

EYP-DFB-0852-00015-1500-BFY12-0005

Revision 0.91

SINGLE FREQUENCY LASER DFB Laser



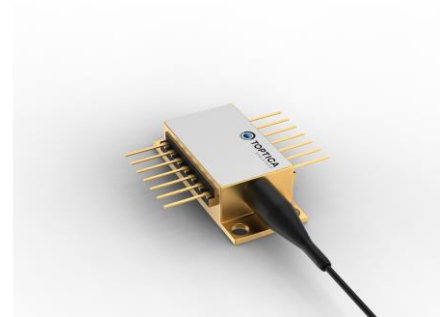
amSTECHNOLOGIES
where technologies meet solutions

info@amstechnologies.com
www.amstechnologies-webshop.com

Contact us 

General Product Information

Product	Application
852 nm DFB Laser	Spectroscopy (Cs D2 line)
with hermetic 14-Pin Butterfly Housing (RoHS compliant)	Metrology
including Monitor Diode, Thermoelectric Cooler and Thermistor	
with PM Fiber, integrated μ -Isolator and Angled Physical Contact (APC)	



Absolute Maximum Ratings

Parameter	Symbol	Unit	min	typ	max
Storage Temperature	T_S	$^{\circ}\text{C}$	-40		85
Operational Temperature at Case	T_C	$^{\circ}\text{C}$	-15		70
Operational Temperature at Chip	T_{chip}	$^{\circ}\text{C}$	10		50
Forward Current	I_F	mA			250
Reverse Voltage	V_R	V			2
Output Power	P_{opt}	mW			20
TEC Current	I_{TEC}	A			1,4
TEC Voltage	V_{TEC}	V			4,8

Measurement Conditions / Comments

Stress in excess of one of the Absolute Maximum Ratings may damage the laser. Please note that a damaging optical power level may occur although the maximum current is not reached. These are stress ratings only, and functional operation at these or any other conditions beyond those indicated under Recommended Operational Conditions is not implied.

Recommended Operational Conditions

Parameter	Symbol	Unit	min	typ	max
Operational Temperature at Case	T_{case}	$^{\circ}\text{C}$	5		60
Operational Temperature at Chip	T_{chip}	$^{\circ}\text{C}$	15		45
Forward Current	I_F				230
Output Power	P_{opt}	mW	5		15

Measurement Conditions / Comments

measured by integrated Thermistor

Characteristics $T_{\text{chip}} = 25^{\circ}$ at BOL

Parameter	Symbol	Unit	min	typ	max
Center Wavelength	λ_C	nm	851	852	853
Target Wavelength	λ_T	nm		852.347	
Linewidth	$\Delta\lambda$	MHz		0,6	1
Mode-hop free Tuning Range	$\Delta\lambda_{\text{tune}}$	pm	25	0	
Sidemode Suppression Ratio	SMSR	dB	30	45	
Temp. Coefficient of Wavelength	$d\lambda / dT$	nm/K		0,06	
Current Coefficient of Wavelength	$d\lambda / dI$	nm/mA		0,003	

Measurement Conditions / Comments

reached within $T_{\text{chip}} = 15^{\circ} \dots 45^{\circ}\text{C}$ at 15 mW

$P_{\text{opt}} = 15\text{ mW}$

> 10 GHz, at target wavelength

$P_{\text{opt}} = 15\text{ mW}$

EYP-DFB-0852-00015-1500-BFY12-0005

Revision 0.91

2024-04-11

SINGLE FREQUENCY LASER DFB Laser



Characteristics Tchip = 25° at BOL

Parameter	Symbol	Unit	min	typ	max
Laser Current	I_{LD}	mA			230
Slope Efficiency	η	mW/mA		0,08	
Threshold Current	I_{th}	mA			70
Polarization Extinction Ratio	PER	dB		20	

Measurement Conditions / Comments
Popt = 15 mW

Monitor Diode

Parameter	Symbol	Unit	min	typ	max
Monitor Detector Responsivity	I_{mon} / P_{of}	$\mu A/mW$	10		200

Measurement Conditions / Comments
5 V reverse voltage

Thermoelectric Cooler

Parameter	Symbol	Unit	min	typ	max
Current	I_{TEC}	A		0,4	
Voltage	U_{TEC}	V		1,5	
Power Dissipation (total loss at case)	P_{loss}	W		0,5	
Temperature Difference	ΔT	K			45

Measurement Conditions / Comments
Popt = 15 mW, $\Delta T = 30$ K
Popt = 15 mW, $\Delta T = 30$ K
Popt = 15 mW, $\Delta T = 30$ K
15 mW, $\Delta T = T_{case} - T_{chip} $

Thermistor (Standard NTC Type)

Parameter	Symbol	Unit	min	typ	max
Resistance	R	k Ω		10	
Beta Coefficient	β			3892	
Steinhart & Hart Coefficient A	A			1.1293×10^{-3}	
Steinhart & Hart Coefficient B	B			2.3410×10^{-4}	
Steinhart & Hart Coefficient C	C			8.7755×10^{-8}	

Measurement Conditions / Comments
Tchip = 25° C
$R_1/R_2 = e^{\beta(1/T_1 - 1/T_2)}$ at Tchip = 0° ... 50° C

