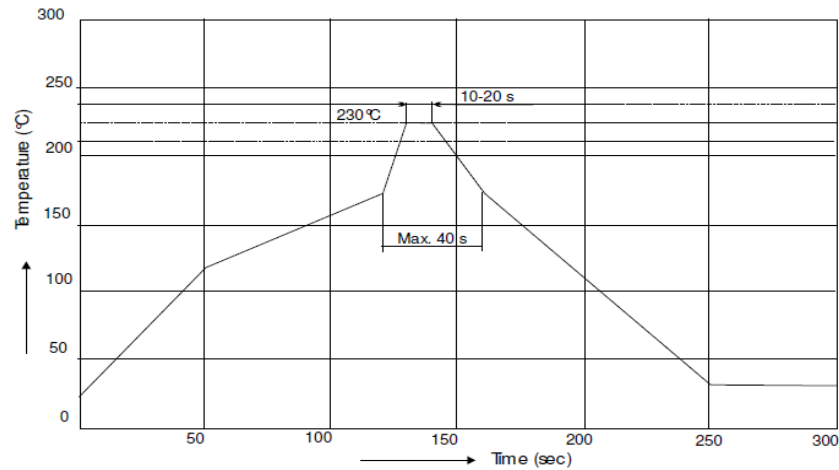
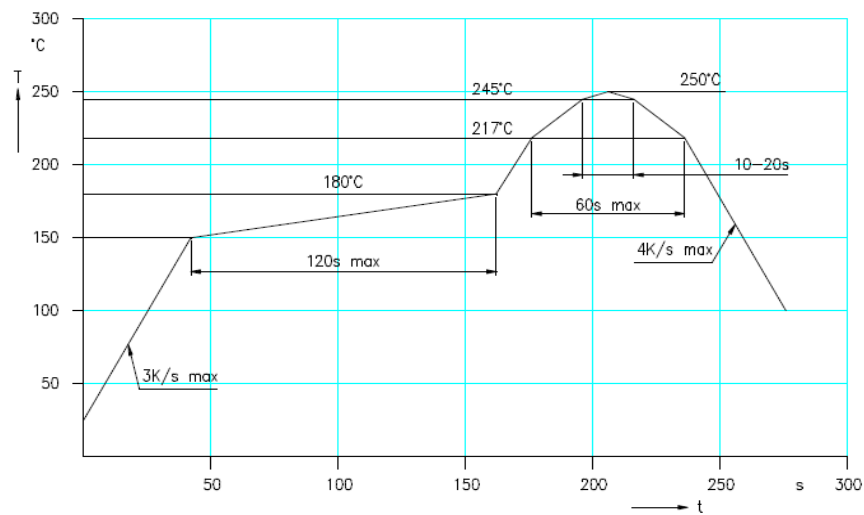
Rev. 01, 2017

**Maximal
forward
current (DC)
characteristic****Radiation pattern****Recommended Soldering Patterns**

Data Sheet**Infrared SMD-LED****EOLS-1020-843**

page 4 of 4

Rev. 01, 2017

**IR reflow
soldering
profile****IR reflow
soldering
profile for lead
free soldering**

Manual soldering:
max power of iron 25 W / 3 s / 300°C

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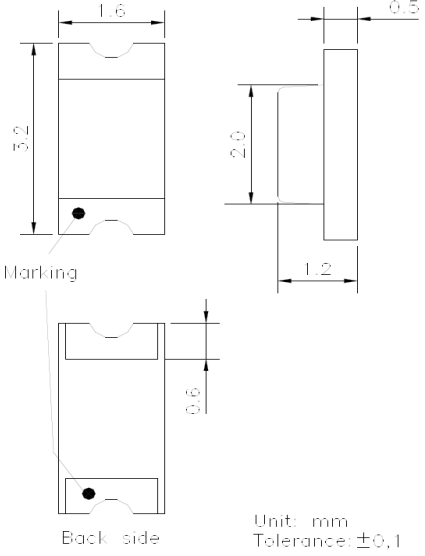
Data Sheet

page 1 of 3

SMD-LED**EOLS-1050-199**

Rev. 03, 2017

Radiation	Type	Case
infrared	GaAs	SMD 3216 (1206)

 Technical drawing of the SMD-LED showing dimensions in mm. The drawing includes a top view, a side view, and a bottom view. The top view shows a rectangular package with a width of 1.6 mm and a height of 0.5 mm. The side view shows a height of 1.2 mm. The bottom view shows a width of 0.6 mm. A marking is indicated on the bottom view. The unit is mm and the tolerance is ±0.1.	 3D rendering of the SMD-LED showing its physical appearance. The package is rectangular with a gold-colored base and a clear, slightly yellowed top layer. The dimensions are consistent with the technical drawing.
	Description: - Size 1206: 3.2 (L) x 1.6 (W) x 1.2 (H) mm - Circuit substrate: glass laminated epoxy - Devices are RoHS conform - Lead free solderable, soldering pads: gold plated - Marking at cathode - High radiation intensity

Maximum Ratings $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test conditions	Symbol	Value	Unit
Forward current		I_F	50	mA
Peak forward current	$t \leq 100 \mu\text{s}$, $T = 1 \text{ ms}$	I_{FM}	100	mA
Reverse voltage	$I_R = 100 \mu\text{A}$	I_{RM}	5	V
Operating temperature range		T_{amb}	-40 to +85	$^{\circ}\text{C}$
Storage temperature range		T_{stg}	-55 to +85	$^{\circ}\text{C}$
Thermal resistance		R_{thJA}	450	K/W

Optical and Electrical Characteristics $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Forward voltage	V_F	$I_F = 50 \text{ mA}$		1.2	1.35	V
Radiant power	Φ_e	$I_F = 50 \text{ mA}$		4		mW
Radiant intensity	I_e	$I_F = 50 \text{ mA}$	0.7		1.2	mW/sr
Peak wavelength	λ_p	$I_F = 50 \text{ mA}$	1040	1050	1060	nm
FWHM	$\Delta\lambda_{0.5}$	$I_F = 50 \text{ mA}$		80		nm
Viewing angle	φ	$I_F = 50 \text{ mA}$		120		deg.

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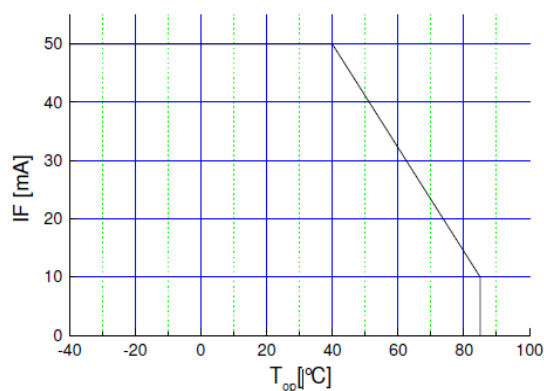
SMD-LED

EOLS-1050-199

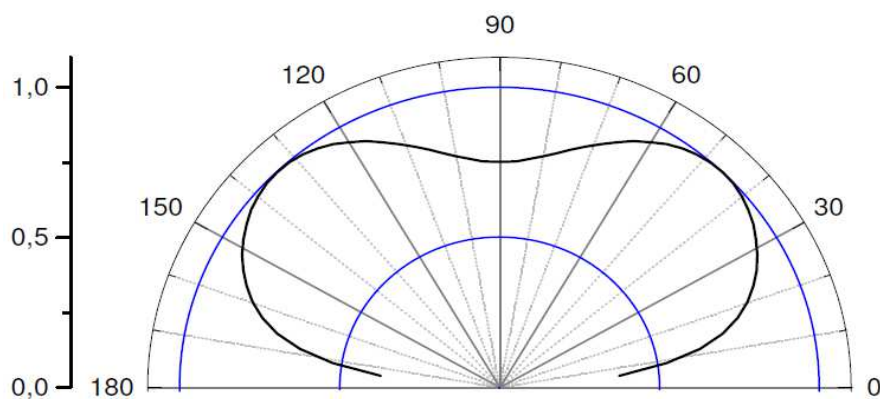
page 2 of 3

Rev. 03, 2017

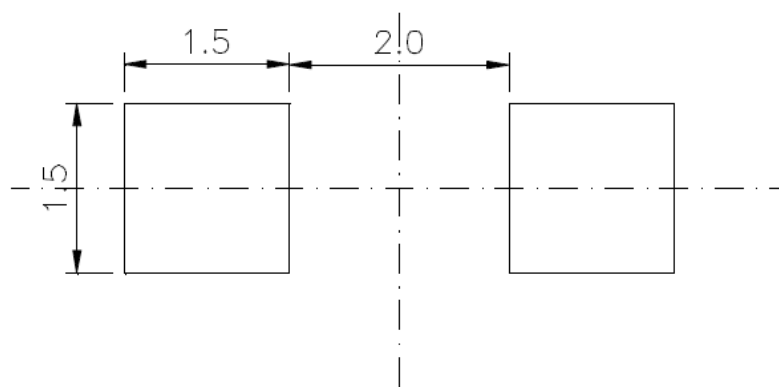
**Maximal
forward
current (DC)
characteristic**



Radiation pattern



Recommended Soldering Pattern



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Data Sheet

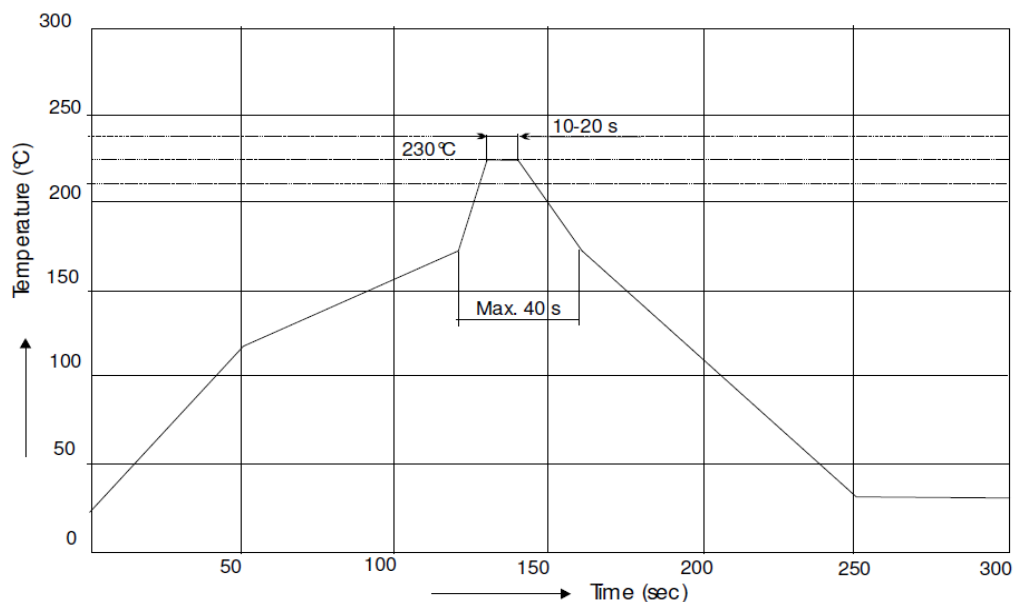
SMD-LED

EOLS-1050-199

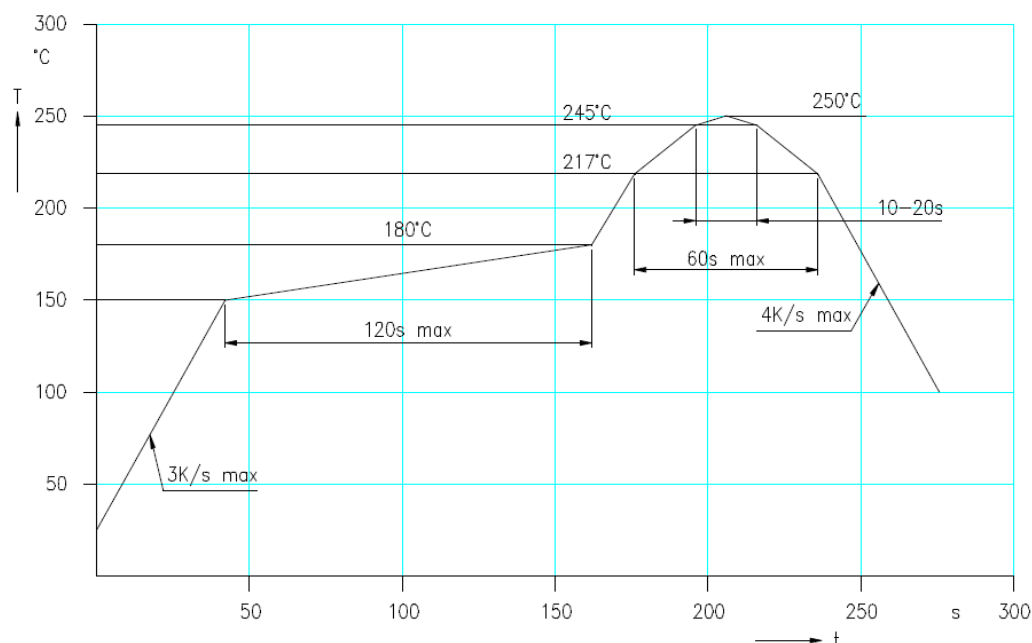
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Rev. 03, 2017

IR reflow soldering profile



IR reflow soldering profile for lead free soldering



Manual soldering:

max power of iron 25 W / 3 s / 300°C

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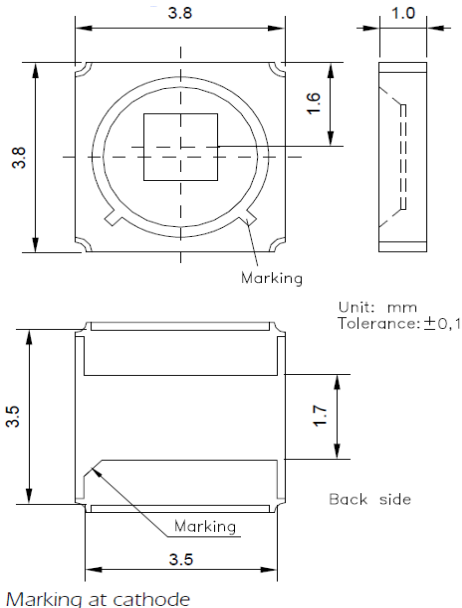
Data Sheet

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High Power IR LED**EOLS-1050-496**

Rev. 03, 2017

Radiation	Type	Case
Infrared	GaAs	SMD 3838 (1515)

 Unit: mm Tolerance: $\pm 0,1$ Marking at cathode	 Description: - Size 3.8 (W) x 3.8 (L) x 1.0 (H) mm - Circuit substrate: AlN ceramics - Devices are RoHS conform - Lead free solderable, soldering pads: silver plated - High radiation intensity
--	---

Maximum Ratings $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test conditions	Symbol	Value	Unit
Forward current		I_F	500	mA
Peak forward current	$t \leq 100 \mu\text{s}, T = 1 \text{ ms}$	I_{FM}	1000	mA
Reverse voltage	$I_R = 100 \mu\text{A}$	I_{RM}	5	V
Operating temperature range		T_{amb}	-40 to +85	$^{\circ}\text{C}$
Storage temperature range		T_{stg}	-40 to +85	$^{\circ}\text{C}$
Thermal resistance		R_{thJA}	10	K/W

Optical and Electrical Characteristics $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Forward voltage	V_F	$I_F = 350 \text{ mA}$		1.2	1.5	V
Radiant power	Φ_e	$I_F = 350 \text{ mA}$		38		mW
Radiant intensity	I_e	$I_F = 350 \text{ mA}$	8		17	mW/sr
Peak wavelength	λ_p	$I_F = 350 \text{ mA}$	1040	1050	1060	nm
FWHM	$\Delta\lambda_{0,5}$	$I_F = 350 \text{ mA}$		50		nm
Viewing angle	φ	$I_F = 350 \text{ mA}$		120		deg.

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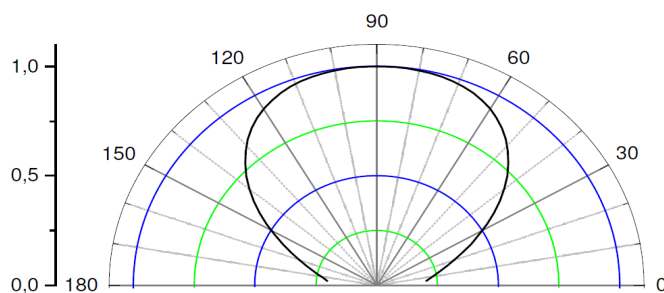
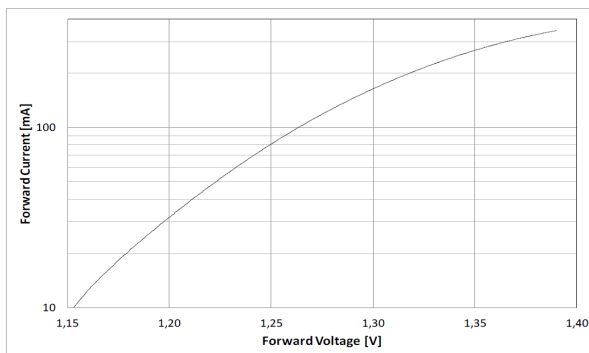
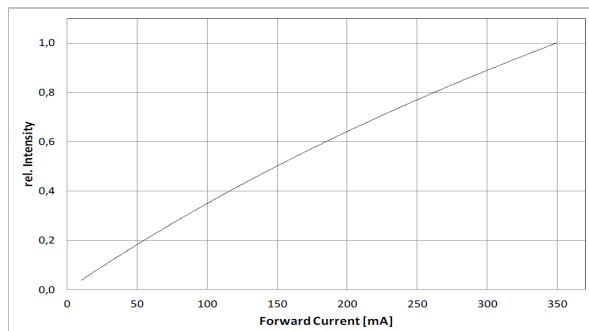
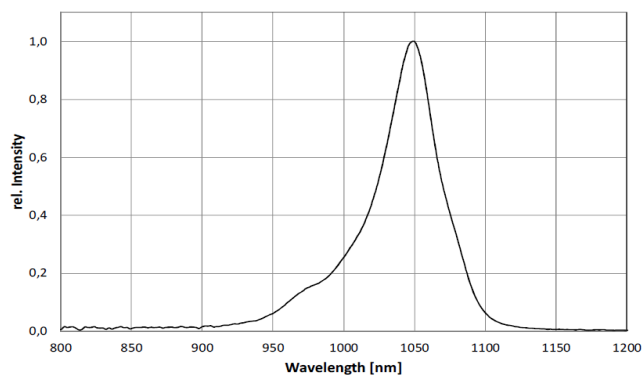
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Data Sheet**High Power IR LED****EOLS-1050-496**

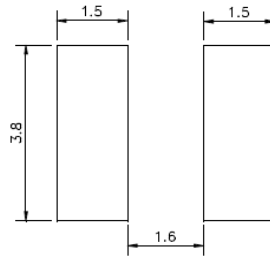
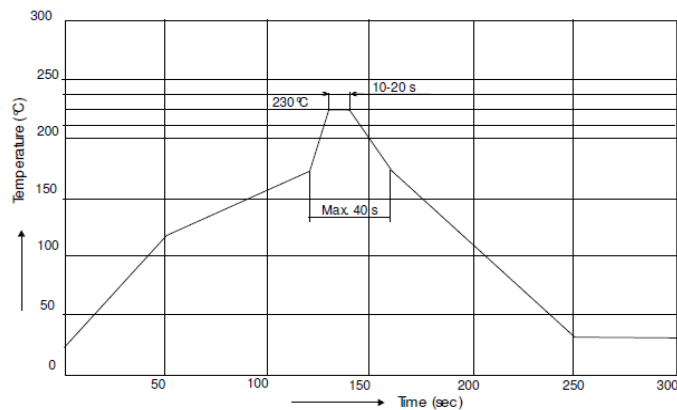
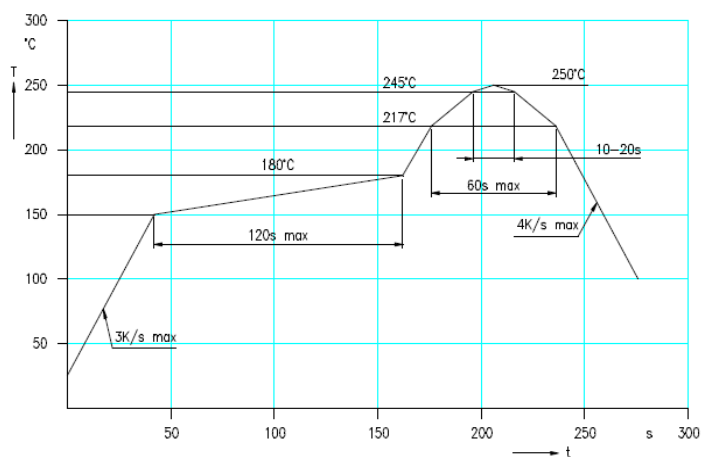
page 2 of 4

Rev. 03, 2017

Radiation pattern **$I_F - U_F$
characteristic** **$I_{e, rel} - I_F$
characteristic****Spectrum @ 350 mA**

Data Sheet**page 3 of 4****High Power IR LED****EOLS-1050-496**

Rev. 03, 2017

Recommended Soldering Pattern**IR reflow
soldering
profile****IR reflow
soldering
profile for lead
free soldering****Manual soldering: max power of iron 25 W / 3 s / 300°C**

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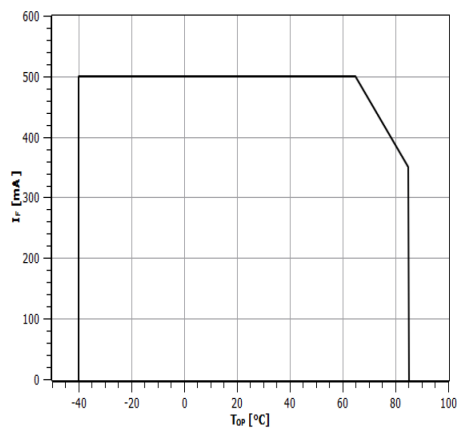
Data Sheet

High Power IR LED

EOLS-1050-496

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Rev. 03, 2017

**Maximal
forward
current (DC)
characteristic**



All SMD-LEDs are 100% measured according to CIE 127 and selected on full automated equipment with an accuracy of $\pm 11\%$.