EYP-DFB-0852-00015-1500-BFY12-0005

Revision 0.91

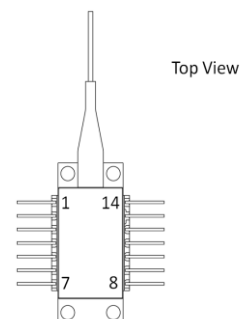
2024-04-11

SINGLE FREQUENCY LASER DFB Laser

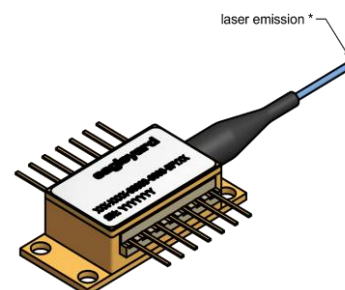
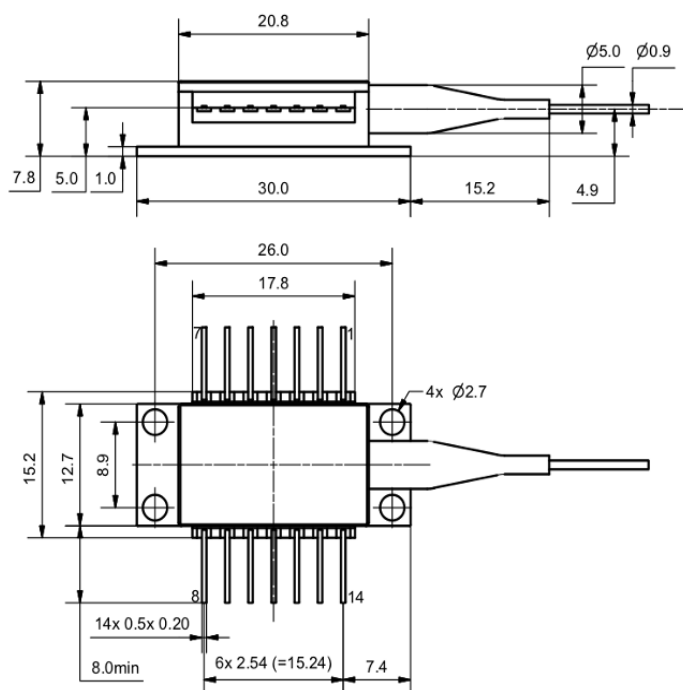


Pin Assignment

1 Thermoelectric Cooler (+)	14 Thermoelectric Cooler (-)
2 Thermistor	13 Case
3 Photo Diode Anode	12 not connected
4 Photo Diode Cathode	11 Laser Diode Cathode
5 Thermistor	10 Laser Diode Anode
6 not connected	9 not connected
7 not connected	8 not connected



Package Drawings



AIZ-16-0222-1415

EYP-DFB-0852-00015-1500-BFY12-0005

Revision 0.91

2024-04-11

SINGLE FREQUENCY LASER DFB Laser



Fiber and Connector Type (Output)		
Parameter		Measurement Conditions / Comments
PM Fiber	900 / 125 / 5.5 µm, UV/Polyester-elastomer Coating (l = 1 +/-0.1 m)	
Connector	FC/APC (narrow key / 2mm)	

EYP-DFB-0852-00015-1500-BFY12-0005

Revision 0.91

2024-04-11

SINGLE FREQUENCY LASER DFB Laser



Unpacking, Installation and Laser Safety

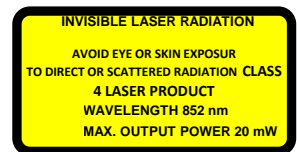
Unpacking the laser diodes should only be done at electrostatic safe workstations (EPA). Though protection against electro static discharge (ESD) is implemented in the laser package, charges may occur at surfaces. Please store this product in its original package at a dry, clean place until final use. During device installation, ESD protection has to be maintained.

A laser diode is sensitive against optical feedback, so an optical isolator may be required in order to avoid any disturbance of the emission spectrum. Operating at moderate temperatures on proper heat sinks will contribute to a long lifetime of the diode.

Avoid direct and/or indirect exposure to the free running beam. Collimating and focussing the free running beam with optics as common in optical instruments will increase threat to the human eye.

Each laser diode will come with an individual test protocol verifying the parameters given in this document.

Performance figures, data and any illustrative material provided in this specification are typical and must be specifically confirmed in writing by eagleyard Photonics before they become applicable to any particular order or contract. In accordance with the eagleyard Photonics policy of continuous improvement specifications may change without notice.



IEC-60825-1



info@amstechnologies.com
www.amstechnologies-webshop.com



EYP-DFB-0852-00050-1500-BFY02-0000

Revision 1.10

SINGLE FREQUENCY LASER DFB Laser

Distributor



amstechnologies
where technologies meet solutions

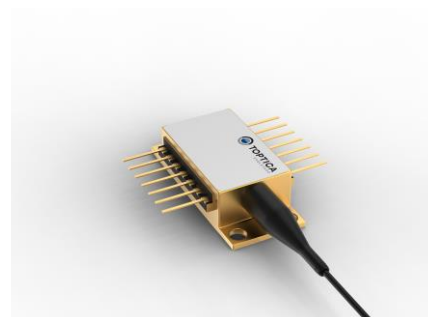
info@amstechnologies.com
www.amstechnologies-webshop.com

Contact us



General Product Information

Product	Application
852 nm DFB Laser	Spectroscopy
with hermetic 14-Pin Butterfly Housing (RoHS compliant)	Metrology
including Monitor Diode, Thermoelectric Cooler and Thermistor	
with PM Fiber and angle-polished Connector (APC)	



Absolute Maximum Ratings

Parameter	Symbol	Unit	min	typ	max
Storage Temperature	T_S	°C	-40		85
Operational Temperature at Case	T_C	°C	-40		85
Operational Temperature at Chip	T_{chip}	°C	10		50
Forward Current	I_F	mA			200
Reverse Voltage	V_R	V			2
Output Power	P_{opt}	mW			55
TEC Current	I_{TEC}	A			1,4
TEC Voltage	V_{TEC}	V			3,2

Measurement Conditions / Comments

Stress in excess of one of the Absolute Maximum Ratings may damage the laser. Please note that a damaging optical power level may occur although the maximum current is not reached. These are stress ratings only, and functional operation at these or any other conditions beyond those indicated under Recommended Operational Conditions is not implied.

Recommended Operational Conditions

Parameter	Symbol	Unit	min	typ	max
Operational Temperature at Case	T_{case}	°C	-20		65
Operational Temperature at Chip	T_{chip}	°C		25	
Forward Current	I_F				180

Measurement Conditions / Comments

measured by integrated Thermistor

Characteristics $T_{chip} = 25^\circ$ at BOL

Parameter	Symbol	Unit	min	typ	max
Center Wavelength	λ_C	nm	851	852	853
Linewidth	$\Delta\lambda$	MHz		2	
Sidemode Suppression Ratio	SMSR	dB	30	45	
Temp. Coefficient of Wavelength	$d\lambda / dT$	nm/K		0,06	
Current Coefficient of Wavelength	$d\lambda / dI$	nm/mA		0,003	

Measurement Conditions / Comments

$P_{opt} = 50$ mW

EYP-DFB-0852-00050-1500-BFY02-0000

Revision 1.10

2024-04-11

SINGLE FREQUENCY LASER DFB Laser



Characteristics Tchip = 25° at BOL

Parameter	Symbol	Unit	min	typ	max
Laser Current	I_{LD}	mA			180
Slope Efficiency	η	mW/mA		0,5	
Threshold Current	I_{th}	mA			70
Polarization Extinction Ratio	PER	dB		20	

Measurement Conditions / Comments
Popt = 50 mW

Monitor Diode

Parameter	Symbol	Unit	min	typ	max
Monitor Detector Responsivity	I_{mon} / P_{of}	µA/mW	1		20

Measurement Conditions / Comments
5 V reverse voltage

Thermoelectric Cooler

Parameter	Symbol	Unit	min	typ	max
Current	I_{TEC}	A		0,4	
Voltage	U_{TEC}	V		0,8	
Power Dissipation (total loss at case)	P_{loss}	W		0,5	
Temperature Difference	ΔT	K			50

Measurement Conditions / Comments
Popt = 50 mW, $\Delta T = 20$ K
Popt = 50 mW, $\Delta T = 20$ K
Popt = 50 mW, $\Delta T = 20$ K
Popt = 50 mW, $\Delta T = T_{case} - T_{chip} $

Thermistor (Standard NTC Type)

Parameter	Symbol	Unit	min	typ	max
Resistance	R	kΩ		10	
Beta Coefficient	β			3892	
Steinhart & Hart Coefficient A	A			1.1293×10^{-3}	
Steinhart & Hart Coefficient B	B			2.3410×10^{-4}	
Steinhart & Hart Coefficient C	C			8.7755×10^{-8}	

Measurement Conditions / Comments
Tchip = 25° C
$R_1/R_2 = e^{\beta(1/T_1 - 1/T_2)}$ at Tchip = 0° ... 50° C

EYP-DFB-0852-00050-1500-BFY02-0000

Revision 1.10

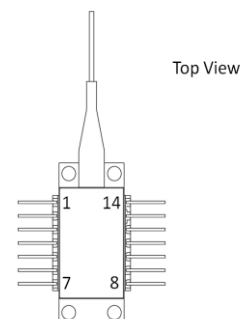
2024-04-11

SINGLE FREQUENCY LASER DFB Laser

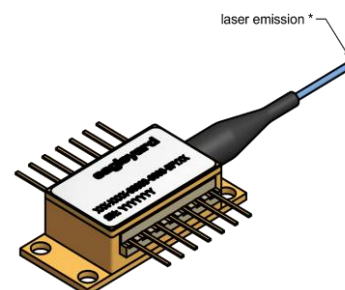
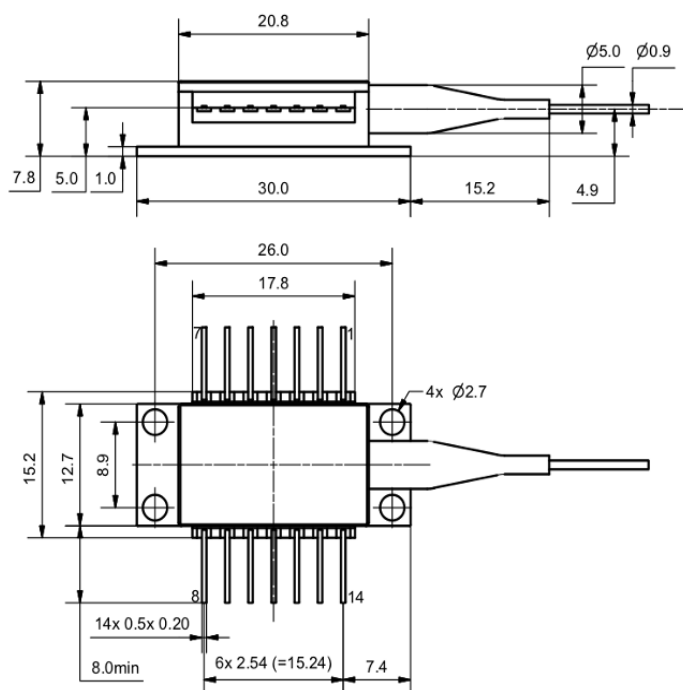