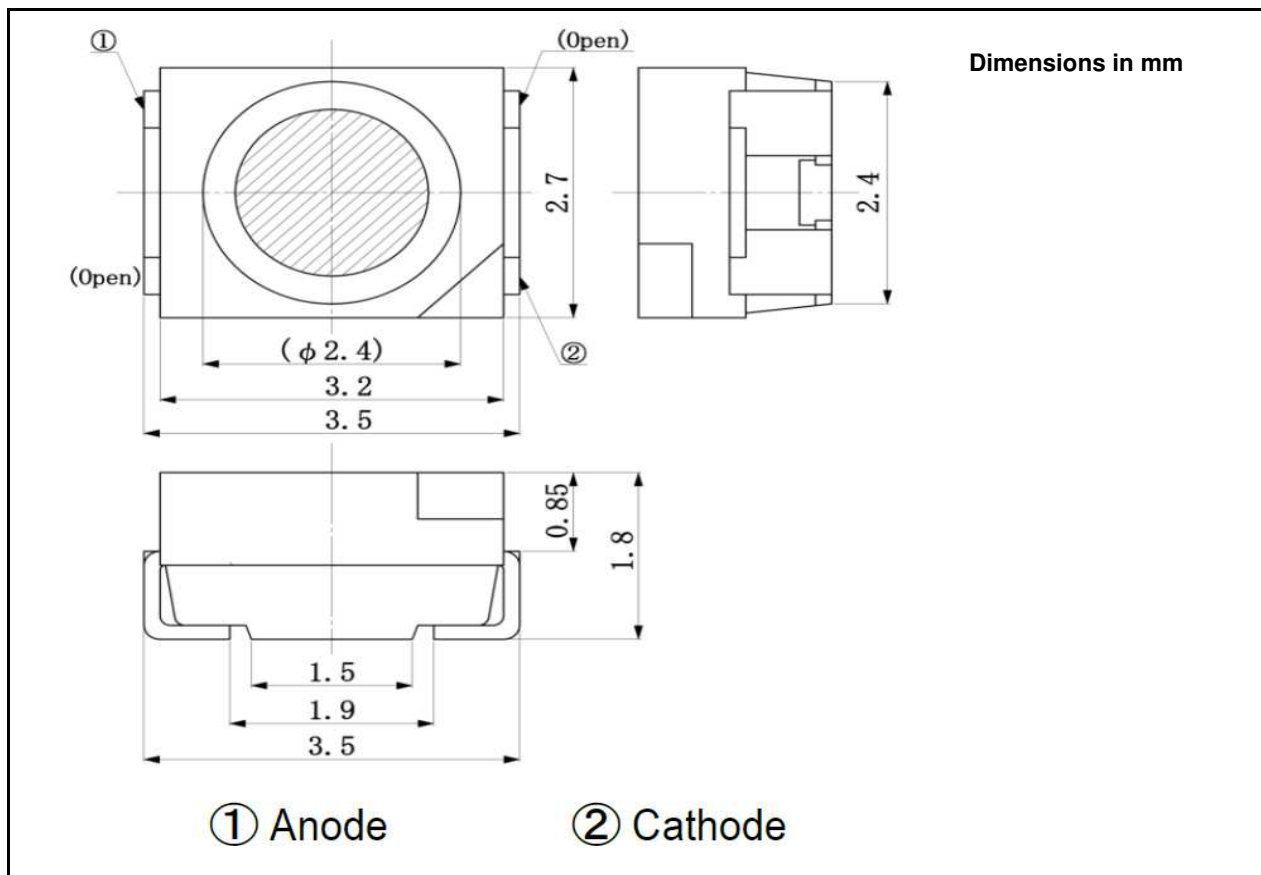


Art. No. 133 185



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Radiation	Type	Case
Infrared	InGaAs/InP, MQW	SMD 3527 (1411), PLCC4


Maximum Ratings
 $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test Conditions	Symbol	Value	Unit
Peak forward current	$t_p \leq 10 \mu\text{s}$, $T = 10 \text{ ms}$	I_{FP}	500	mA
Continuous forward current		I_F	50	mA
Reverse voltage		V_R	5	V
Operating temperature range		T_{amb}	-20 to +80	$^{\circ}\text{C}$
Storage temperature range		T_{stg}	-30 to +100	$^{\circ}\text{C}$
Power dissipation		R_{thJA}	120	mW
Lead soldering temperature	$T = 5 \text{ s}$, 3 mm from body	T_{sld}	260	$^{\circ}\text{C}$

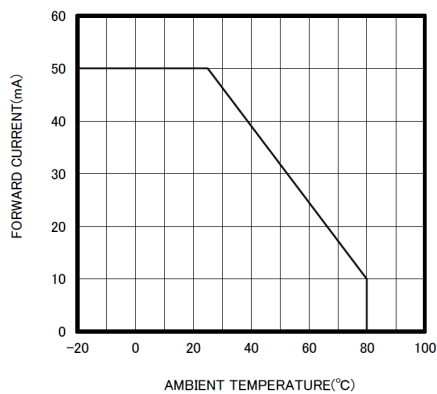


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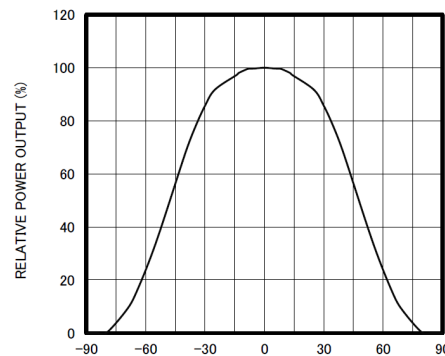
Infrared SMD-LED
EOLS-1050-995
Optical and Electrical Characteristics*
 $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test cond.	Symbol	Min	Typ	Max	Unit
Forward voltage	$I_F = 20\text{ mA}$	V_F		1.15	1.3	V
Forward voltage	$I_F = 50\text{ mA}$	V_F		1.2	1.35	V
Reverse current	$V_R = 5\text{ V}$	I_R			100	μA
Radiant power	$I_F = 20\text{ mA}$	Φ_e		3		mW
Radiant power	$I_F = 50\text{ mA}$	Φ_e		7.5		mW
Peak wavelength	$I_F = 20\text{ mA}$	λ_p		1050		nm
FWHM	$I_F = 20\text{ mA}$	$\Delta\lambda_{0.5}$		80		nm
Viewing angle	$I_F = 20\text{ mA}$	ϕ		± 45		deg
Switching times	$I_F = 20\text{ mA}$	t_r, t_f		25; 40		ns

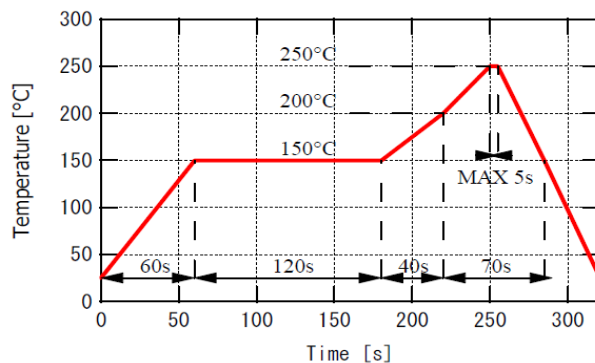
THERMAL DERATING CURVE



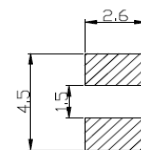
RADIATION PATTERN



Recommended reflow soldering profile



Recommended Land Layout (Unit: mm)



Art. No. 133 124



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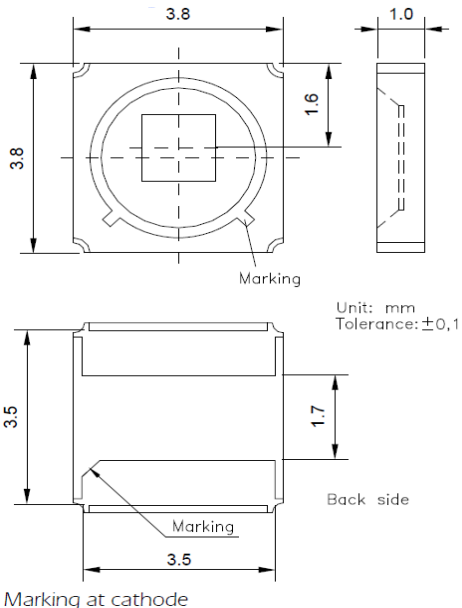
Data Sheet

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High Power IR LED**EOLS-1070-496**

Rev. 01, 2017

Radiation	Type	Case
Infrared	GaAs	SMD 3838 (1515)

 Unit: mm Tolerance: ±0,1	
	Description: - Size 3.8 (W) x 3.8 (L) x 1.0 (H) mm - Circuit substrate: AlN ceramics - Devices are RoHS conform - Lead free solderable, soldering pads: silver plated - High radiation intensity

Maximum Ratings $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test conditions	Symbol	Value	Unit
Forward current		I_F	500	mA
Peak forward current	$t \leq 100 \mu\text{s}$, $T = 1 \text{ ms}$	I_{FM}	1000	mA
Reverse voltage	$I_R = 100 \mu\text{A}$	I_{RM}	5	V
Operating temperature range		T_{amb}	-40 to +85	$^{\circ}\text{C}$
Storage temperature range		T_{stg}	-40 to +85	$^{\circ}\text{C}$
Thermal resistance		R_{thJA}	10	K/W

Optical and Electrical Characteristics $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

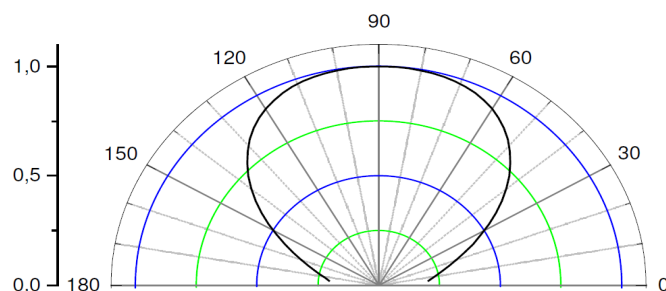
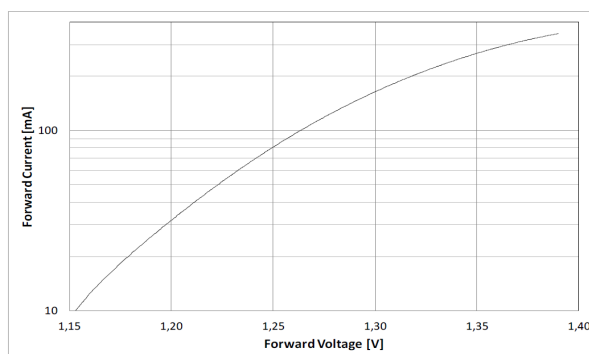
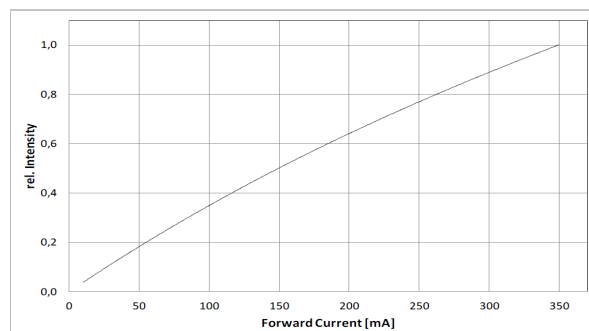
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Forward voltage	V_F	$I_F = 350 \text{ mA}$		1.2	1.5	V
Radiant power	Φ_e	$I_F = 350 \text{ mA}$		38		mW
Radiant intensity	I_e	$I_F = 350 \text{ mA}$	8		17	mW/sr
Peak wavelength	λ_p	$I_F = 350 \text{ mA}$	1055	1070	1085	nm
FWHM	$\Delta\lambda_{0,5}$	$I_F = 350 \text{ mA}$		50		nm
Viewing angle	φ	$I_F = 350 \text{ mA}$		120		deg.

We reserve the right to make changes to improve technical design and may do so without further notice. Parameters can vary in different applications. All operating parameters must be validated for each customer application by the customer.

Data Sheet**High Power IR LED****EOLS-1070-496**

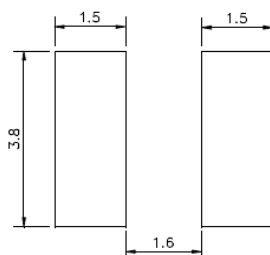
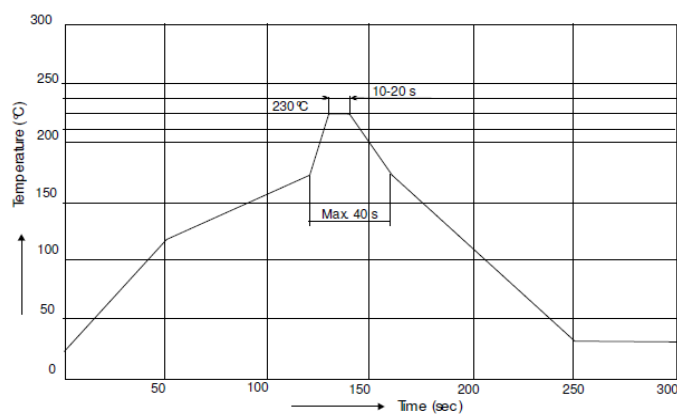
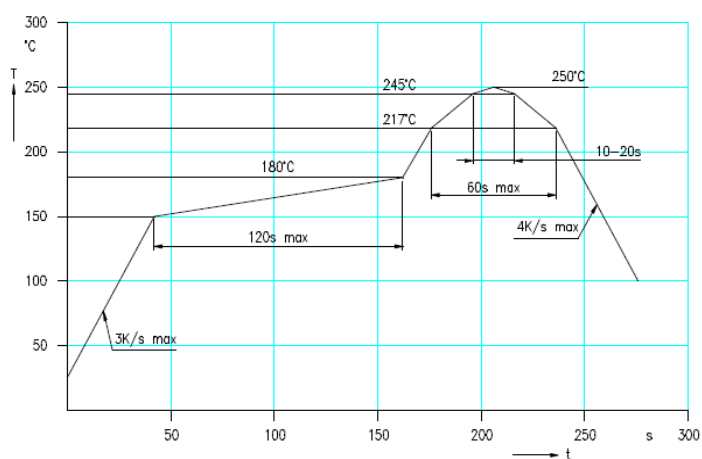
page 2 of 4

Rev. 01, 2017

Radiation pattern **$I_F - U_F$
characteristic** **$I_{e, rel} - I_F$
characteristic**

Data Sheet**page 3 of 4****High Power IR LED****EOLS-1070-496**

Rev. 01, 2017

Recommended Soldering Pattern**IR reflow
soldering
profile****IR reflow
soldering
profile for lead
free soldering****Manual soldering: max power of iron 25 W / 3 s / 300°C**

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Data Sheet

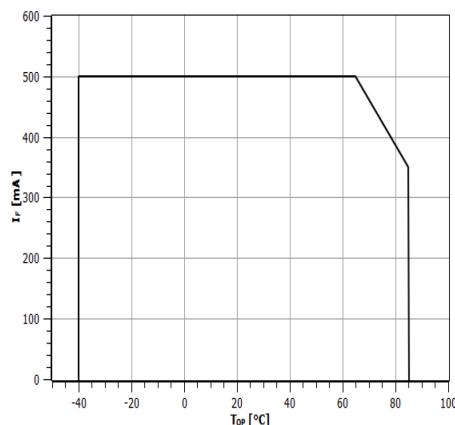
High Power IR LED

EOLS-1070-496

page 4 of 4

Rev. 01, 2017

**Maximal
forward
current (DC)
characteristic**



All SMD-LEDs are 100% measured according to CIE 127 and selected on full automated equipment with an accuracy of $\pm 11\%$.



Art. No. 133 186



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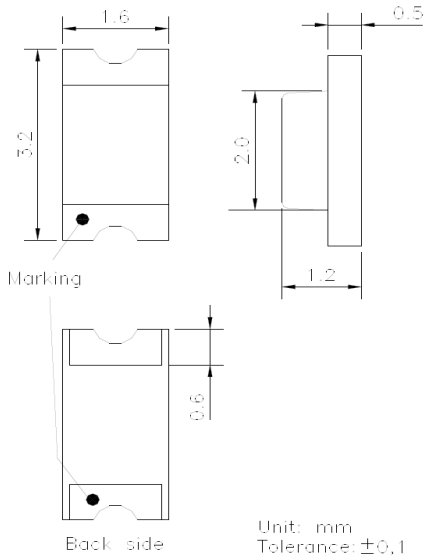
Data Sheet

page 1 of 3

SMD-LED**EOLS-1200-199**

Rev. 03, 2017

Radiation	Type	Case
infrared	InGaAsP	SMD 3216 (1206)

 Unit: mm Tolerance: ± 0.1	
	Description: - Size 1206: 3.2 (L) x 1.6 (W) x 1.2 (H) mm - Circuit substrate: glass laminated epoxy - Devices are RoHS conform - Lead free solderable, soldering pads: gold plated - Marking at cathode - High radiation intensity

Maximum Ratings $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test conditions	Symbol	Value	Unit
Forward current		I_F	50	mA
Peak forward current	$t \leq 100 \mu\text{s}$, $T = 1 \text{ ms}$	I_{FM}	100	mA
Reverse voltage	$I_R = 100 \mu\text{A}$	I_{RM}	5	V
Operating temperature range		T_{amb}	-40 to +85	$^{\circ}\text{C}$
Storage temperature range		T_{stg}	-55 to +85	$^{\circ}\text{C}$
Thermal resistance		R_{thJA}	450	K/W

Optical and Electrical Characteristics $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Forward voltage	V_F	$I_F = 50 \text{ mA}$		1.0	1.5	V
Radiant power	Φ_e	$I_F = 50 \text{ mA}$		5		mW
Peak wavelength	λ_p	$I_F = 50 \text{ mA}$	1150	1200	1250	nm
FWHM	$\Delta\lambda_{0.5}$	$I_F = 50 \text{ mA}$		80		nm
Viewing angle	φ	$I_F = 50 \text{ mA}$		120		deg.

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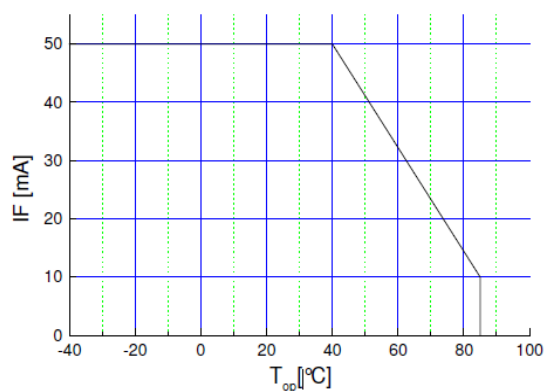
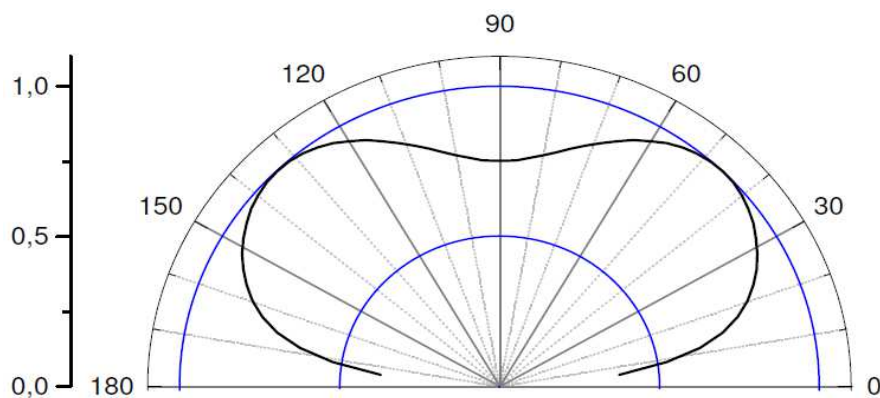
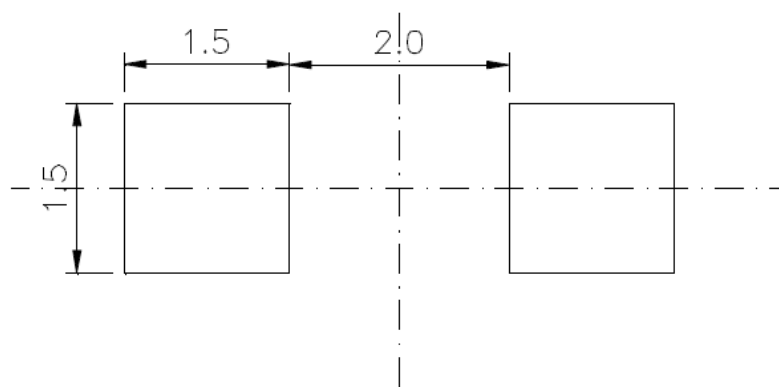
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Data Sheet**SMD-LED****EOLS-1200-199**

page 2 of 3

Rev. 03, 2017

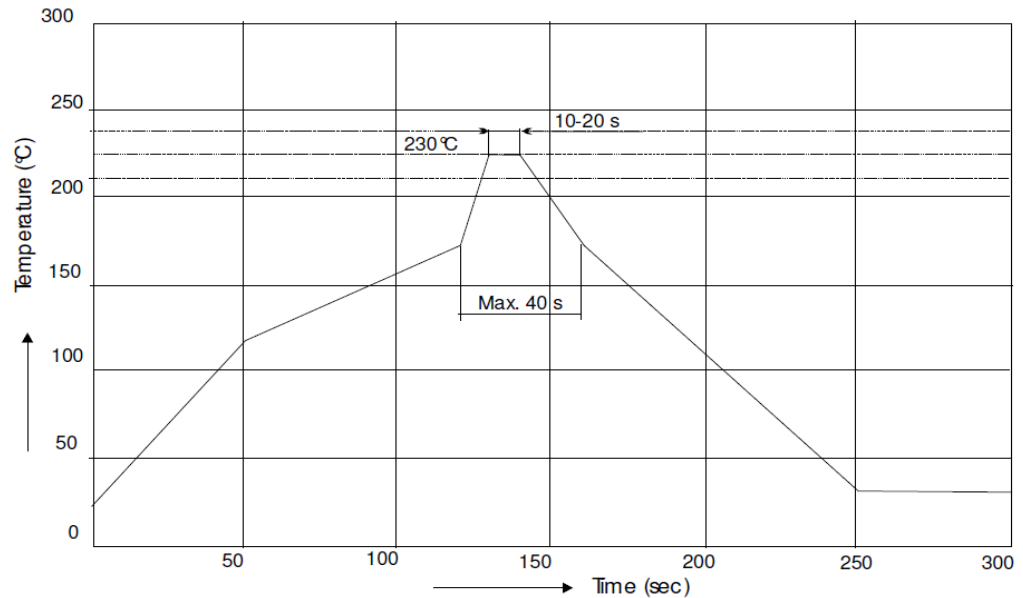
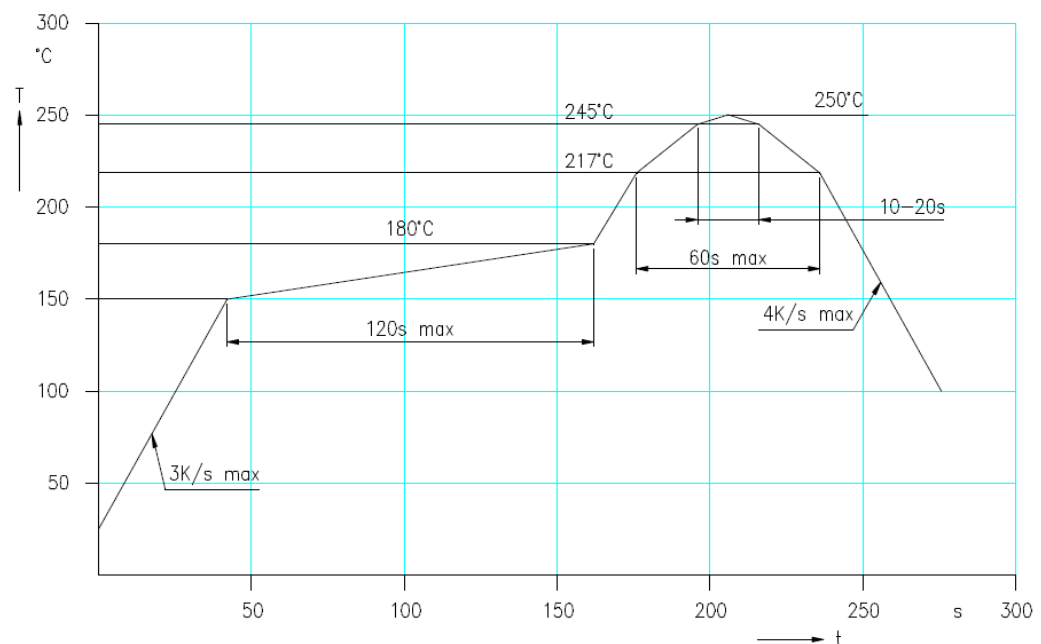
**Maximal
forward
current (DC)
characteristic****Radiation pattern****Recommended Soldering Pattern**