Pin Assignment

1 Thermoelectric Cooler (+)	14 Thermoelectric Cooler (-)
2 Thermistor	13 Case
3 Photo Diode Anode	12 not connected
4 Photo Diode Cathode	11 Laser Diode Cathode
5 Thermistor	10 Laser Diode Anode
6 not connected	9 not connected
7 not connected	8 not connected



Package Drawings



AIZ-16-0222-1415

EYP-DFB-0852-00050-1500-BFY02-0000

Revision 1.10

2024-04-11

SINGLE FREQUENCY LASER DFB Laser



Fiber and Connector Type (Output)		
Parameter		Measurement Conditions / Comments
PM Fiber	900 / 125 / 5.5 µm, UV/Polyester-elastomer Coating (l = 1 +/-0.1 m)	
Connector	FC/APC (narrow key / 2mm)	

EYP-DFB-0852-00050-1500-BFY02-0000

Revision 1.10

2024-04-11

SINGLE FREQUENCY LASER DFB Laser



Unpacking, Installation and Laser Safety

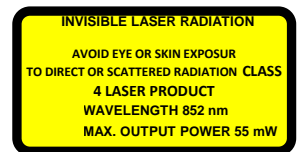
Unpacking the laser diodes should only be done at electrostatic safe workstations (EPA). Though protection against electro static discharge (ESD) is implemented in the laser package, charges may occur at surfaces. Please store this product in its original package at a dry, clean place until final use. During device installation, ESD protection has to be maintained.

A laser diode is sensitive against optical feedback, so an optical isolator may be required in order to avoid any disturbance of the emission spectrum. Operating at moderate temperatures on proper heat sinks will contribute to a long lifetime of the diode.

Avoid direct and/or indirect exposure to the free running beam. Collimating and focussing the free running beam with optics as common in optical instruments will increase threat to the human eye.

Each laser diode will come with an individual test protocol verifying the parameters given in this document.

Performance figures, data and any illustrative material provided in this specification are typical and must be specifically confirmed in writing by eagleyard Photonics before they become applicable to any particular order or contract. In accordance with the eagleyard Photonics policy of continuous improvement specifications may change without notice.



IEC-60825-1



info@amstechnologies.com
www.amstechnologies-webshop.com



EYP-DFB-0852-00050-1500-BFY02-0002

Revision 1.10

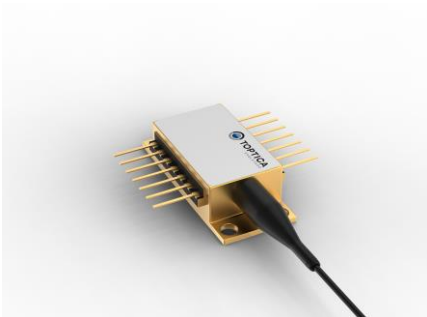
2024-04-11

SINGLE FREQUENCY LASER DFB Laser



General Product Information

Product	Application
Tunable 852 nm DFB Laser	Spectroscopy
with hermetic 14-Pin Butterfly Housing (RoHS compliant)	Metrology
including Monitor Diode, Thermoelectric Cooler and Thermistor	
with PM Fiber and angle-polished Connector (APC)	



Absolute Maximum Ratings

Parameter	Symbol	Unit	min	typ	max
Storage Temperature	T_S	° C	-40		85
Operational Temperature at Case	T_C	° C	-40		85
Operational Temperature at Chip	T_{chip}	° C	10		50
Forward Current	I_F	mA			200
Reverse Voltage	V_R	V			2
Output Power	P_{opt}	mW			55
TEC Current	I_{TEC}	A			1,4
TEC Voltage	V_{TEC}	V			3,2

Measurement Conditions / Comments

Stress in excess of one of the Absolute Maximum Ratings may damage the laser. Please note that a damaging optical power level may occur although the maximum current is not reached. These are stress ratings only, and functional operation at these or any other conditions beyond those indicated under Recommended Operational Conditions is not implied.

Recommended Operational Conditions

Parameter	Symbol	Unit	min	typ	max
Operational Temperature at Case	T_{case}	° C	-20		65
Operational Temperature at Chip	T_{chip}	° C	15		45
Forward Current	I_F				180
Output Power	P_{opt}	mW	10		50

Measurement Conditions / Comments

measured by integrated Thermistor

Distributor



amstechnologies
where technologies meet solutions

info@amstechnologies.com
www.amstechnologies-webshop.com

Contact us

EYP-DFB-0852-00050-1500-BFY02-0002

Revision 1.10

2024-04-11

SINGLE FREQUENCY LASER DFB Laser



Characteristics Tchip= 25° at BOL

Parameter	Symbol	Unit	min	typ	max
Center Wavelength	λ_C	nm	851	852	853
Linewidth	$\Delta\lambda$	MHz		2	
Mode-hop free Tuning Range	$\Delta\lambda_{\text{tune}}$	nm		1,5	
Sidemode Suppression Ratio	SMSR	dB	30	45	
Temp. Coefficient of Wavelength	$d\lambda / dT$	nm/K		0,06	
Current Coefficient of Wavelength	$d\lambda / dI$	nm/mA		0,003	

Note 1) This variant allows wavelength tuning by temperature or current variation; in case of external back-reflections small mode-hops of 100 MHz or less may appear.