Data Sheet

page 3 of 3

SMD-LED**EOLS-1200-199**

Rev. 03, 2017

**IR reflow
soldering
profile****IR reflow
soldering
profile for lead
free soldering****Manual soldering:**

max power of iron 25 W / 3 s / 300°C

Art. Nr. 133 128



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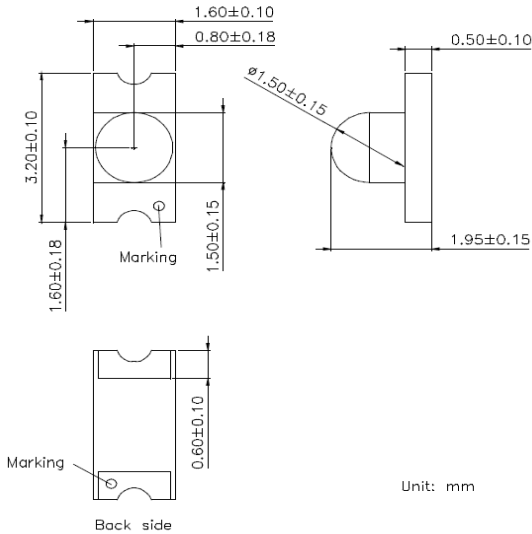
Data Sheet

page 1 of 3

Infrared SMD-LED**EOLS-1200-843**

Rev. 03, 2017

Radiation	Type	Case
infrared	InGaAsP	SMD 3216 (1206)

 Unit: mm		
		Description: - Size 1206: 3.2 (L) x 1.6 (W) x 1.95 (H) mm - Circuit substrate: glass laminated epoxy - Devices are RoHS conform - Lead free solderable, soldering pads: gold plated - Marking at cathode

Maximum Ratings $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test Conditions	Symbol	Value	Unit
Peak forward current	$t_p \leq 100 \mu\text{s}$ $\tau = 1:10$	I_{FP}	100	mA
Continuous forward current		I_F	50	mA
Reverse voltage		V_R	5	V
Operating temperature range		T_{amb}	-40 to +85	$^{\circ}\text{C}$
Storage temperature range		T_{stg}	-55 to +85	$^{\circ}\text{C}$
Thermal resistance		R_{thJA}	450	K/W

Optical and Electrical Characteristics $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Forward voltage	V_F	$I_F = 50 \text{ mA}$		1.0	1.5	V
Reverse current	I_R	$V_R = 5 \text{ V}$			100	μA
Radiant power	Φ_e	$I_F = 50 \text{ mA}$		5		mW
Peak wavelength	λ_p	$I_F = 50 \text{ mA}$	1150	1200	1250	nm
Spectral bandwidth	$\Delta\lambda_{0.5}$	$I_F = 50 \text{ mA}$		80		nm
Viewing angle	φ	$I_F = 50 \text{ mA}$		40		deg

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Data Sheet

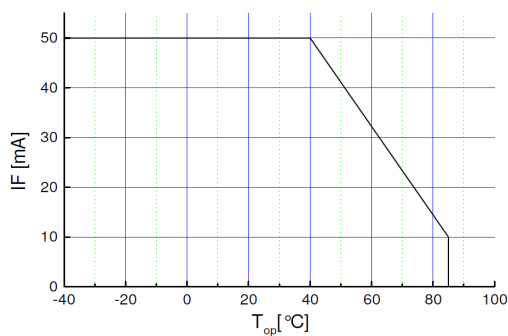
Infrared SMD-LED

EOLS-1200-843

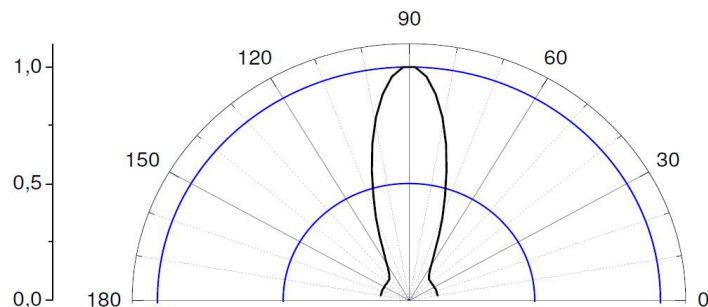
page 2 of 3

Rev. 03, 2017

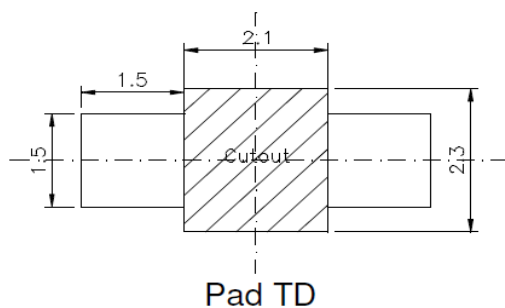
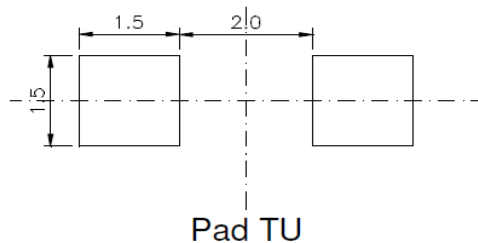
Maximal forward current (DC) characteristic



Radiation pattern



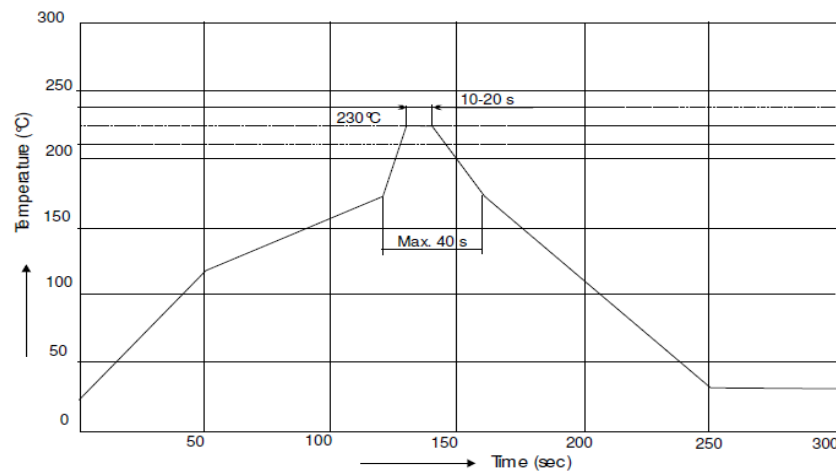
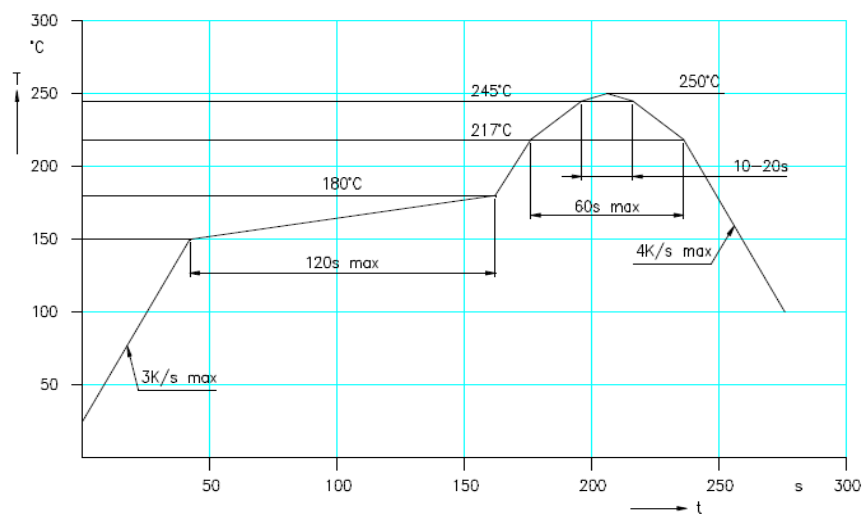
Recommended Soldering Patterns



We reserve the right to make changes to improve technical design and may do so without further notice. Parameters can vary in different applications. All operating parameters must be validated for each customer application by the customer.

Data Sheet**Infrared SMD-LED****EOLS-1200-843****page 3 of 3**

Rev. 03, 2017

**IR reflow
soldering
profile****IR reflow
soldering
profile for lead
free soldering****Manual soldering:****max power of iron 25 W / 3 s / 300°C**

Art. No. 133 133

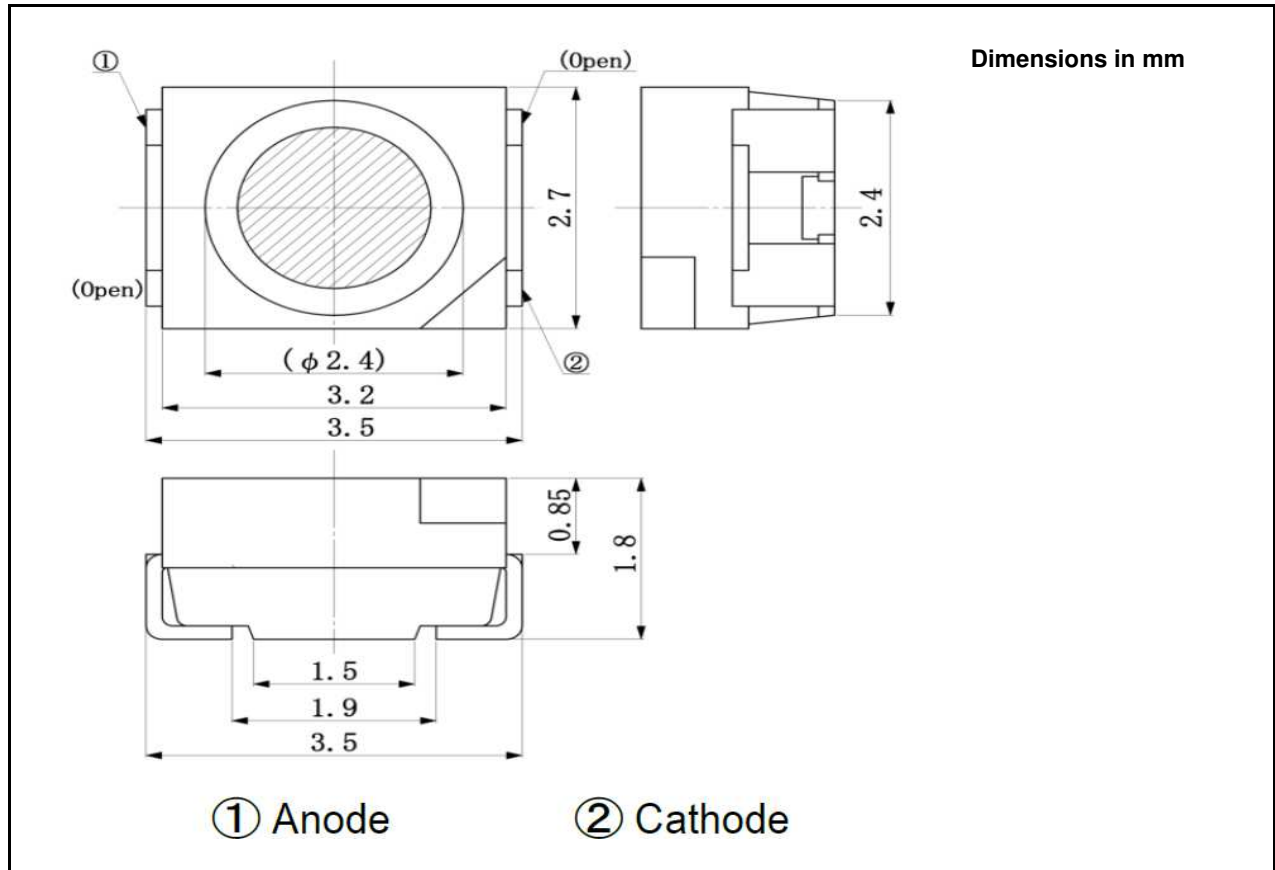


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Infrared SMD-LED**EOLS-1200-995**

Rev. 02, 2017

Radiation	Type	Case
Infrared	InGaAs/InP, MQW	SMD 3527 (1411), PLCC4

**Absolute Maximum Ratings** $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test Conditions	Symbol	Value	Unit
Peak forward current	$t_p \leq 10 \mu\text{s}$, $T = 10 \text{ ms}$	I_{FP}	500	mA
Continuous forward current		I_F	50	mA
Reverse voltage		V_R	5	V
Operating temperature range		T_{amb}	-20 to +80	$^{\circ}\text{C}$
Storage temperature range		T_{stg}	-30 to +100	$^{\circ}\text{C}$
Power dissipation		R_{thJA}	120	mW
Lead soldering temperature	$T = 5 \text{ s}$, 3 mm from body	T_{sld}	260	$^{\circ}\text{C}$



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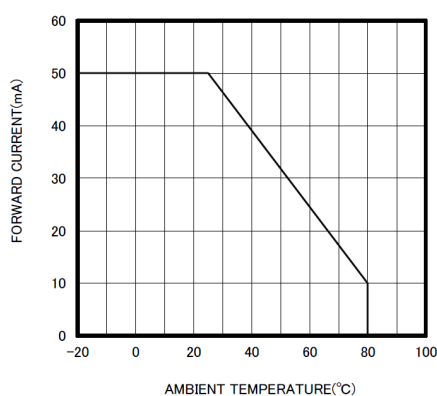
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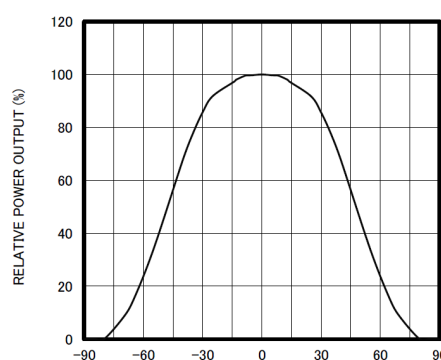
Optical and Electrical Characteristics
 $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test cond.	Symbol	Min	Typ	Max	Unit
Forward voltage	$I_F = 20\text{ mA}$	V_F		0.9	1.1	V
Forward voltage	$I_F = 50\text{ mA}$	V_F		1.0	1.2	V
Reverse current	$V_R = 5\text{ V}$	I_R			100	μA
Radiant power	$I_F = 20\text{ mA}$	Φ_e		1.8		mW
Radiant power	$I_F = 50\text{ mA}$	Φ_e		3.5		mW
Peak wavelength	$I_F = 20\text{ mA}$	λ_p		1200		nm
FWHM	$I_F = 20\text{ mA}$	$\Delta\lambda_{0.5}$		100		nm
Viewing angle	$I_F = 20\text{ mA}$	ϕ		± 45		deg
Switching times	$I_F = 20\text{ mA}$	t_r, t_f		25; 40		ns

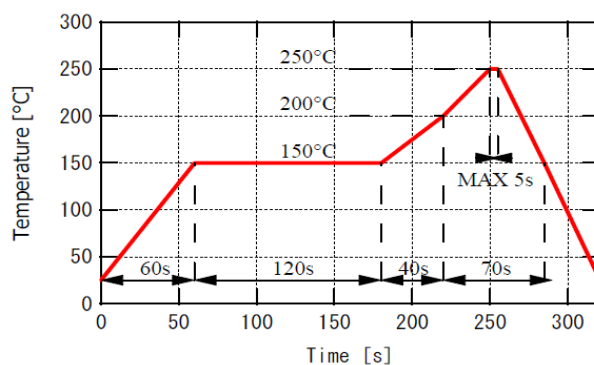
THERMAL DERATING CURVE



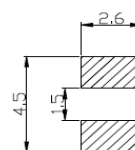
RADIATION PATTERN



Recommended reflow soldering profile



Recommended Land Layout (Unit: mm)



Art. No. 133 125



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Data Sheet

Infrared SMD LED

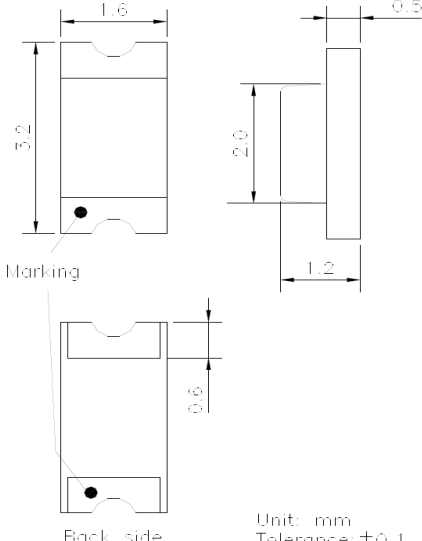
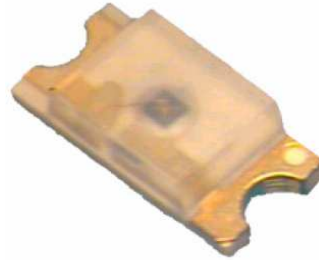
Preliminary

EOLS-1300-194

page 1 of 4

Rev. 02, 2020

Radiation	Type	Case
infrared	InGaAsP	SMD 3216 (1206)

 Unit: mm Tolerance: $\pm 0,1$	
	Description: - Size 1206: 3.2 (L) x 1.6 (W) x 1.2 (H) mm - Circuit substrate: glass laminated epoxy - Devices are RoHS conform - Lead free solderable, soldering pads: gold plated - Marking at anode - High radiation intensity

Maximum Ratings

T_{amb} = 25°C, unless otherwise specified

Parameter	Test conditions	Symbol	Value	Unit
Forward current		I _F	70	mA
Peak forward current	t ≤ 100 μs, T = 1 ms	I _{FM}	100	mA
Reverse voltage	I _R = 100 μA	V _R	5	V
Operating temperature range		T _{amb}	-40 to +85	°C
Storage temperature range		T _{stg}	-55 to +85	°C
Thermal resistance		R _{thJA}	450	K/W

Optical and Electrical Characteristics

T_{amb} = 25°C, unless otherwise specified

Parameter	Symbol	Test cond.	Min	Typ	Max	Unit
Forward voltage	V _F	I _F = 50 mA		1.1		V
Radiant power	Φ _e	I _F = 50 mA		11		mW
Peak wavelength	λ _p	I _F = 50 mA		1300		nm
FWHM	Δλ _{0.5}	I _F = 50 mA		78		nm
Viewing angle	φ	I _F = 50 mA		40		deg.



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Data Sheet

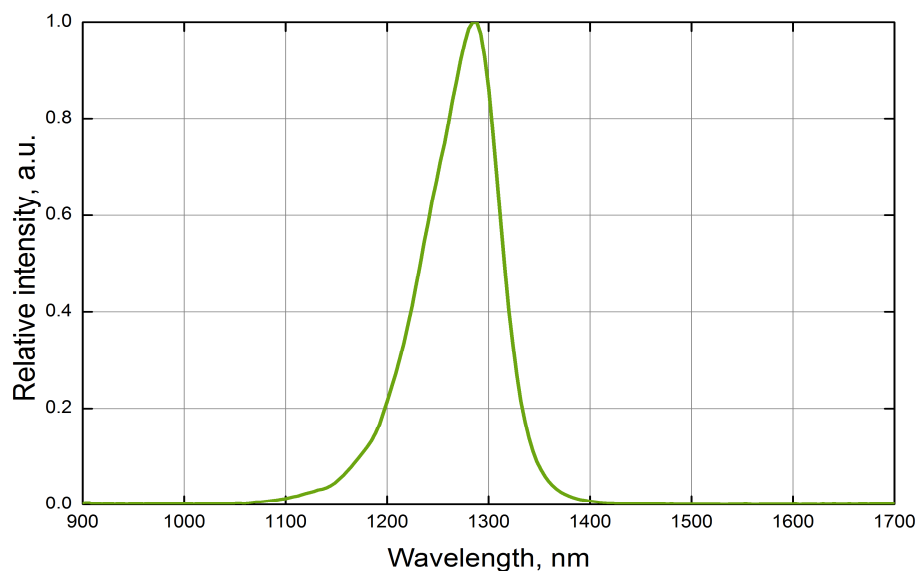
Infrared SMD LED

Preliminary

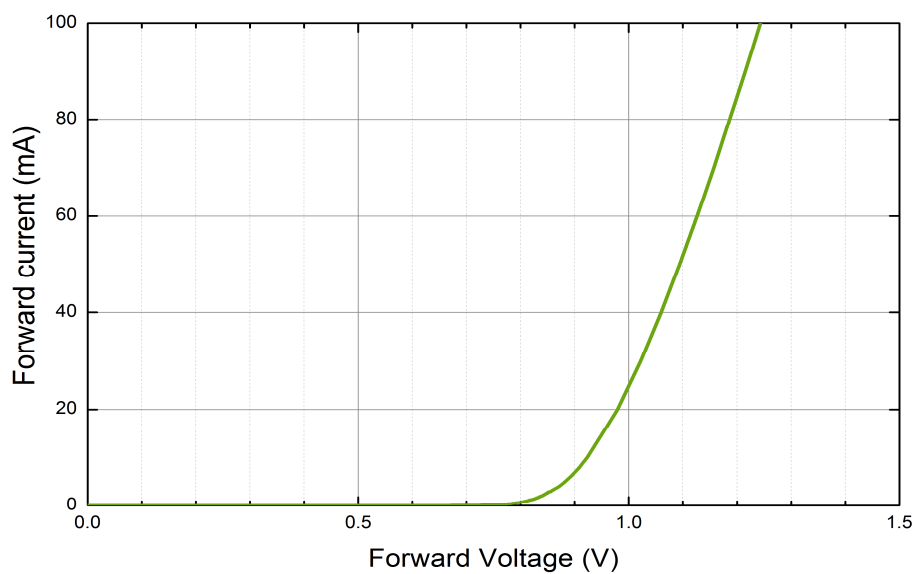
EOLS-1300-194

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Rev. 02, 2020



Typical spectrum at 50 mA



Forward current vs. forward voltage



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Data Sheet

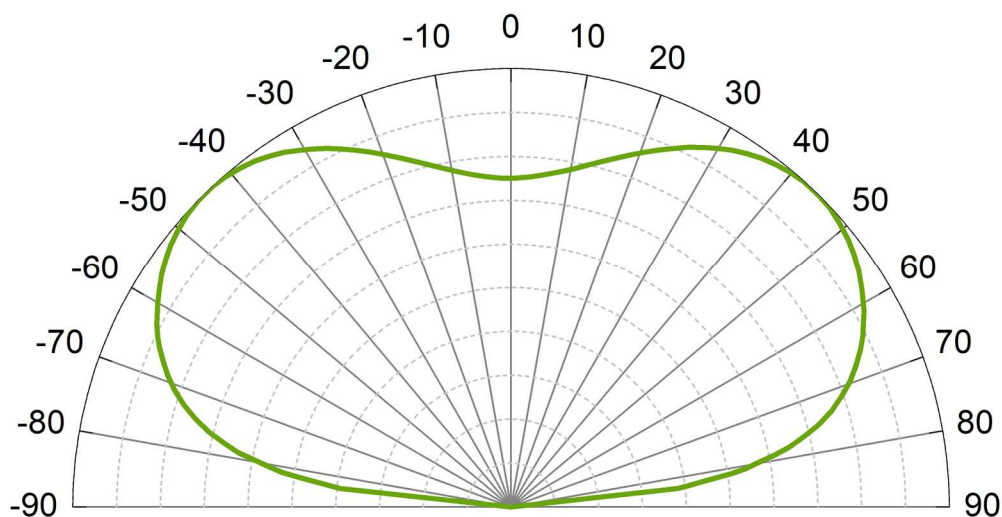
Infrared SMD LED

Preliminary

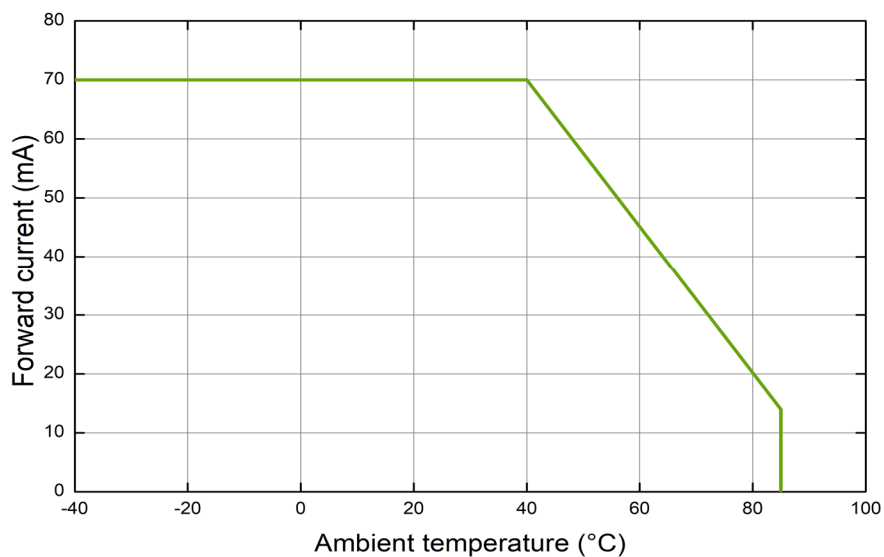
EOLS-1300-194

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Rev. 02, 2020



Radiation pattern



Max. forward current vs. ambient temperature



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Data Sheet

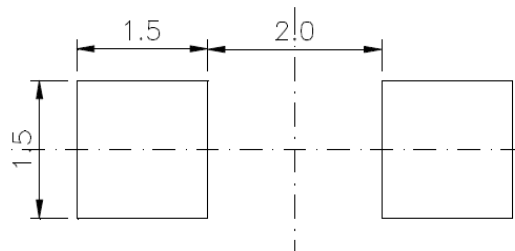
Infrared SMD LED

Preliminary

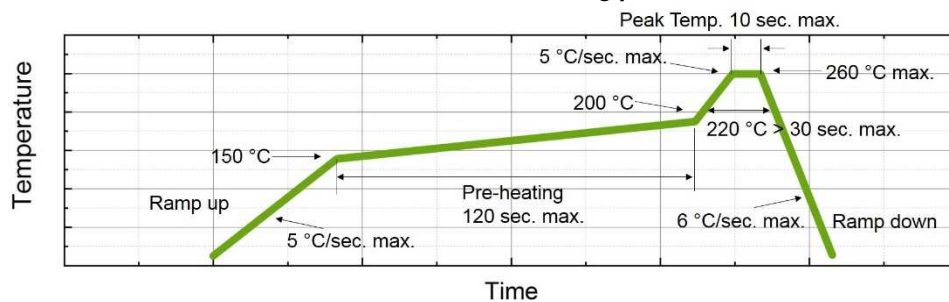
EOLS-1300-194

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Rev. 02, 2020

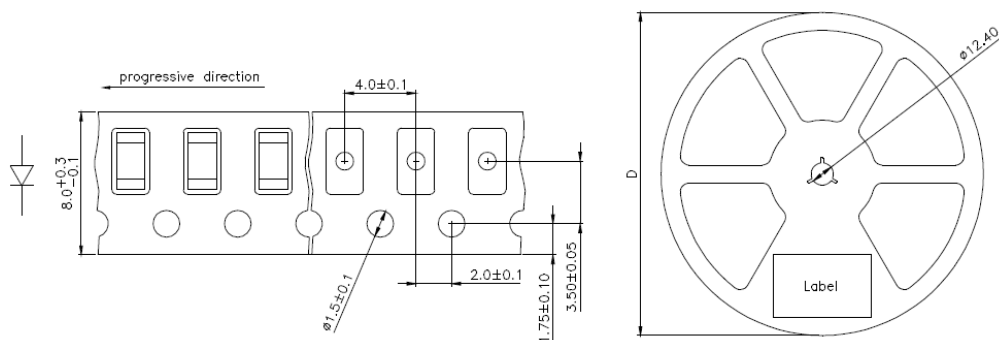


Recommended soldering pattern



Recommended reflow soldering profile

Measured according to CIE 127. All SMD LEDs are 100% measured and selected on full automated equipment with an accuracy of $\pm 11\%$.



D	Parts / reel
180 mm	3000
330 mm	12000

Tape and reel packing

Packing: The reel is seaLED in special plastic bag with integrate ESD protection (MIL - STD 81705) including a silica dry-pack

Art. Nr. 133 292



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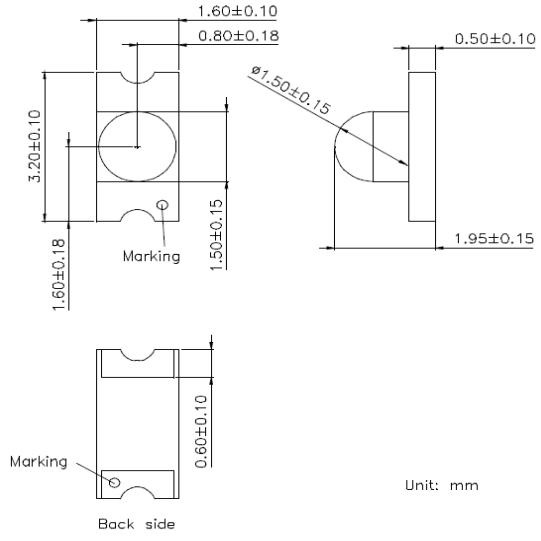
Data Sheet

page 1 of 3

Infrared SMD-LED**EOLS-1300-843**

Rev. 03, 2017

Radiation	Type	Case
infrared	InGaAsP	SMD 3216 (1206)

 The drawing shows three views of the SMD LED: a top view, a side view, and a back view. Dimensions are given in mm. Top view: 1.60±0.10 (L), 0.80±0.18 (W), 3.20±0.10 (H), 1.50±0.15 (H), 1.60±0.18 (H), 0.50±0.10 (H), 1.95±0.15 (H), 1.50±0.15 (H), 0.60±0.10 (H). Side view: 1.50±0.15 (H), 1.95±0.15 (H). Back view: 0.60±0.10 (H). Marking is indicated on the top and back views. Unit: mm.	 A photograph of the SMD LED, showing its physical appearance and mounting pads.
Description: - Size 1206: 3.2 (L) x 1.6 (W) x 1.95 (H) mm - Circuit substrate: glass laminated epoxy - Devices are RoHS conform - Lead free solderable, soldering pads: gold plated - Marking at cathode	

Maximum Ratings $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test Conditions	Symbol	Value	Unit
Peak forward current	$t_p \leq 100 \mu\text{s}$ $\tau = 1:10$	I_{FP}	100	mA
Continuous forward current		I_F	50	mA
Reverse voltage		V_R	5	V
Operating temperature range		T_{amb}	-40 to +85	$^{\circ}\text{C}$
Storage temperature range		T_{stg}	-55 to +85	$^{\circ}\text{C}$
Thermal resistance		R_{thJA}	450	K/W

Optical and Electrical Characteristics $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Forward voltage	V_F	$I_F = 50 \text{ mA}$		1.0	1.3	V
Reverse current	I_R	$V_R = 5 \text{ V}$			100	μA
Radiant power	Φ_e	$I_F = 50 \text{ mA}$		5		mW
Peak wavelength	λ_p	$I_F = 50 \text{ mA}$	1250	1300	1350	nm
Spectral bandwidth	$\Delta\lambda_{0.5}$	$I_F = 50 \text{ mA}$		90		nm
Viewing angle	φ	$I_F = 50 \text{ mA}$		40		deg

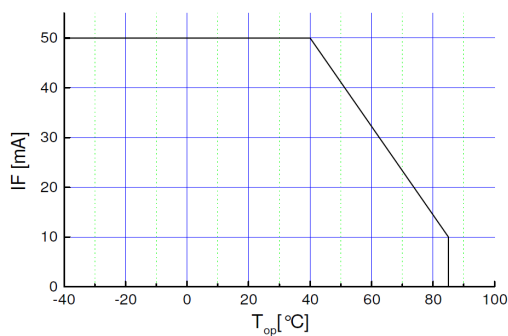
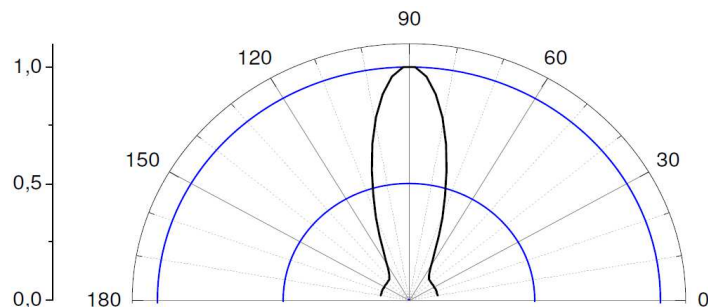
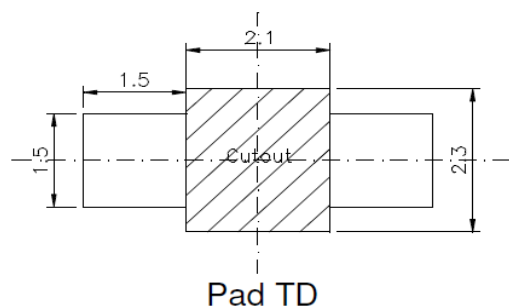
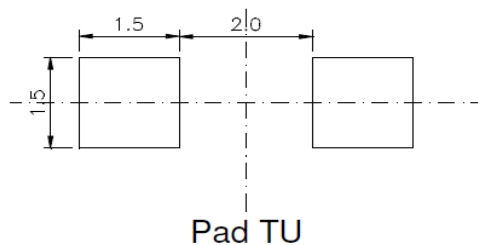


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Data Sheet**page 2 of 3****Infrared SMD-LED****EOLS-1300-843**

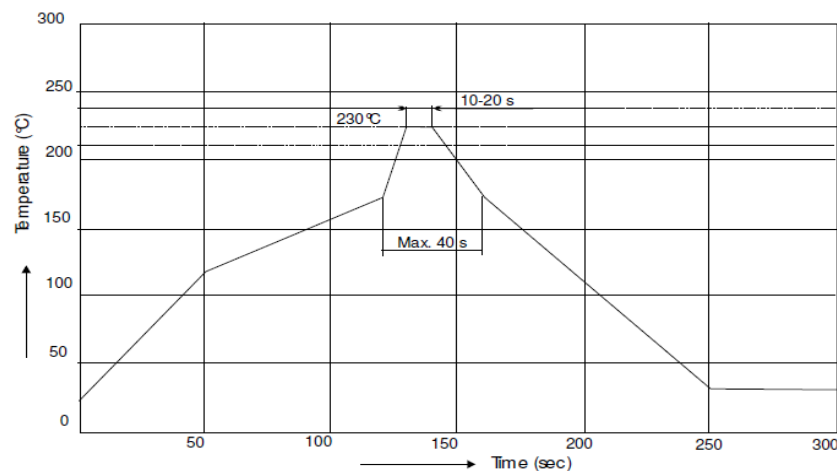
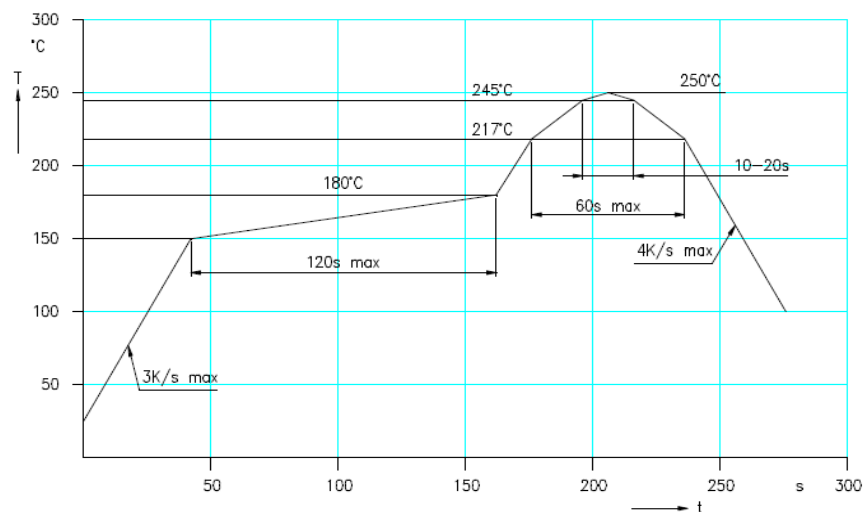
Rev. 03, 2017

**Maximal
forward
current (DC)
characteristic****Radiation pattern****Recommended Soldering Patterns**

Data Sheet**Infrared SMD-LED****EOLS-1300-843**

page 3 of 3

Rev. 03, 2017

**IR reflow
soldering
profile****IR reflow
soldering
profile for lead
free soldering****Manual soldering:**

max power of iron 25 W / 3 s / 300°C

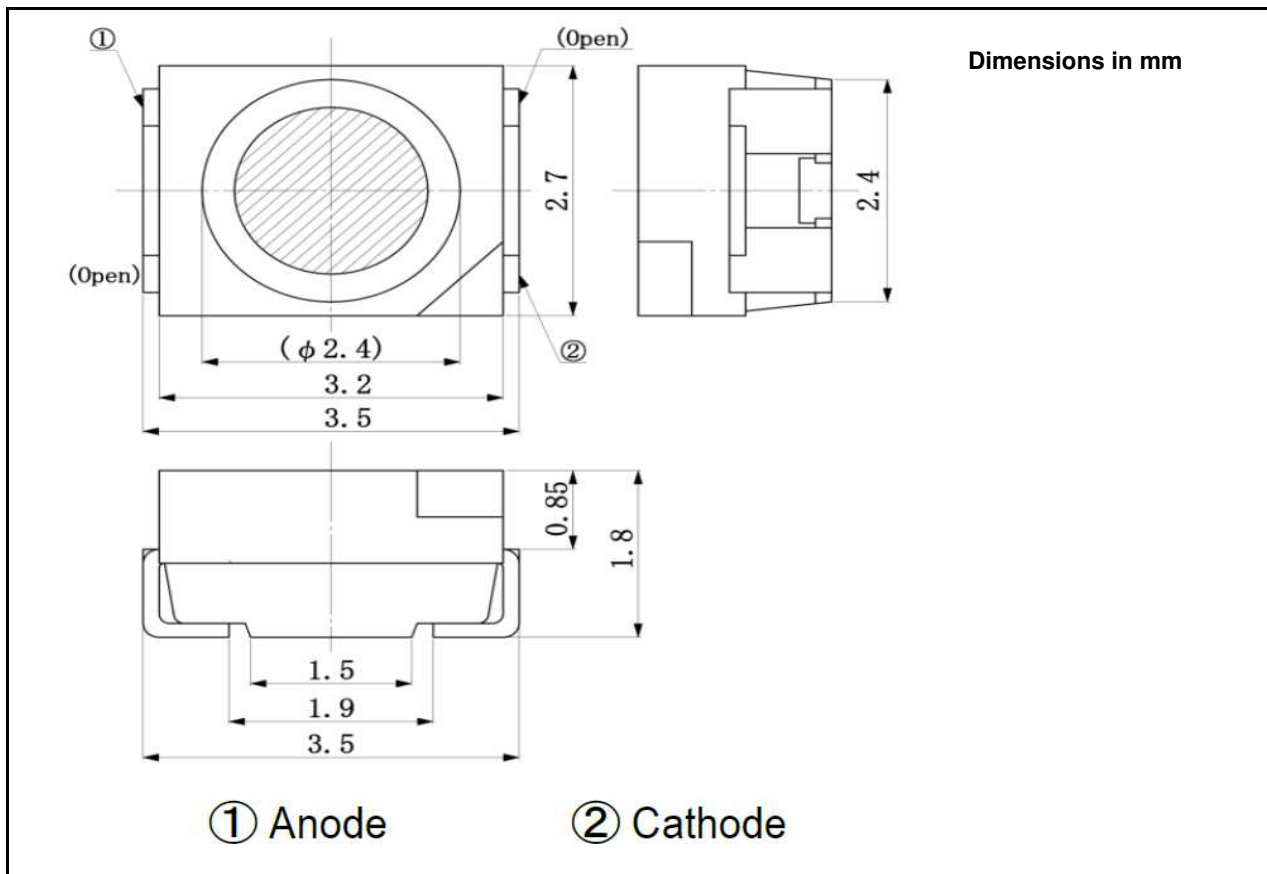
Art. No. 133 134



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Infrared SMD-LED**EOLS-1300-995**

Radiation	Type	Case
Infrared	InGaAs/InP, MQW	SMD 3527 (1411), PLCC4

**Absolute Maximum Ratings** $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test Conditions	Symbol	Value	Unit
Peak forward current	$t_p \leq 10 \mu\text{s}$, $T = 10 \text{ ms}$	I_{FP}	500	mA
Continuous forward current		I_F	50	mA
Reverse voltage		V_R	5	V
Operating temperature range		T_{amb}	-20 to +80	$^{\circ}\text{C}$
Storage temperature range		T_{stg}	-30 to +100	$^{\circ}\text{C}$
Power dissipation		R_{thJA}	120	mW
Lead soldering temperature	$T = 5 \text{ s}$, 3 mm from body	T_{sld}	260	$^{\circ}\text{C}$

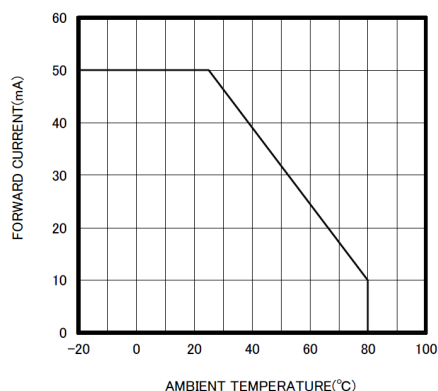


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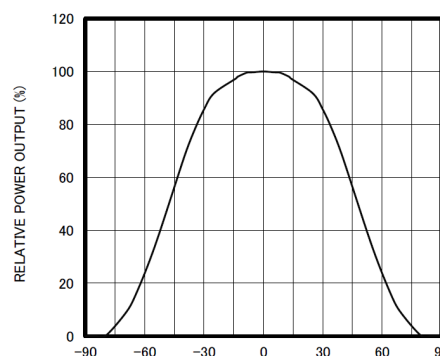
Optical and Electrical Characteristics*
 $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test cond.	Symbol	Min	Typ	Max	Unit
Forward voltage	$I_F = 20\text{ mA}$	V_F		0.7	0.95	V
Forward voltage	$I_F = 50\text{ mA}$	V_F		0.8	1.1	V
Reverse current	$V_R = 5\text{ V}$	I_R			100	μA
Radiant power	$I_F = 20\text{ mA}$	Φ_e		1.8		mW
Radiant power	$I_F = 50\text{ mA}$	Φ_e		3.5		mW
Peak wavelength	$I_F = 20\text{ mA}$	λ_p		1300		nm
FWHM	$I_F = 20\text{ mA}$	$\Delta\lambda_{0.5}$		70		nm
Viewing angle	$I_F = 20\text{ mA}$	ϕ		± 45		deg
Switching times	$I_F = 20\text{ mA}$	t_r, t_f		10		ns

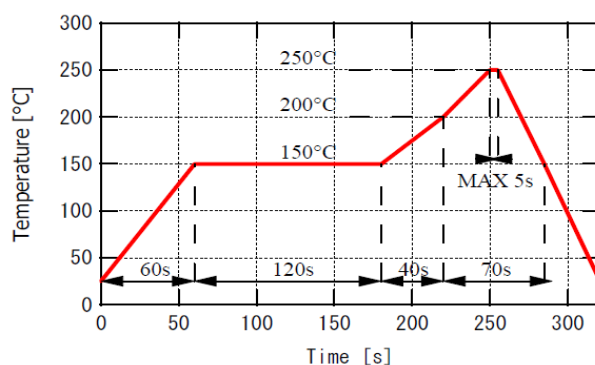
THERMAL DERATING CURVE



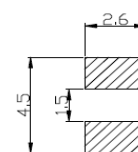
RADIATION PATTERN



Recommended reflow soldering profile



Recommended Land Layout (Unit: mm)



Art. No. 133 126



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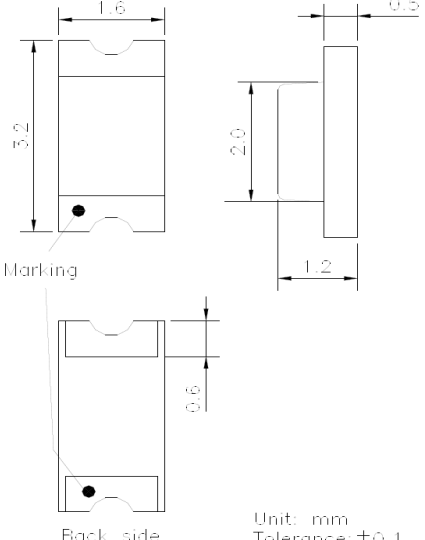
Data Sheet

page 1 of 3

SMD-LED**EOLS-1450-199**

Rev. 03, 2017

Radiation	Type	Case
infrared	InGaAsP	SMD 3216 (1206)

 Mechanical drawing showing top, side, and back views of the SMD-LED. Dimensions are in mm: Top view (1.6 x 1.2), Side view (0.5 x 1.2), Back view (0.6 x 1.2). Marking is shown on the back view. Unit: mm, Tolerance: ±0.1.	 A photograph of the SMD-LED component, showing its rectangular shape and gold-plated solder pads.
	Description: - Size 1206: 3.2 (L) x 1.6 (W) x 1.2 (H) mm - Circuit substrate: glass laminated epoxy - Devices are RoHS conform - Lead free solderable, soldering pads: gold plated - Marking at cathode - High radiation intensity

Maximum Ratings $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test conditions	Symbol	Value	Unit
Forward current		I_F	50	mA
Peak forward current	$t \leq 100 \mu\text{s}$, $T = 1 \text{ ms}$	I_{FM}	100	mA
Reverse voltage	$I_R = 100 \mu\text{A}$	I_{RM}	5	V
Operating temperature range		T_{amb}	-40 to +85	$^{\circ}\text{C}$
Storage temperature range		T_{stg}	-55 to +85	$^{\circ}\text{C}$
Thermal resistance		R_{thJA}	450	K/W

Optical and Electrical Characteristics $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Forward voltage	V_F	$I_F = 50 \text{ mA}$		1.0	1.3	V
Radiant power	Φ_e	$I_F = 50 \text{ mA}$		2		mW
Peak wavelength	λ_p	$I_F = 50 \text{ mA}$	1400	1450	1500	nm
FWHM	$\Delta\lambda_{0.5}$	$I_F = 50 \text{ mA}$		90		nm
Viewing angle	φ	$I_F = 50 \text{ mA}$		120		deg.