For spectroscopic application requiring absolutely mode-hop-free tuning the use of a package variant with integrated optical isolators or a package variant without fiber pigtail for free beam setups is recommended. In case of very demanding requirements an additional external isolator is required in order to suppress disturbing back-reflections that may occur in some setups.

Measurement Conditions / Comments

50 mW

see note 1) on last page

Characteristics Tchip= 25° at BOL

Parameter	Symbol	Unit	min	typ	max
Mode-hop free Temperature Range	T_{chip}	° C	15		40
Mode-hop free Power Range	P_{opt}	mW	10		50
Laser Current	I_{LD}	mA			180
Slope Efficiency	η	mW/mA		0,5	
Threshold Current	I_{th}	mA			70
Polarization Extinction Ratio	PER	dB		20	

Measurement Conditions / Comments

Temperature at Laser Chip

Popt = 50 mW

Monitor Diode

Parameter	Symbol	Unit	min	typ	max
Monitor Detector Responsivity	$I_{\text{mon}} / P_{\text{of}}$	μA/mW	1		20

Measurement Conditions / Comments

5 V reverse voltage

Thermoelectric Cooler

Parameter	Symbol	Unit	min	typ	max
Current	I_{TEC}	A		0,4	
Voltage	U_{TEC}	V		0,8	
Power Dissipation (total loss at case)	P_{loss}	W		0,5	
Temperature Difference	ΔT	K			50

Measurement Conditions / Comments

Popt = 50 mW, $\Delta T = 20$ KPopt = 50 mW, $\Delta T = 20$ KPopt = 50 mW, $\Delta T = 20$ KPopt = 50 mW, $\Delta T = |T_{\text{case}} - T_{\text{chip}}|$

EYP-DFB-0852-00050-1500-BFY02-0002

Revision 1.10

2024-04-11

SINGLE FREQUENCY LASER DFB Laser



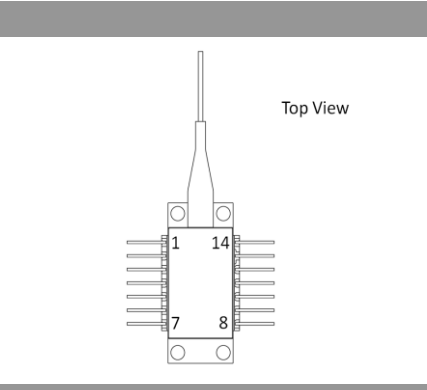
Thermistor (Standard NTC Type)

Parameter	Symbol	Unit	min	typ	max
Resistance	R	kΩ		10	
Beta Coefficient	β			3892	
Steinhart & Hart Coefficient A	A			1.1293×10^{-3}	
Steinhart & Hart Coefficient B	B			2.3410×10^{-4}	
Steinhart & Hart Coefficient C	C			8.7755×10^{-8}	

Measurement Conditions / Comments
Tchip = 25° C
$R_1/R_2 = e^{\beta(1/T_1 - 1/T_2)}$ at Tchip = 0° ... 50° C

Pin Assignment

1	Thermoelectric Cooler (+)	14	Thermoelectric Cooler (-)
2	Thermistor	13	Case
3	Photo Diode Anode	12	not connected
4	Photo Diode Cathode	11	Laser Diode Cathode
5	Thermistor	10	Laser Diode Anode
6	not connected	9	not connected
7	not connected	8	not connected



EYP-DFB-0852-00050-1500-BFY02-0002

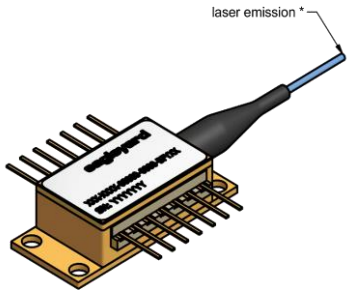
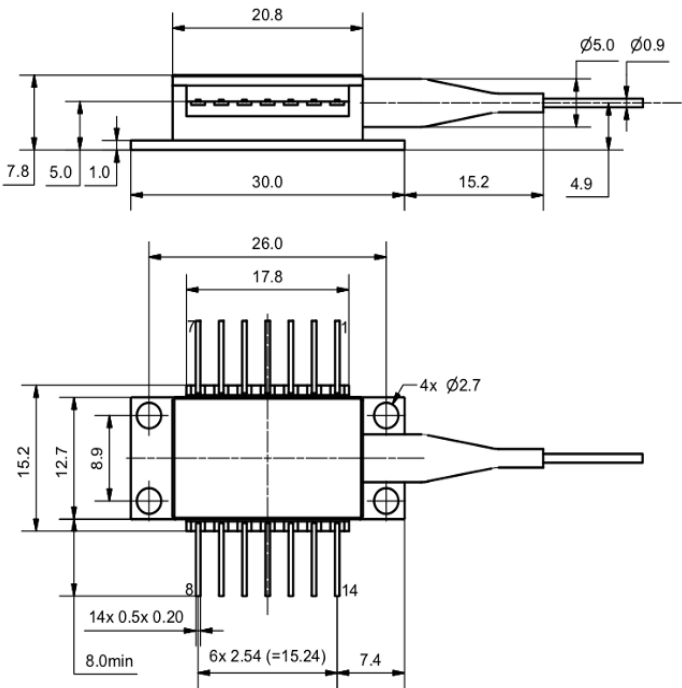
Revision 1.10

2024-04-11

SINGLE FREQUENCY LASER DFB Laser



Package Drawings



AIZ-16-0222-1415

Fiber and Connector Type (Output)

Parameter	
PM Fiber	900 / 125 / 5.5 µm, UV/Polyester-elastomer Coating (l = 1 +/-0.1 m)
Connector	FC/APC (narrow key / 2mm)

Measurement Conditions / Comments

EYP-DFB-0852-00050-1500-BFY02-0002

Revision 1.10

2024-04-11

SINGLE FREQUENCY LASER DFB Laser



Unpacking, Installation and Laser Safety

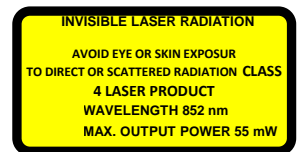
Unpacking the laser diodes should only be done at electrostatic safe workstations (EPA). Though protection against electro static discharge (ESD) is implemented in the laser package, charges may occur at surfaces. Please store this product in its original package at a dry, clean place until final use. During device installation, ESD protection has to be maintained.

A laser diode is sensitive against optical feedback, so an optical isolator may be required in order to avoid any disturbance of the emission spectrum. Operating at moderate temperatures on proper heat sinks will contribute to a long lifetime of the diode.

Avoid direct and/or indirect exposure to the free running beam. Collimating and focussing the free running beam with optics as common in optical instruments will increase threat to the human eye.

Each laser diode will come with an individual test protocol verifying the parameters given in this document.

Performance figures, data and any illustrative material provided in this specification are typical and must be specifically confirmed in writing by eagleyard Photonics before they become applicable to any particular order or contract. In accordance with the eagleyard Photonics policy of continuous improvement specifications may change without notice.



IEC-60825-1



Distributor

amSTECHNOLOGIES
where technologies meet solutions

info@amstechnologies.com
www.amstechnologies-webshop.com

Contact us

EYP-DFB-0852-00100-1500-BFW01-0002

Revision 0.92

SINGLE FREQUENCY LASER DFB Laser

Distributor



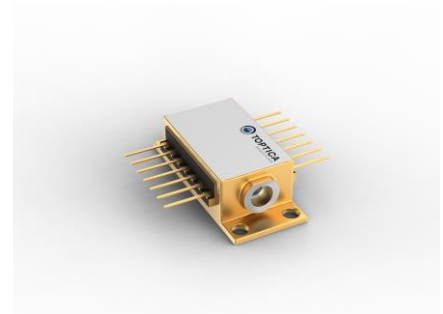
amstechnologies
where technologies meet solutions

info@amstechnologies.com
www.amstechnologies-webshop.com

Contact us 

General Product Information

Product	Application
Tunable 852 nm DFB Laser	Spectroscopy
with hermetic 14 Pin-Butterfly Housing (RoHS compliant)	Metrology
including Monitor Diode, Thermoelectric Cooler and Thermistor	THz Generation
with integrated Beam Collimation	



Absolute Maximum Ratings

Parameter	Symbol	Unit	min	typ	max
Storage Temperature	T_S	°C	-40		85
Operational Temperature at Case	T_C	°C	-40		85
Operational Temperature at Chip	T_{chip}	°C	10		50
Forward Current	I_F	mA			200
Reverse Voltage	V_R	V			2
Output Power	P_{opt}	mW			110
TEC Current	I_{TEC}	A			1,4
TEC Voltage	V_{TEC}	V			3,2

Measurement Conditions / Comments

Stress in excess of one of the Absolute Maximum Ratings may damage the laser. Please note that a damaging optical power level may occur although the maximum current is not reached. These are stress ratings only, and functional operation at these or any other conditions beyond those indicated under Recommended Operational Conditions is not implied.

Recommended Operational Conditions

Parameter	Symbol	Unit	min	typ	max
Operational Temperature at Case	T_{case}	°C	-20		65
Operational Temperature at Chip	T_{chip}	°C	15		45
Forward Current	I_F				180
Output Power	P_{opt}	mW	20		100

Measurement Conditions / Comments

measured by integrated Thermistor

Characteristics $T_{chip} = 25^\circ$ at BOL

Parameter	Symbol	Unit	min	typ	max
Center Wavelength	λ_C	nm	851	852	853
Linewidth	$\Delta\lambda$	MHz		2	
Mode-hop free Tuning Range	$\Delta\lambda_{tune}$	nm		1,5	
Sidemode Suppression Ratio	SMSR	dB	30	50	
Temp. Coefficient of Wavelength	$d\lambda / dT$	nm/K		0,06	
Current Coefficient of Wavelength	$d\lambda / dI$	nm/mA		0,003	