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Data Sheet

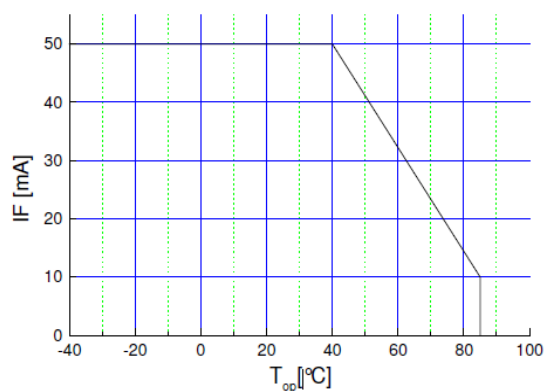
SMD-LED

EOLS-1450-199

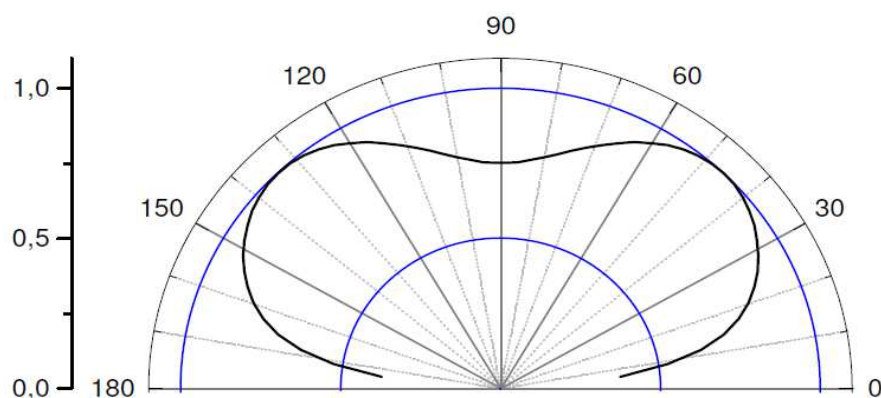
page 2 of 3

Rev. 03, 2017

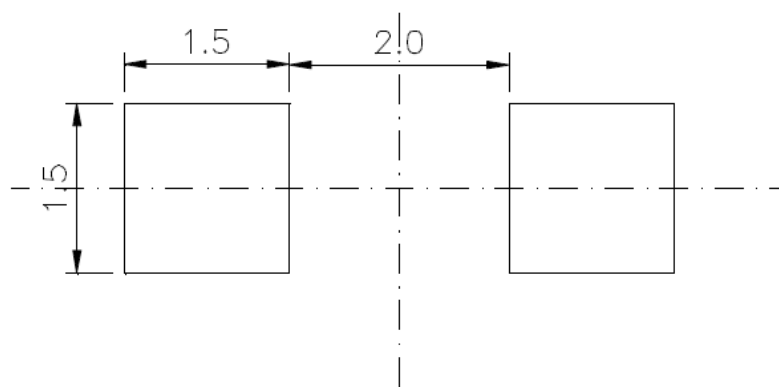
Maximal forward current (DC) characteristic



Radiation pattern



Recommended Soldering Pattern

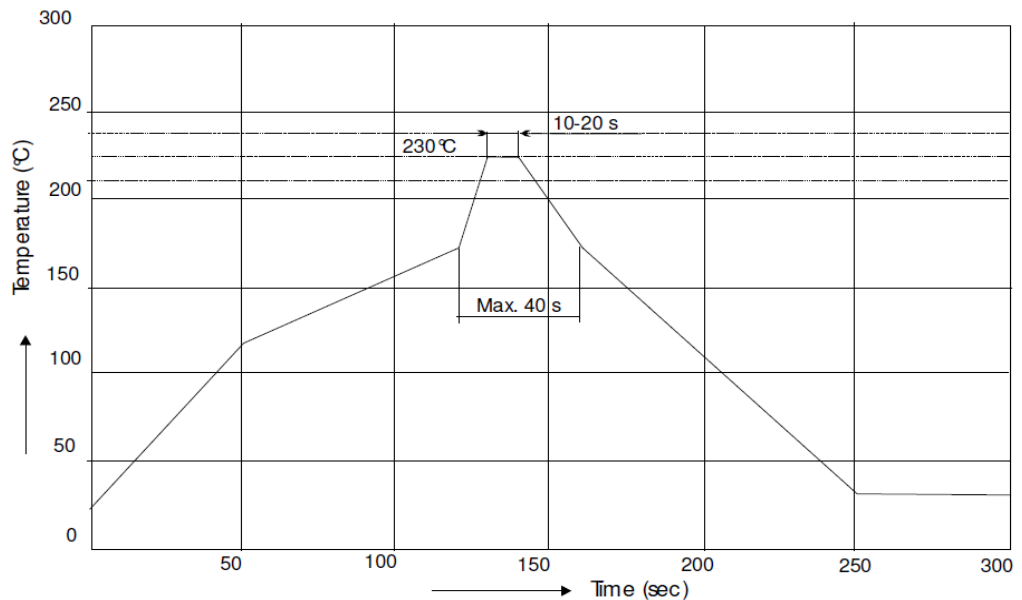
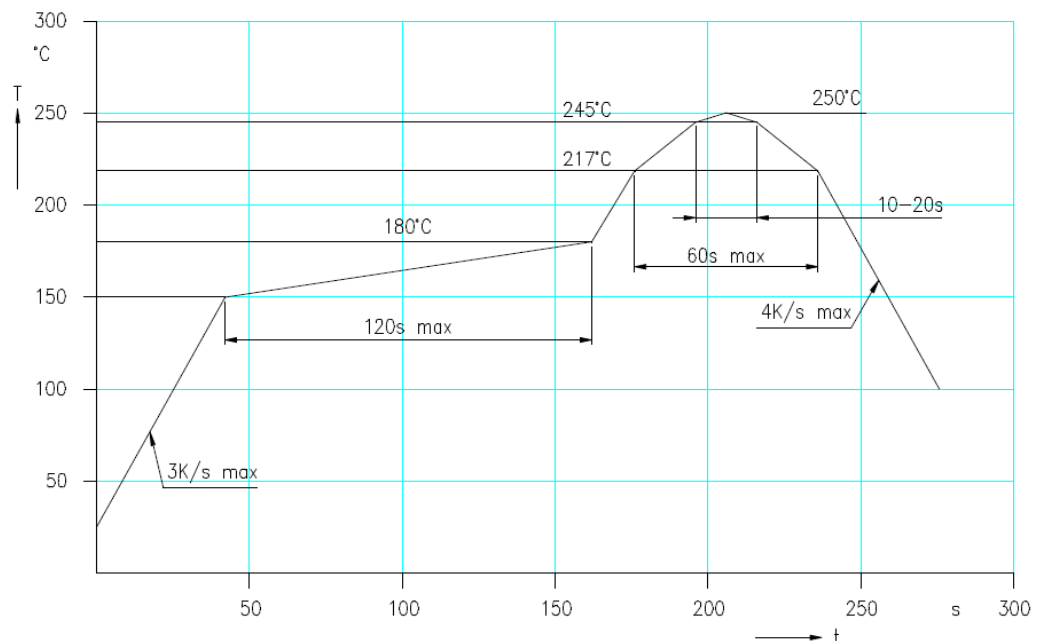


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Data Sheet**SMD-LED****EOLS-1450-199**

page 3 of 3

Rev. 03, 2017

**IR reflow
soldering
profile****IR reflow
soldering
profile for lead
free soldering****Manual soldering:**

max power of iron 25 W / 3 s / 300°C

Art. Nr. 133 130



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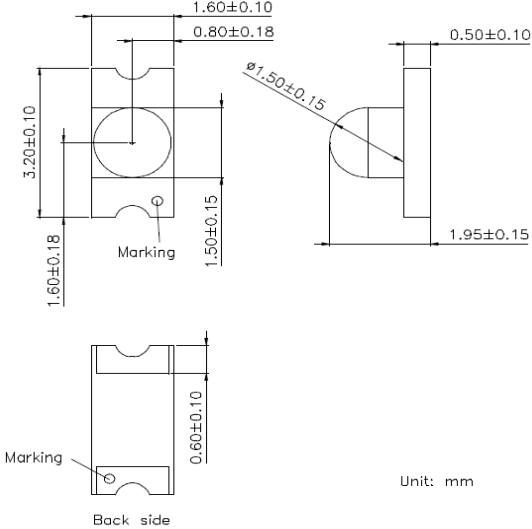
Data Sheet

page 1 of 3

Infrared SMD-LED**EOLS-1450-843**

Rev. 03, 2017

Radiation	Type	Case
infrared	InGaAsP	SMD 3216 (1206)

 Unit: mm	 Description: - Size 1206: 3.2 (L) x 1.6 (W) x 1.95 (H) mm - Circuit substrate: glass laminated epoxy - Devices are RoHS conform - Lead free solderable, soldering pads: gold plated - Marking at cathode
--	---

Maximum Ratings $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test Conditions	Symbol	Value	Unit
Peak forward current	$t_p \leq 100 \mu\text{s}$ $\tau = 1:10$	I_{FP}	100	mA
Continuous forward current		I_F	50	mA
Reverse voltage		V_R	5	V
Operating temperature range		T_{amb}	-40 to +85	$^{\circ}\text{C}$
Storage temperature range		T_{stg}	-55 to +85	$^{\circ}\text{C}$
Thermal resistance		R_{thJA}	450	K/W

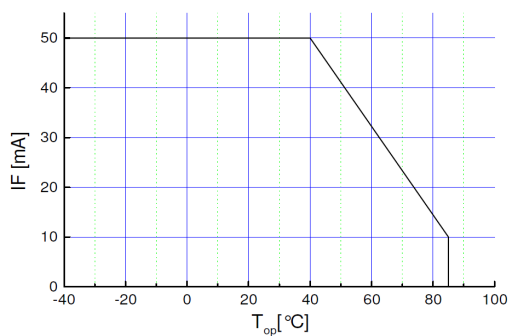
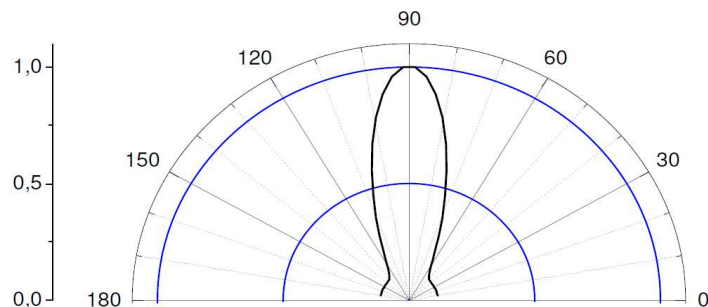
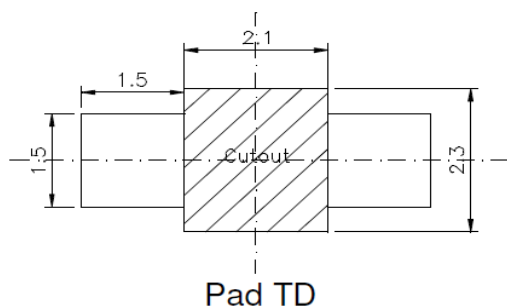
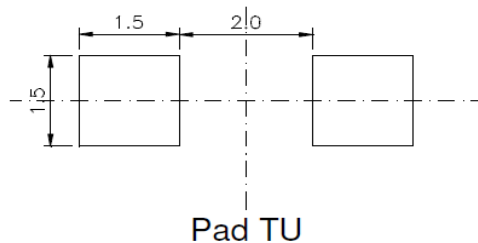
Optical and Electrical Characteristics $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Forward voltage	V_F	$I_F = 50 \text{ mA}$		1.0	1.3	V
Reverse current	I_R	$V_R = 5 \text{ V}$			100	μA
Radiant power	Φ_e	$I_F = 50 \text{ mA}$		2		mW
Peak wavelength	λ_p	$I_F = 50 \text{ mA}$	1400	1450	1500	nm
Spectral bandwidth	$\Delta\lambda_{0.5}$	$I_F = 50 \text{ mA}$		90		nm
Viewing angle	φ	$I_F = 50 \text{ mA}$		40		deg

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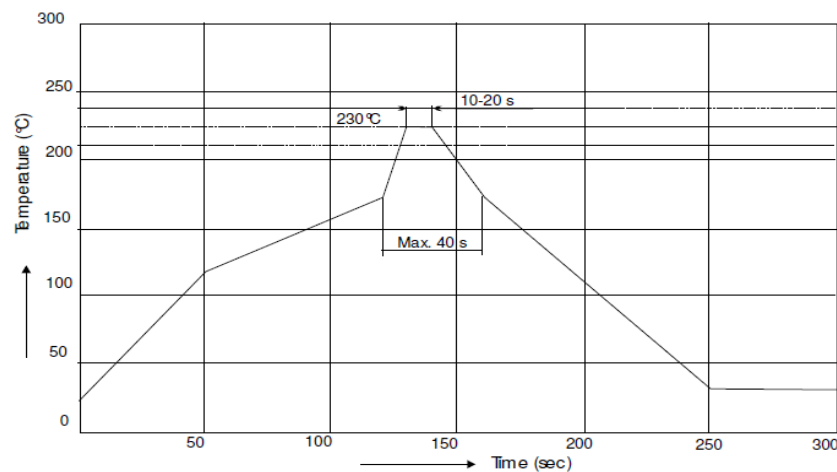
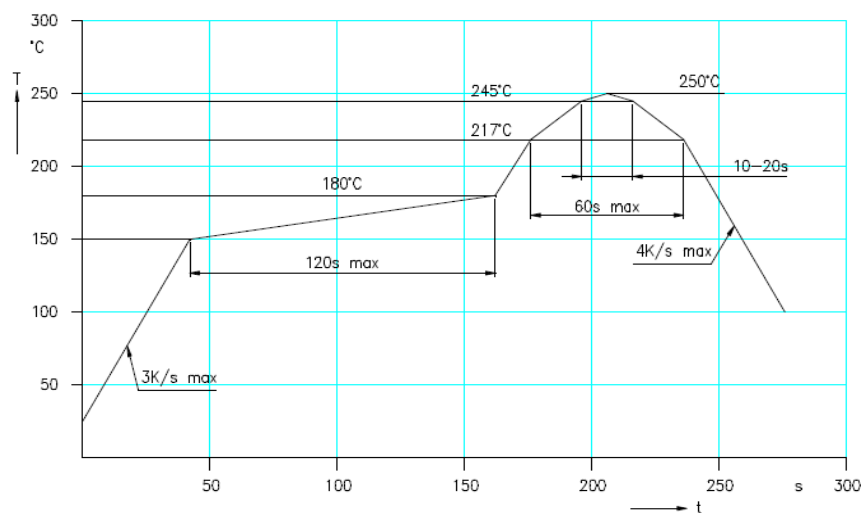
Data Sheet**page 2 of 3****Infrared SMD-LED****EOLS-1450-843**

Rev. 03, 2017

**Maximal
forward
current (DC)
characteristic****Radiation pattern****Recommended Soldering Patterns**

Data Sheet**Infrared SMD-LED****EOLS-1450-843****page 3 of 3**

Rev. 03, 2017

**IR reflow
soldering
profile****IR reflow
soldering
profile for lead
free soldering****Manual soldering:**
max power of iron 25 W / 3 s / 300°C

Art. No. 133 135

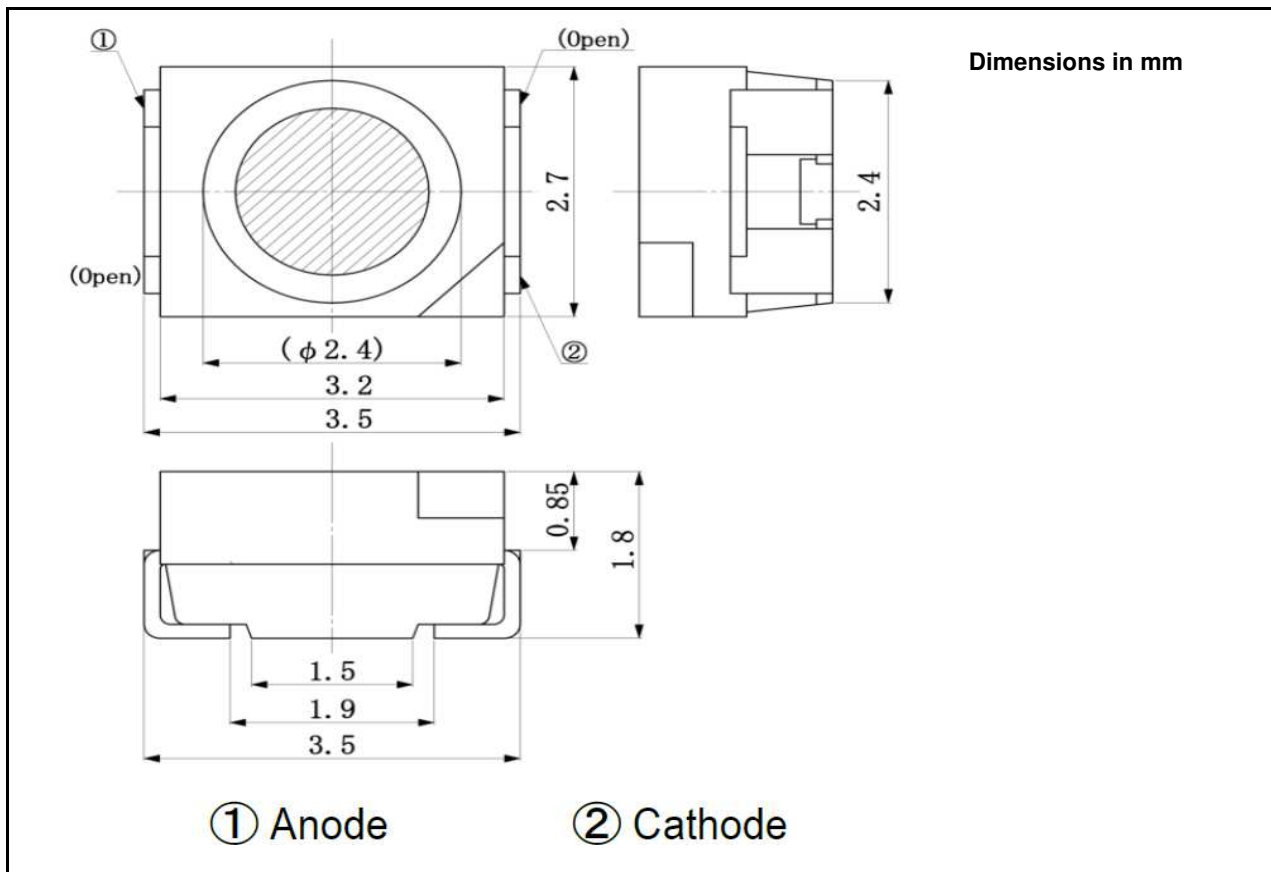


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Infrared SMD-LED**EOLS-1450-995**

Rev. 02, 2017

Radiation	Type	Case
Infrared	InGaAs/InP, MQW	SMD 3527 (1411), PLCC4

**Absolute Maximum Ratings** $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test Conditions	Symbol	Value	Unit
Peak forward current	$t_p \leq 10 \mu\text{s}$, $T = 10 \text{ ms}$	I_{FP}	500	mA
Continuous forward current		I_F	50	mA
Reverse voltage		V_R	5	V
Operating temperature range		T_{amb}	-20 to +80	$^{\circ}\text{C}$
Storage temperature range		T_{stg}	-30 to +100	$^{\circ}\text{C}$
Power dissipation		R_{thJA}	120	mW
Lead soldering temperature	$T = 5 \text{ s}$, 3 mm from body	T_{sld}	260	$^{\circ}\text{C}$



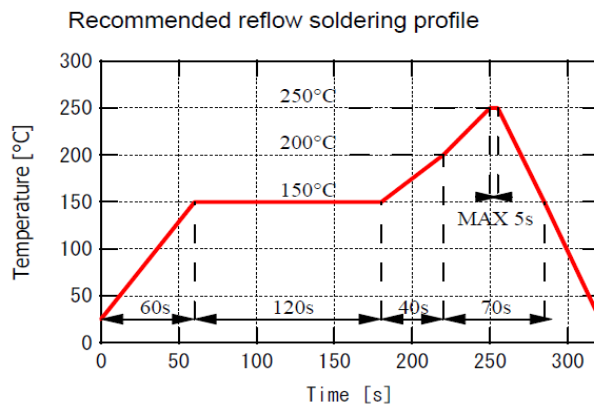
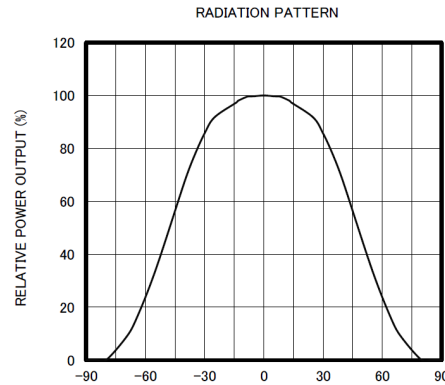
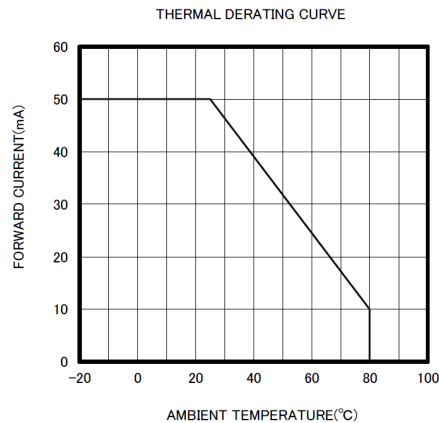
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Infrared SMD-LED
EOLS-1450-995

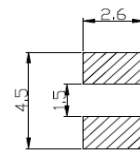
page 2 of 2
Rev. 02, 2017

Optical and Electrical Characteristics
 $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test cond.	Symbol	Min	Typ	Max	Unit
Forward voltage	$I_F=20\text{ mA}$	V_F		0.7	0.95	V
Forward voltage	$I_F=50\text{ mA}$	V_F		0.8	1.0	V
Reverse current	$V_R=5\text{ V}$	I_R			100	μA
Radiant power	$I_F=20\text{ mA}$	Φ_e		1.8		mW
Radiant power	$I_F=50\text{ mA}$	Φ_e		3.5		mW
Peak wavelength	$I_F=20\text{ mA}$	λ_p	1400	1450	1500	nm
FWHM	$I_F=20\text{ mA}$	$\Delta\lambda_{0.5}$		120		nm
Viewing angle	$I_F=20\text{ mA}$	ϕ		± 45		deg
Switching times	$I_F=20\text{ mA}$	t_r, t_f		40		ns



Recommended Land Layout (Unit: mm)



Art. No. 133 127



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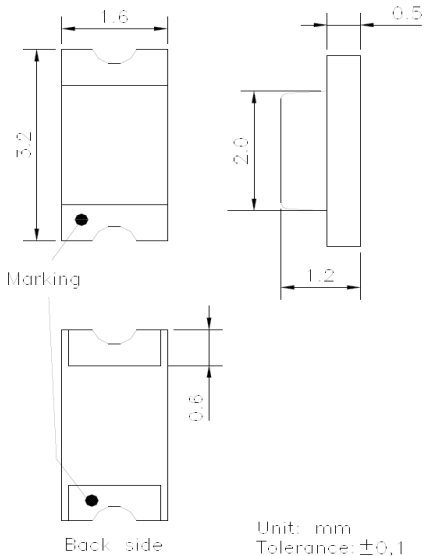
Data Sheet

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SMD-LED**EOLS-1550-199**

Rev. 03, 2017

Radiation	Type	Case
infrared	InGaAsP	SMD 3216 (1206)

	 Description: - Size 1206: 3.2 (L) x 1.6 (W) x 1.2 (H) mm - Circuit substrate: glass laminated epoxy - Devices are RoHS conform - Lead free solderable, soldering pads: gold plated - Marking at cathode - High radiation intensity
--	--

Maximum Ratings $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test conditions	Symbol	Value	Unit
Forward current		I_F	50	mA
Peak forward current	$t \leq 100 \mu\text{s}$, $T = 1 \text{ ms}$	I_{FM}	100	mA
Reverse voltage	$I_R = 100 \mu\text{A}$	I_{RM}	5	V
Operating temperature range		T_{amb}	-40 to +85	$^{\circ}\text{C}$
Storage temperature range		T_{stg}	-55 to +85	$^{\circ}\text{C}$
Thermal resistance		R_{thJA}	450	K/W

Optical and Electrical Characteristics $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

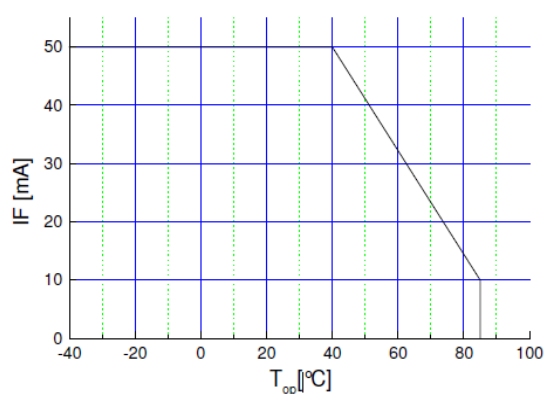
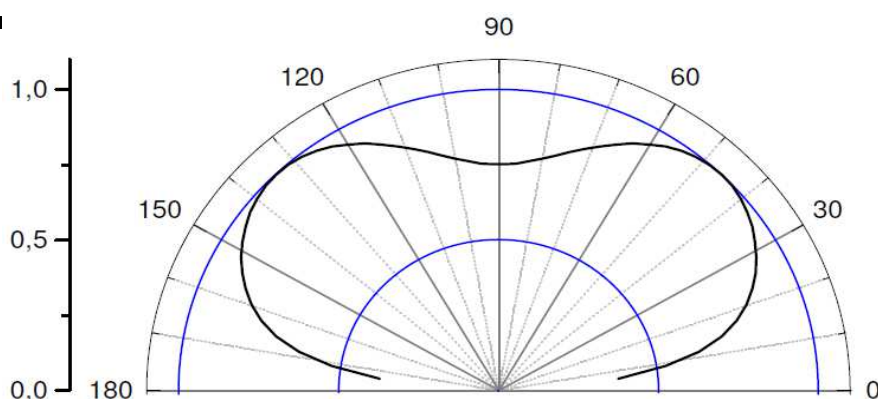
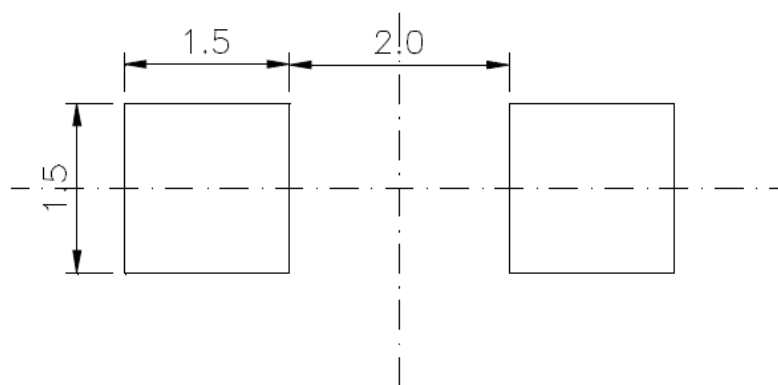
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Forward voltage	V_F	$I_F = 50 \text{ mA}$		1.0	1.3	V
Radiant power	Φ_e	$I_F = 50 \text{ mA}$		1.7		mW
Peak wavelength	λ_p	$I_F = 50 \text{ mA}$	1500	1550	1600	nm
FWHM	$\Delta\lambda_{0,5}$	$I_F = 50 \text{ mA}$		130		nm
Viewing angle	φ	$I_F = 50 \text{ mA}$		120		deg.

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Data Sheet**SMD-LED****EOLS-1550-199**

page 2 of 3

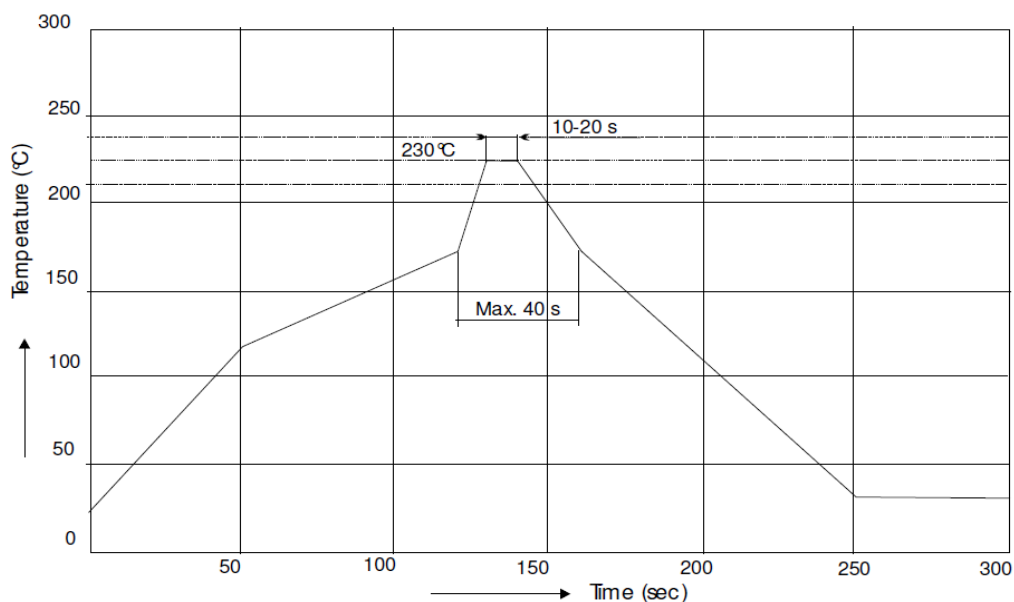
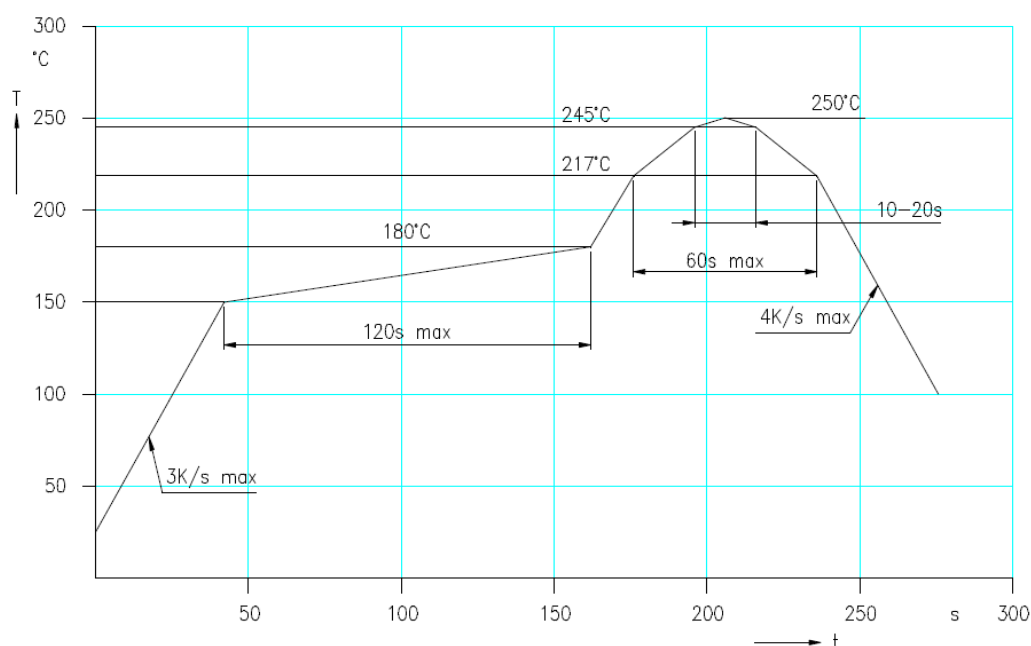
Rev. 03, 2017

**Maximal
forward
current (DC)
characteristic****Radiation pattern****Recommended Soldering Pattern**

Data Sheet**SMD-LED****EOLS-1550-199**

page 3 of 3

Rev. 03, 2017

**IR reflow
soldering
profile****IR reflow
soldering
profile for lead
free soldering**

Manual soldering:
max power of iron 25 W / 3 s / 300°C

Art. Nr. 133 131



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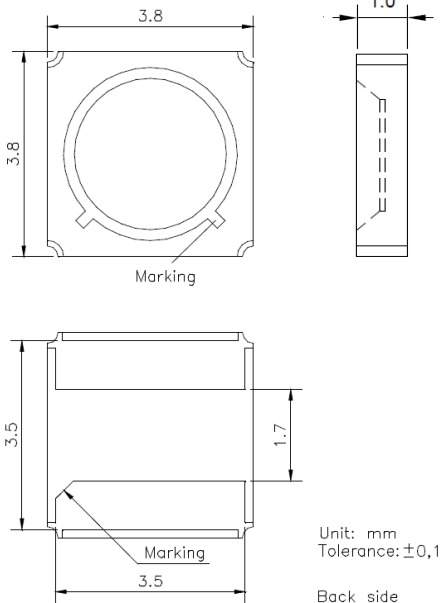
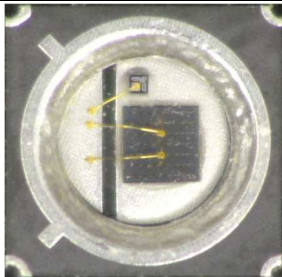
Data Sheet

High Power IR LED

EOLS-1550-496

page 1 of 5
Rev. 02, 2020

Radiation	Type	Case
Infrared	InGaAs - based material	SMD 3838 (1515)

 Unit: mm Tolerance: $\pm 0,1$ Back side	
	Description: - Size 3.8 (W) x 3.8 (L) x 1.0 (H) mm - Circuit substrate: AlN ceramics - Devices are RoHS and REACH conform - Lead free solderable, soldering pads: silver plated - Taped in 12 mm blister tape, cathode to transporting perforation - All devices can be sorted into radiant intensity classes - Taping: face up (T) - High radiation intensity, marking at cathode

Maximum Ratings

$T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test conditions	Symbol	Value	Unit
Forward current		I_F	700	mA
Peak forward current	$t \leq 50 \mu\text{s}$, $\tau = 1:2$	I_{FM}	1000	mA
Reverse voltage	$I_R = 100 \mu\text{A}$	V_R	5	V
Operating temperature range		T_{amb}	-40 to +85	$^{\circ}\text{C}$
Storage temperature range		T_{stg}	-45 to +85	$^{\circ}\text{C}$
Thermal resistance		R_{thJA}	10	K/W



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Data Sheet

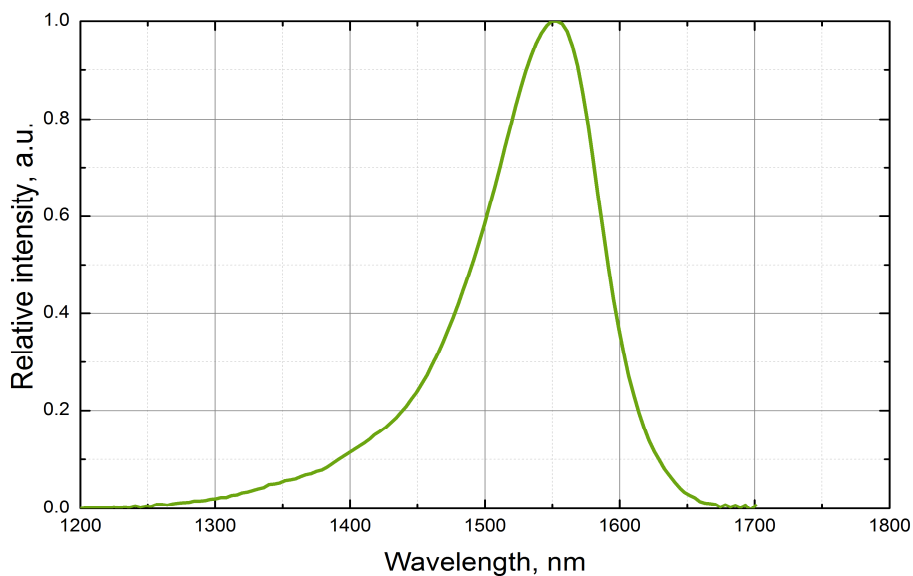
page 2 of 5

High Power IR LED**EOLS-1550-496**

Rev. 02, 2020

Parameter	Test cond.	Symbol	Min	Typ	Max	Unit
Forward voltage	$I_F=20\text{ mA}$	V_F		0.74		V
Radiant power*	$I_F=20\text{ mA}$	Φ_e		3.7		mW
Peak wavelength	$I_F=20\text{ mA}$	λ_p	1500	1550	1600	nm
FWHM	$I_F=20\text{ mA}$	$\Delta\lambda_{0.5}$		87		nm
Forward voltage	$I_F=350\text{ mA}$	V_F		1	1.3	V
Radiant power*	$I_F=350\text{ mA}$	Φ_e		32		mW
Peak wavelength	$I_F=350\text{ mA}$	λ_p	1500	1550		nm
FWHM	$I_F=350\text{ mA}$	$\Delta\lambda_{0.5}$		112		nm
Forward voltage	$I_F=1000\text{ mA}$	V_F		1.3	1.4	V
Radiant power*	$I_F=1000\text{ mA}$	Φ_e		54		mW
Peak wavelength	$I_F=1000\text{ mA}$	λ_p	1500	1550		nm
FWHM	$I_F=1000\text{ mA}$	$\Delta\lambda_{0.5}$		134		nm
Viewing angle	$I_F=350\text{ mA}$	φ		120		deg.

*Measured on silicon covered chip on star board

**Spectrum at 350 mA**

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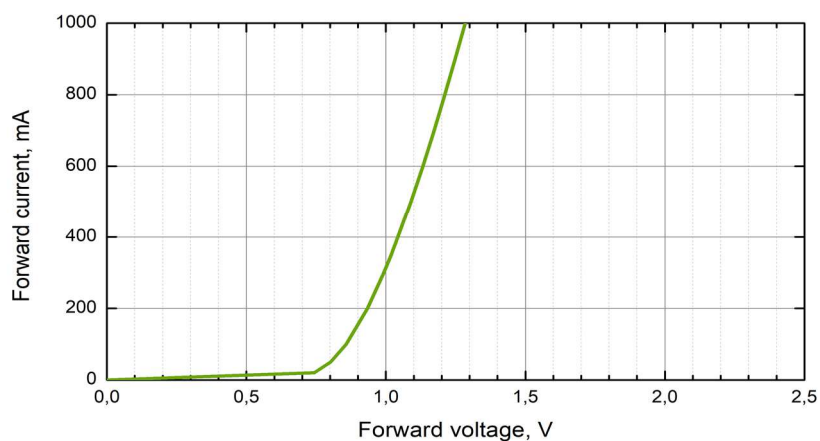
Data Sheet

High Power IR LED

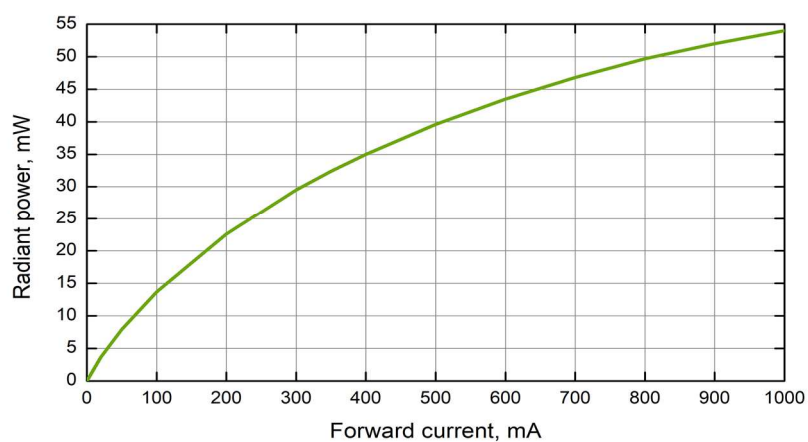
EOLS-1550-496

page 3 of 5

Rev. 02, 2020



Forward current vs. forward voltage



Radiant power vs. forward current (LED on star board)

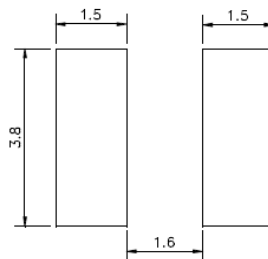
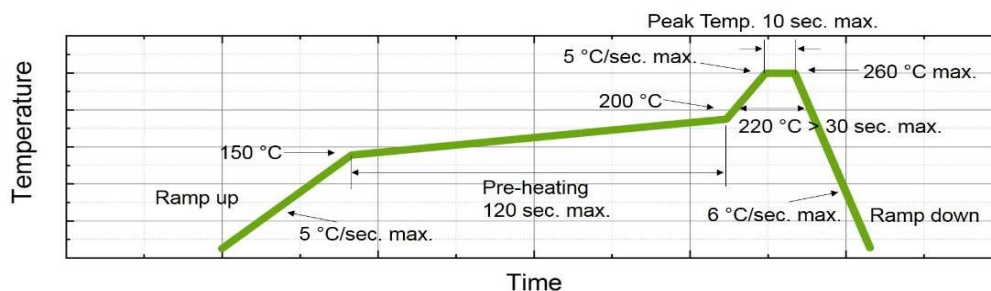
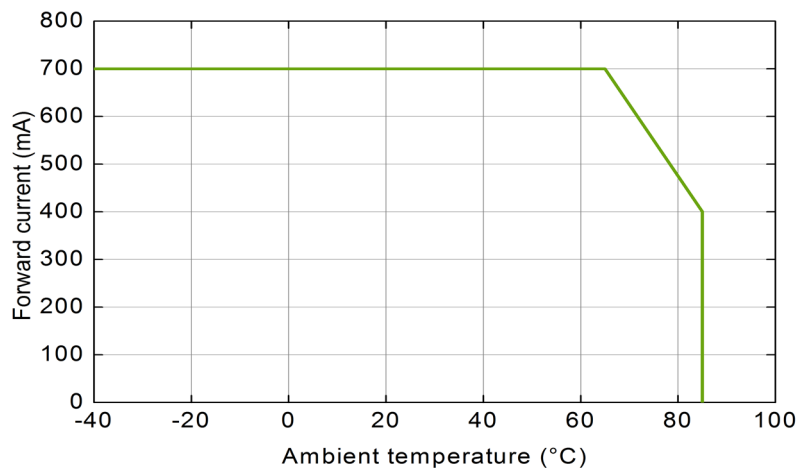


We reserve the right to make changes to improve technical design and may do so without further notice. Parameters can vary in different applications. All operating parameters must be validated for each customer application by the customer.