Measurement Conditions / Comments

$P_{opt} = 100$ mW

reached by temperature modulation

$P_{opt} = 100$ mW

EYP-DFB-0852-00100-1500-BFW01-0002

Revision 0.92

2024-04-11

SINGLE FREQUENCY LASER DFB Laser



Characteristics T chip = 25° at BOL

Parameter	Symbol	Unit	min	typ	max
Laser Current	I_{LD}	mA			180
Slope Efficiency	η	mW/mA		0,8	
Threshold Current	I_{th}	mA			70
Divergence parallel	$\Theta_{ }$	°		0,1	
Divergence perpendicular	Θ_{\perp}	°		0,1	
Beam Diameter horizontal	$d_{ }$	mm		1	1,2
Beam Diameter vertical	d_{\perp}	mm		0,8	1,2
Degree of Polarization	DOP	%		90	

Measurement Conditions / Comments

parallel to the base plate of the housing
perpendicular to base plate of the housing
parallel to the base plate of the housing
perpendicular to base plate of the housing
Popt = 100 mW; E field parallel to the base plate

Monitor Diode

Parameter	Symbol	Unit	min	typ	max
Monitor Detector Responsivity	I_{mon} / P_{of}	$\mu A/mW$	0,5		10

Measurement Conditions / Comments

5 V reverse voltage

Thermoelectric Cooler

Parameter	Symbol	Unit	min	typ	max
Current	I_{TEC}	A		0,4	
Voltage	U_{TEC}	V		1,3	
Power Dissipation (total loss at case)	P_{loss}	W		0,4	
Temperature Difference	ΔT	K			50

Measurement Conditions / Comments

Popt = 100 mW, $\Delta T = 20$ K
Popt = 100 mW, $\Delta T = 20$ K
Popt = 100 mW, $\Delta T = 20$ K
Popt = 100 mW, $\Delta T = |T_{case} - T_{chip}|$

Thermistor (Standard NTC Type)

Parameter	Symbol	Unit	min	typ	max
Resistance	R	k Ω		10	
Beta Coefficient	β			3892	
Steinhart & Hart Coefficient A	A			1.1293×10^{-3}	
Steinhart & Hart Coefficient B	B			2.3410×10^{-4}	
Steinhart & Hart Coefficient C	C			8.7755×10^{-8}	

Measurement Conditions / Comments

Tchip = 25° C
 $R_1/R_2 = e^{\beta(1/T_1 - 1/T_2)}$ at Tchip = 0° ... 50° C

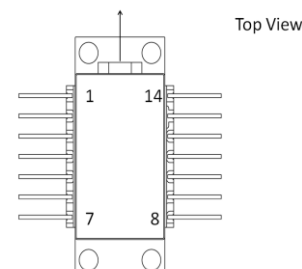
Revision 0.92

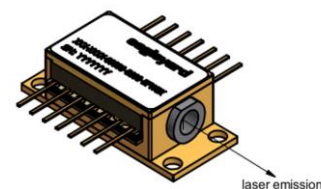
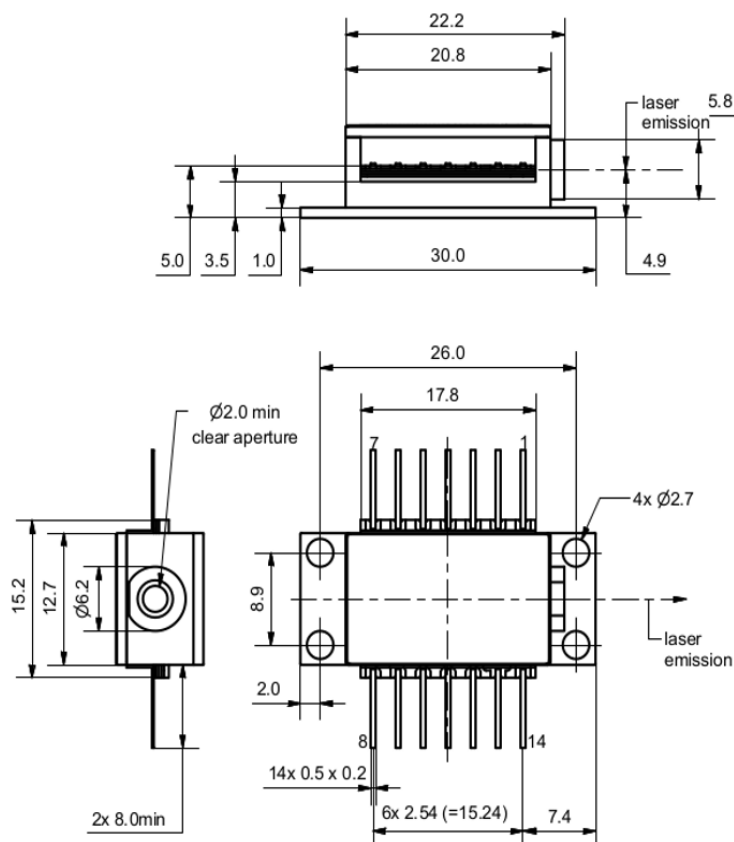
2024-04-11

SINGLE FREQUENCY LASER



1	Thermoelectric Cooler (+)	14	Thermoelectric Cooler (-)
2	Thermistor	13	Case
3	Photo Diode Anode	12	not connected
4	Photo Diode Cathode	11	Laser Diode Cathode
5	Thermistor	10	Laser Diode Anode
6	not connected	9	not connected
7	not connected	8	not connected





AIZ-20-1029-0928

EYP-DFB-0852-00100-1500-BFW01-0002

Revision 0.92

2024-04-11

SINGLE FREQUENCY LASER DFB Laser



Unpacking, Installation and Laser Safety

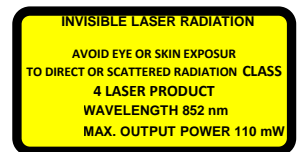
Unpacking the laser diodes should only be done at electrostatic safe workstations (EPA). Though protection against electro static discharge (ESD) is implemented in the laser package, charges may occur at surfaces. Please store this product in its original package at a dry, clean place until final use. During device installation, ESD protection has to be maintained.