Data Sheet**High Power IR LED****EOLS-1550-496**

page 4 of 5

Rev. 02, 2020

**Recommended soldering pattern****Recommended reflow soldering profile****Maximal forward current (DC) vs. ambient temperature**

All SMD LEDs are 100% measured according to CIE 127 and selected on full automated equipment with an accuracy of $\pm 11\%$.

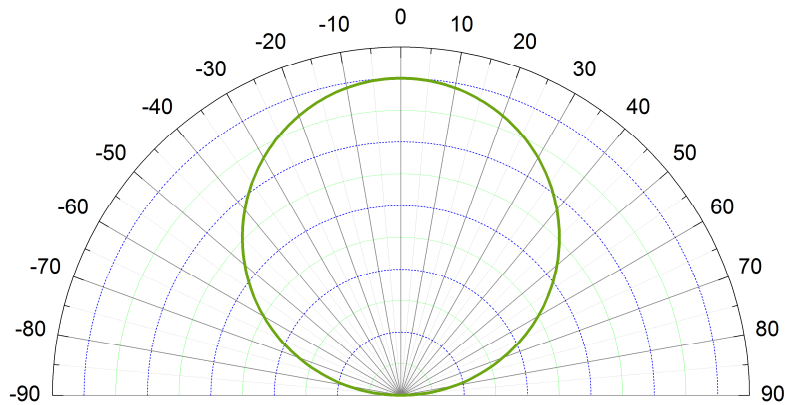
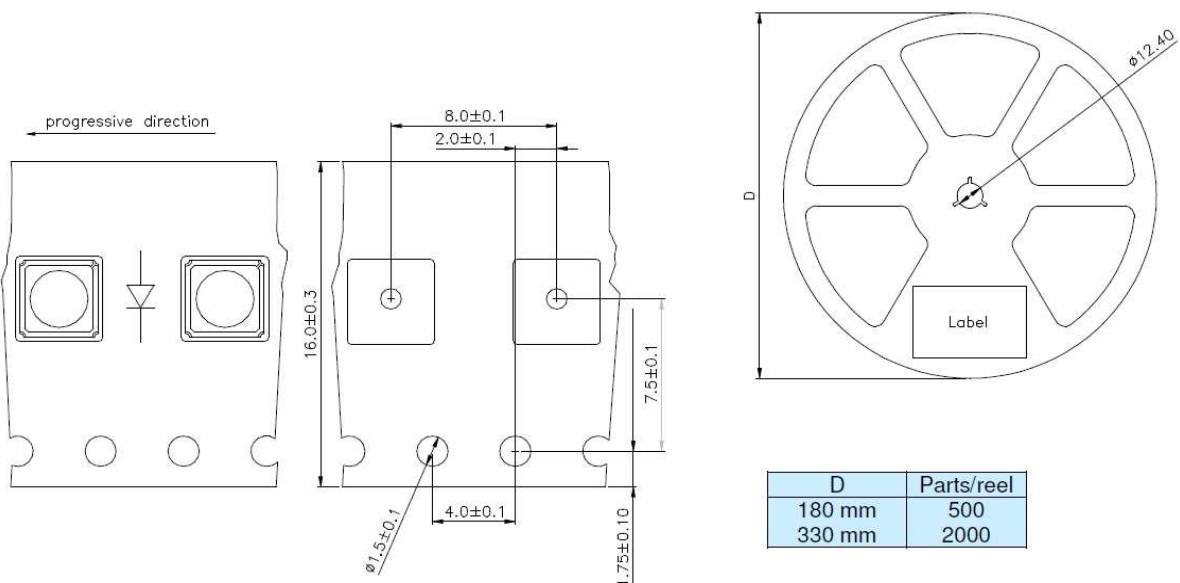


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Data Sheet**High Power IR LED****EOLS-1550-496**

page 5 of 5

Rev. 02, 2020

**Radiation pattern****Tape and Reel packing****Packing:** The reel is seaLED in special plastic bag with integrate ESD protection

(MIL - STD 81705) including a silica dry-pack

MSL level acc. To IPC/JEDEC J-STD 020D: Level 2

Art. No. 133 291



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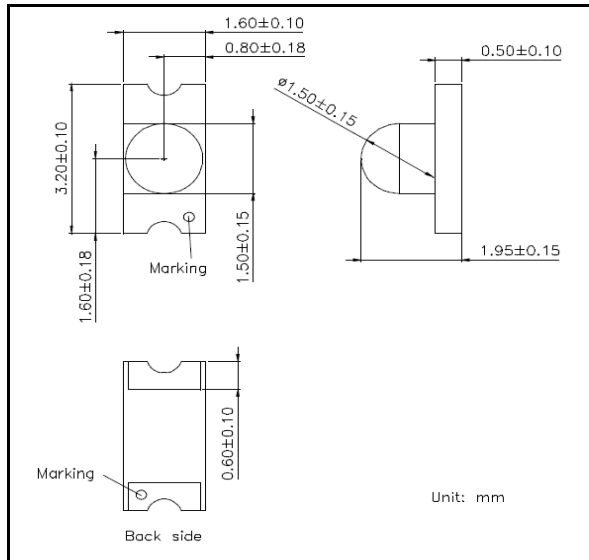
Data Sheet

Infrared SMD-LED

EOLS-1550-843

page 1 of 3
Rev. 03, 2017

Radiation	Type	Case
infrared	InGaAsP	SMD 3216 (1206)



Description:

- Size 1206: 3.2 (L) x 1.6 (W) x 1.95 (H) mm
- Circuit substrate: glass laminated epoxy
- Devices are RoHS conform
- Lead free solderable, soldering pads: gold plated
- Marking at cathode

Maximum Ratings

T_{amb} = 25°C, unless otherwise specified

Parameter	Test Conditions	Symbol	Value	Unit
Peak forward current	t _p ≤ 100 μs τ = 1:10	I _{FP}	100	mA
Continuous forward current		I _F	50	mA
Reverse voltage		V _R	5	V
Operating temperature range		T _{amb}	-40 to +85	°C
Storage temperature range		T _{stg}	-55 to +85	°C
Thermal resistance		R _{thJA}	450	K/W

Optical and Electrical Characteristics

T_{amb} = 25°C, unless otherwise specified



Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Forward voltage	V _F	I _F = 50 mA		1.0	1.3	V
Reverse current	I _R	V _R = 5 V			100	μA
Radiant power	Φ _e	I _F = 50 mA		1.7		mW
Peak wavelength	λ _p	I _F = 50 mA	1500	1550	1600	nm
Spectral bandwidth	Δλ _{0.5}	I _F = 50 mA		130		nm
Viewing angle	φ	I _F = 50 mA		40		deg

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Data Sheet

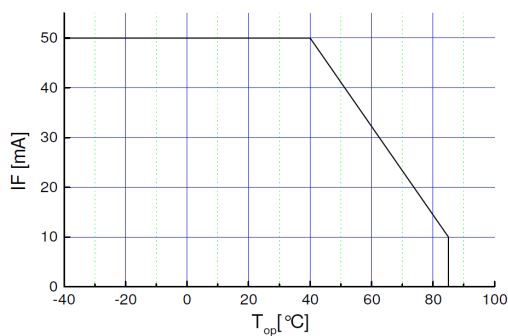
Infrared SMD-LED

EOLS-1550-843

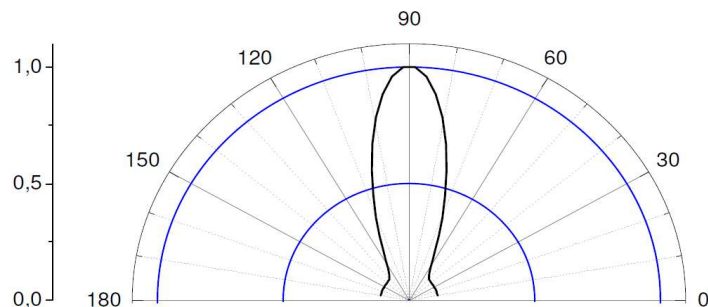
page 2 of 3

Rev. 03, 2017

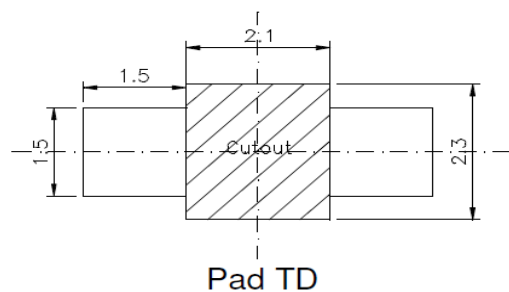
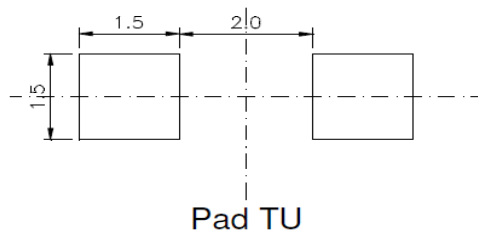
Maximal forward current (DC) characteristic



Radiation pattern



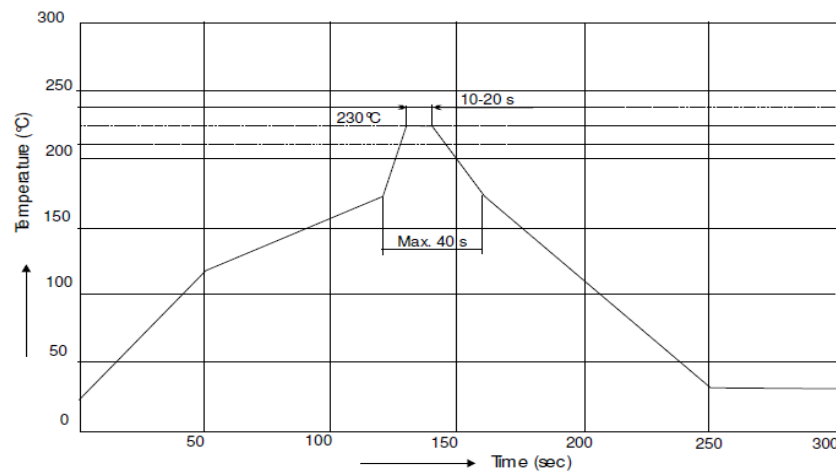
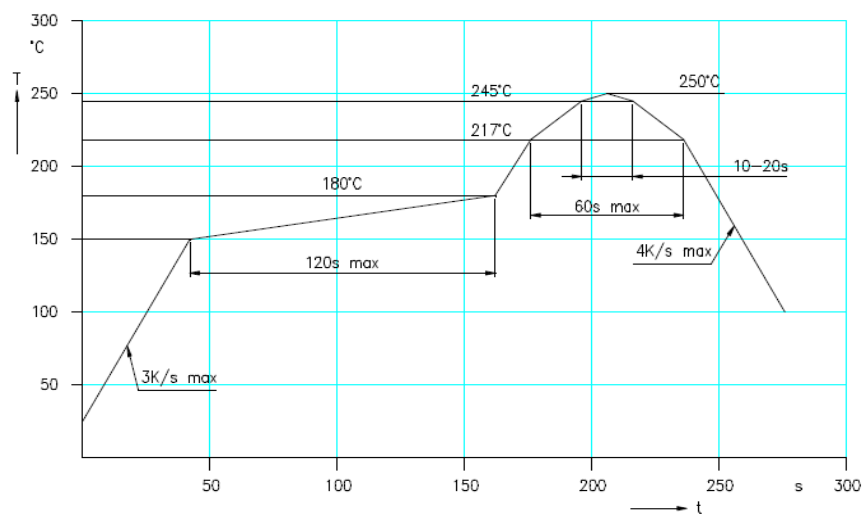
Recommended Soldering Patterns



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Data Sheet**Infrared SMD-LED****EOLS-1550-843****page 3 of 3**

Rev. 03, 2017

**IR reflow
soldering
profile****IR reflow
soldering
profile for lead
free soldering****Manual soldering:****max power of iron 25 W / 3 s / 300°C**

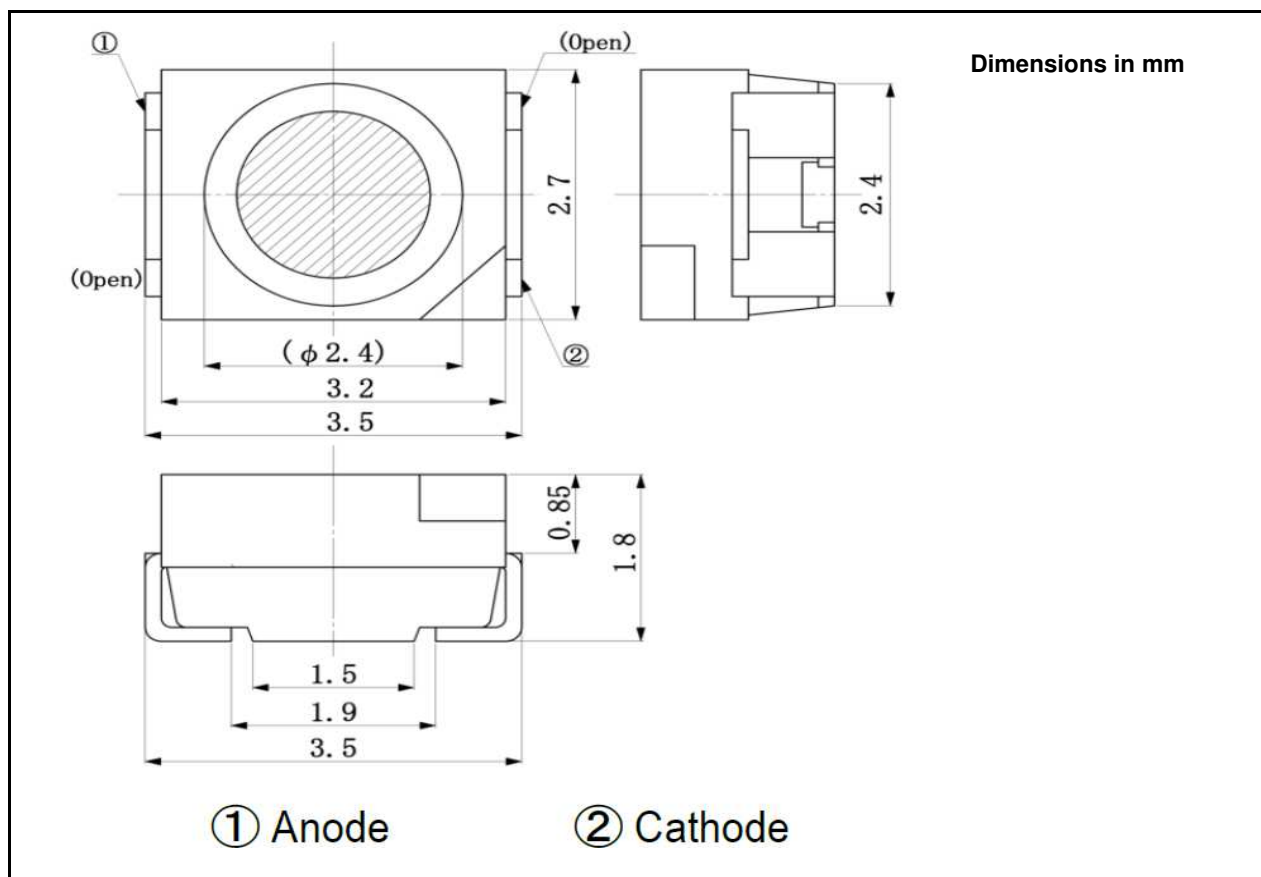
Art. No. 133 136

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Radiation	Type	Case
Infrared	InGaAs/InP, MQW	SMD 3527 (1411), PLCC4

**Absolute Maximum Ratings** $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test Conditions	Symbol	Value	Unit
Peak forward current	$t_p \leq 10 \mu\text{s}$, $T = 10 \text{ ms}$	I_{FP}	500	mA
Continuous forward current		I_F	50	mA
Reverse voltage		V_R	5	V
Operating temperature range		T_{amb}	-20 to +80	$^{\circ}\text{C}$
Storage temperature range		T_{stg}	-30 to +100	$^{\circ}\text{C}$
Power dissipation		R_{thJA}	120	mW
Lead soldering temperature	$T = 5 \text{ s}$, 3 mm from body	T_{sld}	260	$^{\circ}\text{C}$

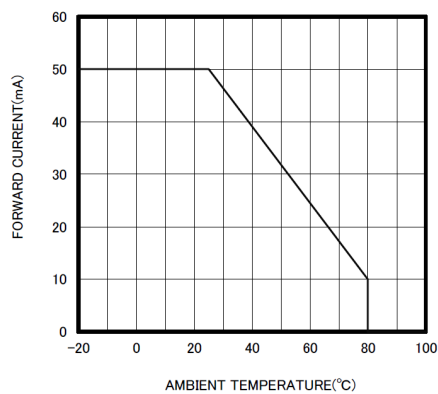


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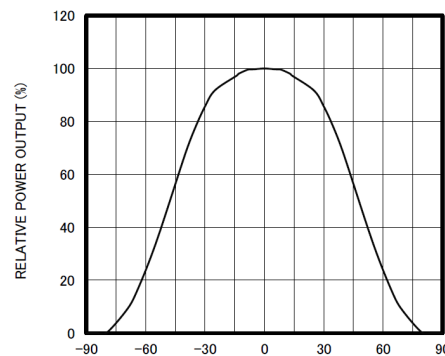
Optical and Electrical Characteristics $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test cond.	Symbol	Min	Typ	Max	Unit
Forward voltage	$I_F = 20\text{ mA}$	V_F		0.7	0.95	V
Forward voltage	$I_F = 100\text{ mA}$	V_F		0.8	1.0	V
Reverse current	$V_R = 5\text{ V}$	I_R			100	μA
Radiant power	$I_F = 20\text{ mA}$	Φ_e		0.8		mW
Radiant power	$I_F = 50\text{ mA}$	Φ_e		1.3		mW
Peak wavelength	$I_F = 20\text{ mA}$	λ_p	1510	1550	1590	nm
FWHM	$I_F = 20\text{ mA}$	$\Delta\lambda_{0.5}$		130		nm
Viewing angle	$I_F = 20\text{ mA}$	ϕ		± 45		deg
Switching times	$I_F = 20\text{ mA}$	t_r, t_f		25; 45		ns

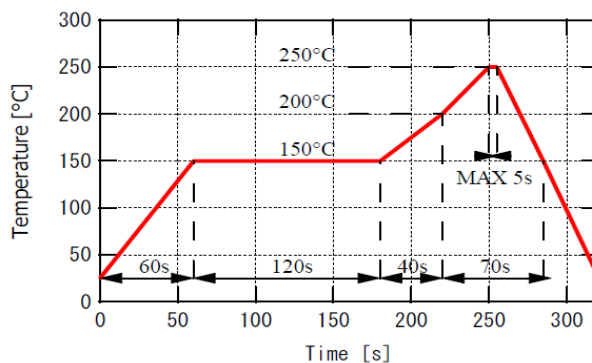
THERMAL DERATING CURVE



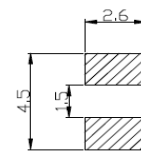
RADIATION PATTERN



Recommended reflow soldering profile



Recommended Land Layout (Unit: mm)



Art. No. 133 019



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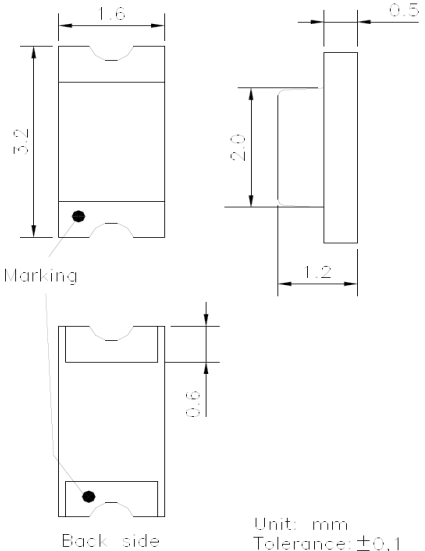
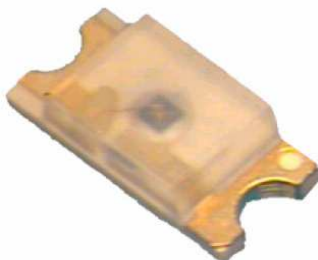
Data Sheet

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SMD-LED**EOLS-1650-199**

Rev. 03, 2017

Radiation	Type	Case
infrared	InGaAsP	SMD 3216 (1206)

 Technical drawing of the SMD-LED showing top, side, and back views. Dimensions are in mm: 1.6 (width), 0.5 (height), 1.2 (length), 0.6 (height), 0.6 (height), 0.6 (height). Marking is shown on the back side. Unit: mm, Tolerance: ±0.1.	 3D rendering of the SMD-LED component, showing its rectangular shape and gold-plated soldering pads.
	Description: - Size 1206: 3.2 (L) x 1.6 (W) x 1.2 (H) mm - Circuit substrate: glass laminated epoxy - Devices are RoHS conform - Lead free solderable, soldering pads: gold plated - Marking at cathode - High radiation intensity

Maximum Ratings $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test conditions	Symbol	Value	Unit
Forward current		I_F	50	mA
Peak forward current	$t \leq 100 \mu\text{s}$, $T = 1 \text{ ms}$	I_{FM}	100	mA
Reverse voltage	$I_R = 100 \mu\text{A}$	I_{RM}	5	V
Operating temperature range		T_{amb}	-40 to +85	$^{\circ}\text{C}$
Storage temperature range		T_{stg}	-55 to +85	$^{\circ}\text{C}$
Thermal resistance		R_{thJA}	450	K/W

Optical and Electrical Characteristics $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

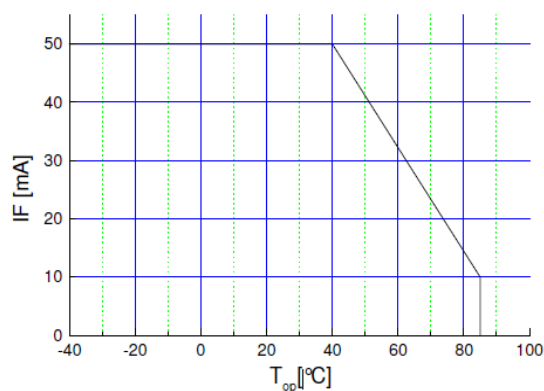
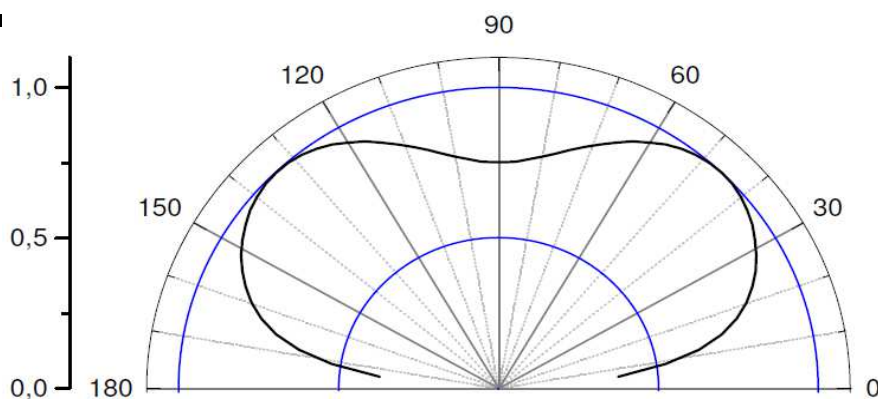
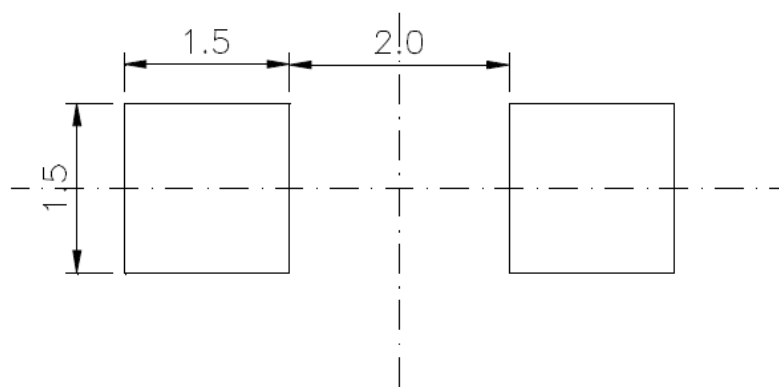
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Forward voltage	V_F	$I_F = 50 \text{ mA}$		1.0	1.3	V
Radiant power	Φ_e	$I_F = 50 \text{ mA}$		1.7		mW
Peak wavelength	λ_p	$I_F = 50 \text{ mA}$	1600	1650	1700	nm
FWHM	$\Delta\lambda_{0.5}$	$I_F = 50 \text{ mA}$		130		nm
Viewing angle	ϕ	$I_F = 50 \text{ mA}$		120		deg.

We reserve the right to make changes to improve technical design and may do so without further notice. Parameters can vary in different applications. All operating parameters must be validated for each customer application by the customer.

Data Sheet**SMD-LED****EOLS-1650-199**

page 2 of 3

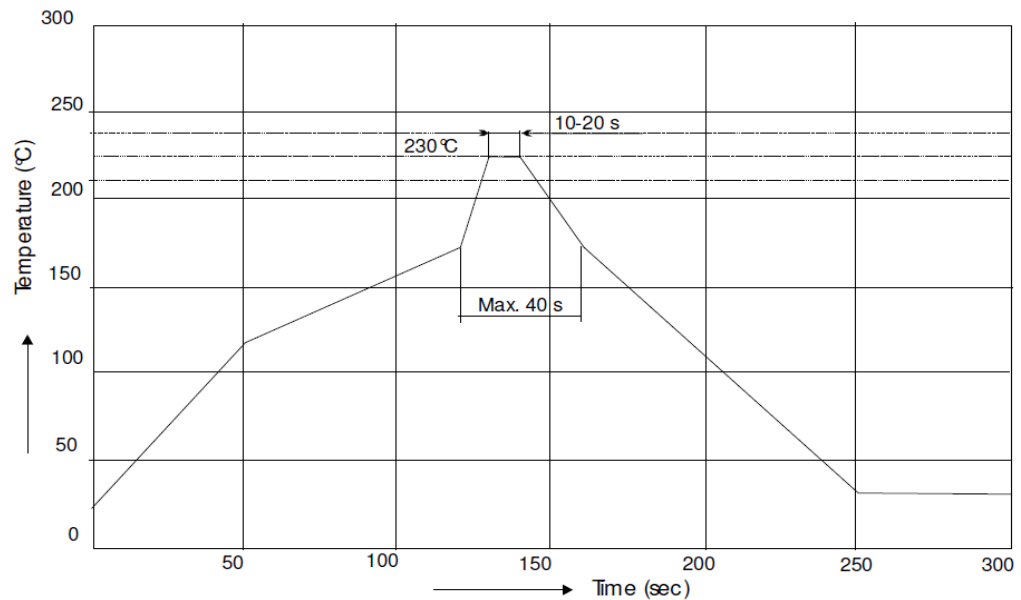
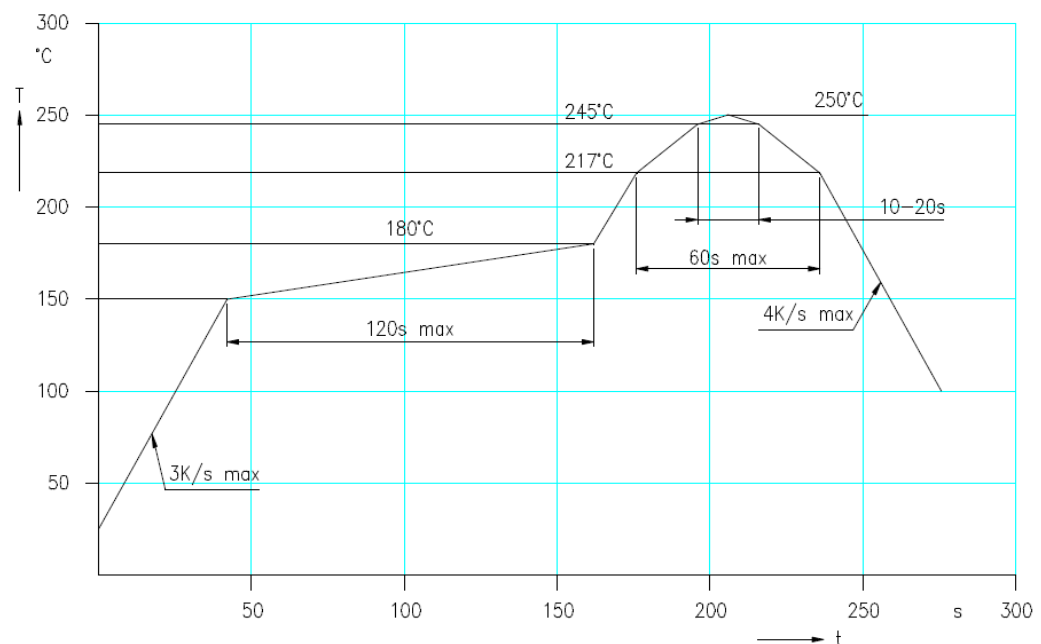
Rev. 03, 2017

**Maximal
forward
current (DC)
characteristic****Radiation pattern****Recommended Soldering Pattern**

Data Sheet**SMD-LED****EOLS-1650-199**

page 3 of 3

Rev. 03, 2017

**IR reflow
soldering
profile****IR reflow
soldering
profile for lead
free soldering****Manual soldering:**

max power of iron 25 W / 3 s / 300°C

Art. Nr. 133 132



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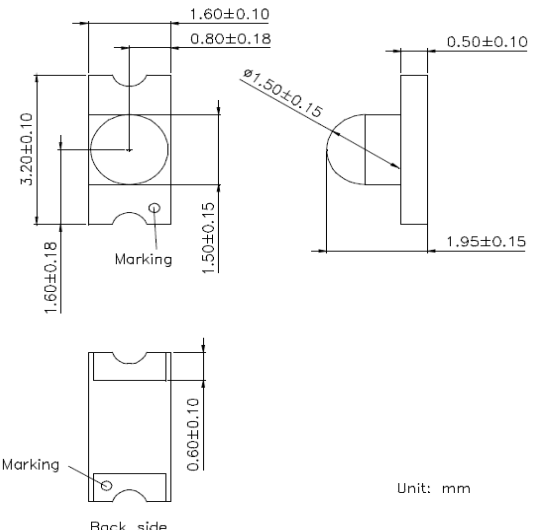
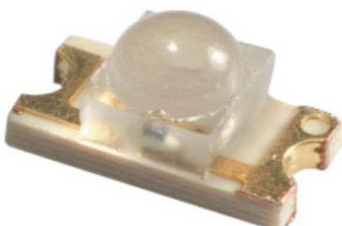
page 1 of 3

Infrared SMD-LED

EOLS-1650-843

Rev. 03, 2017

Radiation	Type	Case
infrared	InGaAsP	SMD 3216 (1206)

 Unit: mm	 Description: - Size 1206: 3.2 (L) x 1.6 (W) x 1.95 (H) mm - Circuit substrate: glass laminated epoxy - Devices are RoHS conform - Lead free solderable, soldering pads: gold plated - Marking at cathode
--	---

Maximum Ratings

 $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test Conditions	Symbol	Value	Unit
Peak forward current	$t_p \leq 100 \mu\text{s}$ $\tau = 1:10$	I_{FP}	100	mA
Continuous forward current		I_F	50	mA
Reverse voltage		V_R	5	V
Operating temperature range		T_{amb}	-40 to +85	$^{\circ}\text{C}$
Storage temperature range		T_{stg}	-55 to +85	$^{\circ}\text{C}$
Thermal resistance		R_{thJA}	450	K/W

Optical and Electrical Characteristics

 $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified


Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Forward voltage	V_F	$I_F = 50 \text{ mA}$		1.0	1.3	V
Reverse current	I_R	$V_R = 5 \text{ V}$			100	μA
Radiant power	Φ_e	$I_F = 50 \text{ mA}$		1.7		mW
Peak wavelength	λ_p	$I_F = 50 \text{ mA}$	1600	1650	1700	nm
Spectral bandwidth	$\Delta\lambda_{0.5}$	$I_F = 50 \text{ mA}$		130		nm
Viewing angle	φ	$I_F = 50 \text{ mA}$		40		deg

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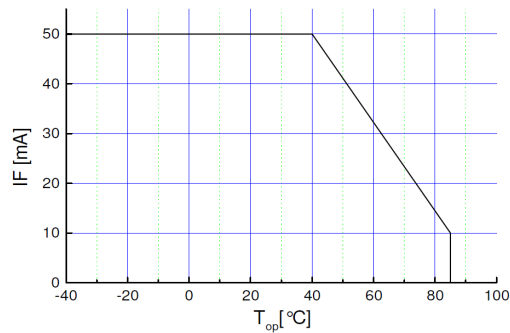
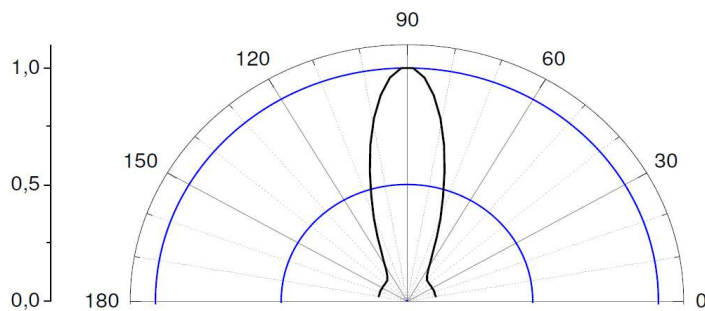
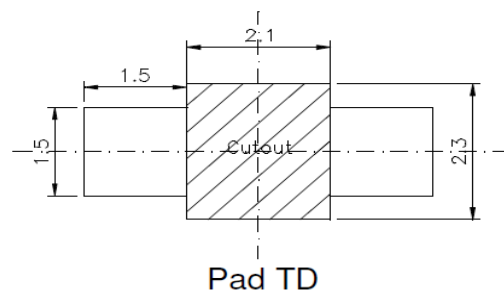
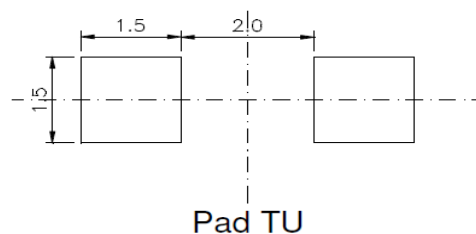
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Data Sheet**page 2 of 3****Infrared SMD-LED****EOLS-1650-843**

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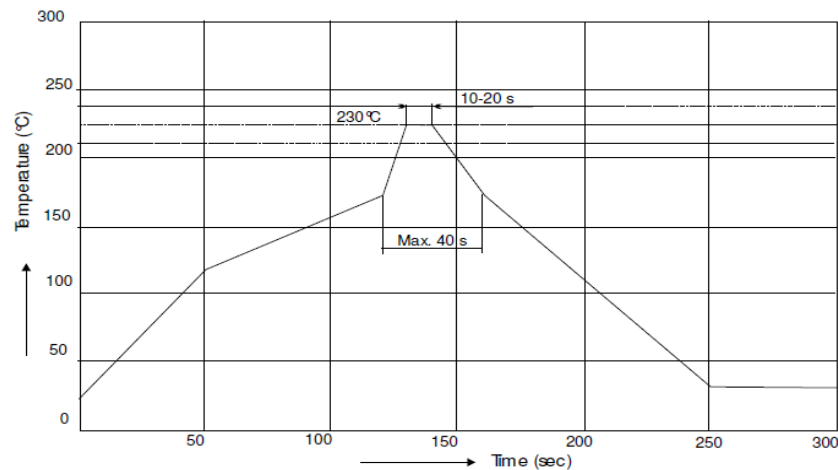
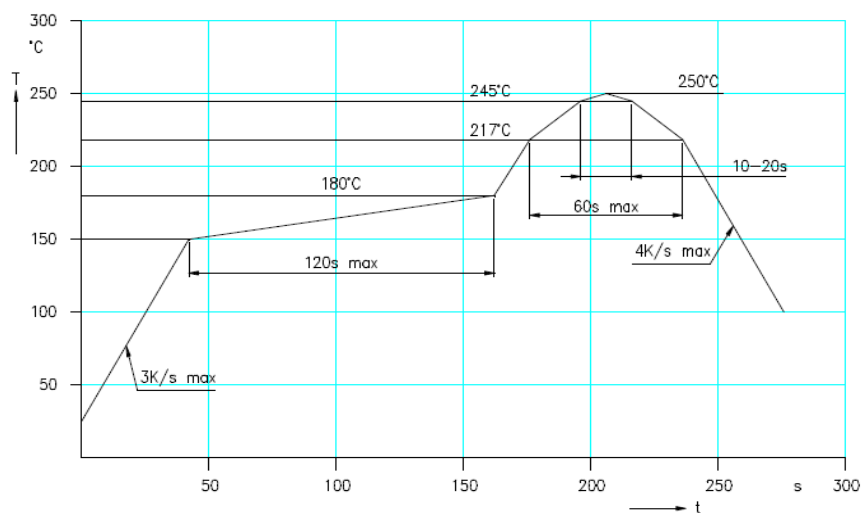
**Maximal
forward
current (DC)
characteristic****Radiation pattern****Recommended Soldering Patterns**

We reserve the right to make changes to improve technical design and may do so without further notice. Parameters can vary in different applications. All operating parameters must be validated for each customer application by the customer.

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Data Sheet**Infrared SMD-LED****EOLS-1650-843****page 3 of 3**

Rev. 03, 2017

**IR reflow
soldering
profile****IR reflow
soldering
profile for lead
free soldering****Manual soldering:
max power of iron 25 W / 3 s / 300°C**

Art. No. 133 137

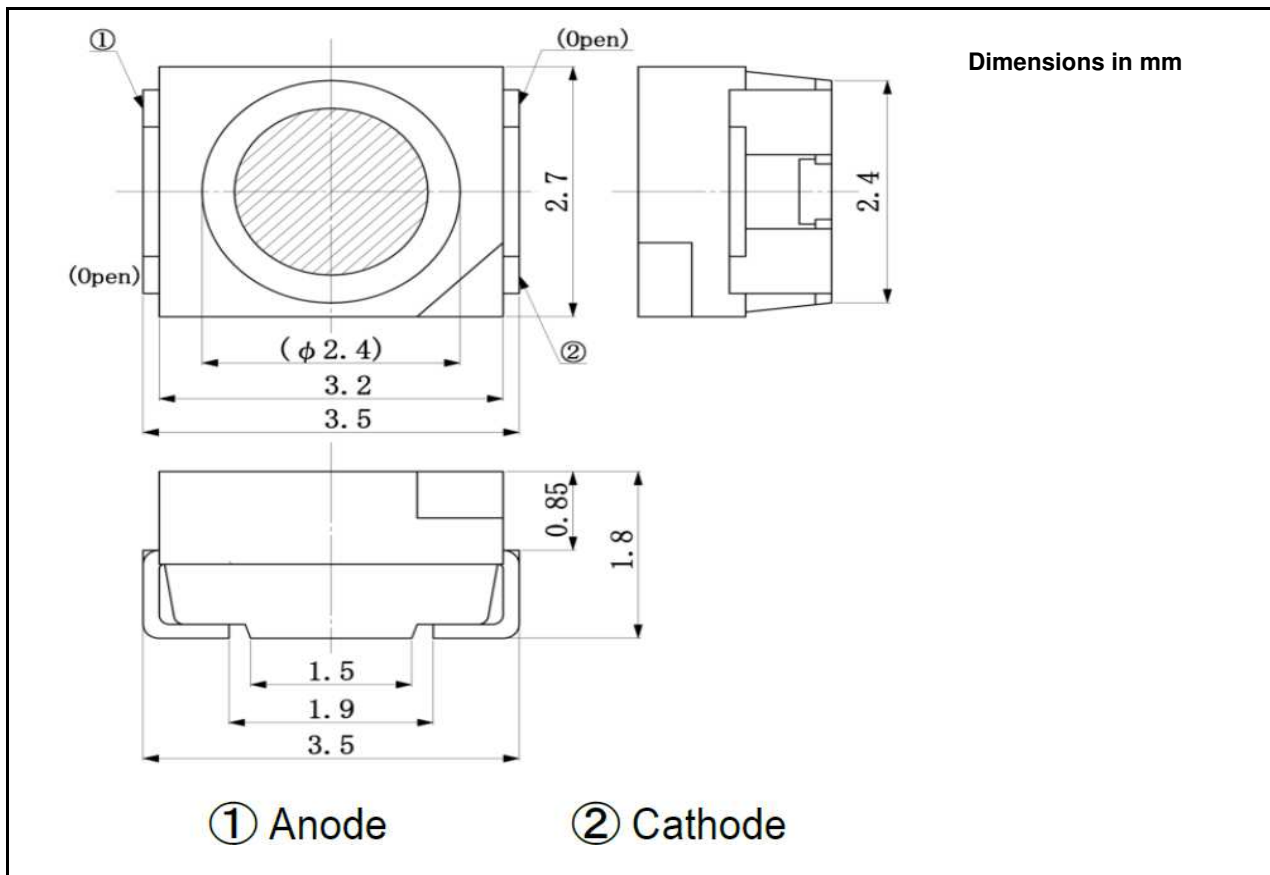


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Infrared SMD-LED**EOLS-1650-995**

Rev. 02, 2017

Radiation	Type	Case
Infrared	InGaAs/InP, MQW	SMD 3527 (1411), PLCC4

**Absolute Maximum Ratings** $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test Conditions	Symbol	Value	Unit
Peak forward current	$t_p \leq 10 \mu\text{s}$, $T = 10 \text{ ms}$	I_{FP}	500	mA
Continuous forward current		I_F	50	mA
Reverse voltage		V_R	5	V
Operating temperature range		T_{amb}	-20 to +80	$^{\circ}\text{C}$
Storage temperature range		T_{stg}	-30 to +100	$^{\circ}\text{C}$
Power dissipation		R_{thJA}	120	mW
Lead soldering temperature	$T = 5 \text{ s}$, 3 mm from body	T_{sld}	260	$^{\circ}\text{C}$



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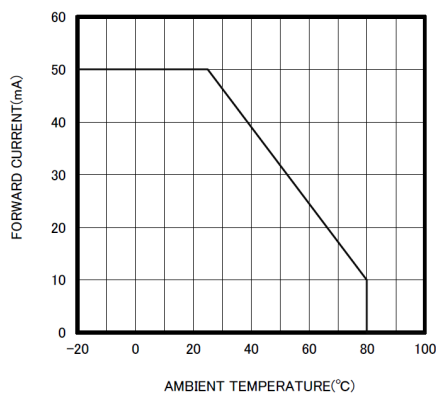
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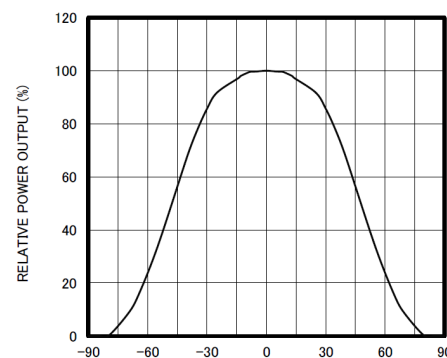
Infrared SMD-LED**EOLS-1650-995****Optical and Electrical Characteristics*** $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameter	Test cond.	Symbol	Min	Typ	Max	Unit
Forward voltage	$I_F = 20\text{ mA}$	V_F		0.7	0.95	V
Forward voltage	$I_F = 50\text{ mA}$	V_F		0.8	1.0	V
Reverse current	$V_R = 5\text{ V}$	I_R			100	μA
Radiant power	$I_F = 20\text{ mA}$	Φ_e		0.8		mW
Radiant power	$I_F = 50\text{ mA}$	Φ_e		1.3		mW
Peak wavelength	$I_F = 20\text{ mA}$	λ_p		1650		nm
FWHM	$I_F = 20\text{ mA}$	$\Delta\lambda_{0.5}$		100		nm
Viewing angle	$I_F = 20\text{ mA}$	ϕ		± 45		deg
Switching times	$I_F = 20\text{ mA}$	t_r, t_f		25; 45		ns

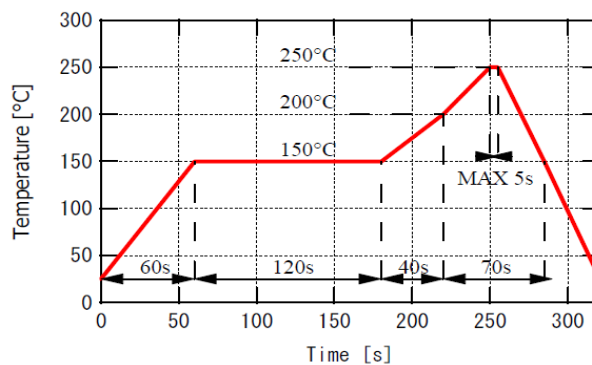
THERMAL DERATING CURVE



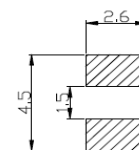
RADIATION PATTERN



Recommended reflow soldering profile



Recommended Land Layout (Unit: mm)



Art. No. 133 123



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