A laser diode is sensitive against optical feedback, so an optical isolator may be required in order to avoid any disturbance of the emission spectrum. Operating at moderate temperatures on proper heat sinks will contribute to a long lifetime of the diode.

Avoid direct and/or indirect exposure to the free running beam. Collimating and focussing the free running beam with optics as common in optical instruments will increase threat to the human eye.

Each laser diode will come with an individual test protocol verifying the parameters given in this document.

Performance figures, data and any illustrative material provided in this specification are typical and must be specifically confirmed in writing by eagleyard Photonics before they become applicable to any particular order or contract. In accordance with the eagleyard Photonics policy of continuous improvement specifications may change without notice.



IEC-60825-1



Complies with 21 CFR 1040.10 and 1040.40



info@amstechnologies.com
www.amstechnologies-webshop.com



EYP-DFB-0852-00100-1500-BFW01-0005

Revision 0.93

SINGLE FREQUENCY LASER DFB Laser

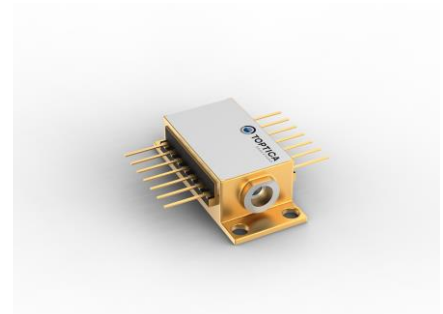


info@amstechnologies.com
www.amstechnologies-webshop.com

Contact us 

General Product Information

Product	Application
852 nm DFB Laser	Spectroscopy (Cs D2 line)
with hermetic 14 Pin-Butterfly Housing (RoHS compliant)	Metrology
including Monitor Diode, Thermoelectric Cooler and Thermistor	Atomic Clock
with integrated Beam Collimation	



Absolute Maximum Ratings

Parameter	Symbol	Unit	min	typ	max
Storage Temperature	T_S	°C	-40		85
Operational Temperature at Case	T_C	°C	-40		85
Operational Temperature at Chip	T_{chip}	°C	10		50
Forward Current	I_F	mA			200
Reverse Voltage	V_R	V			2
Output Power	P_{opt}	mW			110
TEC Current	I_{TEC}	A			1,4
TEC Voltage	V_{TEC}	V			3,2

Measurement Conditions / Comments

Stress in excess of one of the Absolute Maximum Ratings may damage the laser. Please note that a damaging optical power level may occur although the maximum current is not reached. These are stress ratings only, and functional operation at these or any other conditions beyond those indicated under Recommended Operational Conditions is not implied.

Recommended Operational Conditions

Parameter	Symbol	Unit	min	typ	max
Operational Temperature at Case	T_{case}	°C	-20		65
Operational Temperature at Chip	T_{chip}	°C	15		45
Forward Current	I_F				180
Output Power	P_{opt}	mW	20		100

Measurement Conditions / Comments

measured by integrated Thermistor

0

Characteristics $T_{chip} = 25^\circ$ at BOL

Parameter	Symbol	Unit	min	typ	max
Center Wavelength	λ_C	nm	851	852	853
Target Wavelength	λ_T	nm		852.347	
Linewidth	$\Delta\lambda$	MHz		0,6	1
Mode-hop free Tuning Range	$\Delta\lambda_{tune}$	pm	25		
Sidemode Suppression Ratio	SMSR	dB	30	50	
Temp. Coefficient of Wavelength	$d\lambda / dT$	nm/K		0,06	
Current Coefficient of Wavelength	$d\lambda / dI$	nm/mA		0,003	

Measurement Conditions / Comments

reached within $T_{chip} = 15^\circ \dots 45^\circ$ C at 100 mW

$P_{opt} = 100$ mW

> 10 GHz, at target wavelength

$P_{opt} = 100$ mW

EYP-DFB-0852-00100-1500-BFW01-0005

Revision 0.93

2024-04-11

SINGLE FREQUENCY LASER DFB Laser



Characteristics Tchip = 25° at BOL

Parameter	Symbol	Unit	min	typ	max
Laser Current	I_{LD}	mA			180
Slope Efficiency	η	mW/mA		0,8	
Threshold Current	I_{th}	mA			70
Divergence parallel	$\Theta_{ }$	°		0,1	
Divergence perpendicular	Θ_{\perp}	°		0,1	
Beam Diameter horizontal	$d_{ }$	mm		1	1,2
Beam Diameter vertical	d_{\perp}	mm		0,8	1,2
Degree of Polarization	DOP	%		90	

Measurement Conditions / Comments

parallel to the base plate of the housing
perpendicular to base plate of the housing
parallel to the base plate of the housing
perpendicular to base plate of the housing
Popt = 100 mW; E field parallel to the base plate

Monitor Diode

Parameter	Symbol	Unit	min	typ	max
Monitor Detector Responsivity	I_{mon} / P_{of}	μA/mW	0,5		10

Measurement Conditions / Comments

5 V reverse voltage

Thermoelectric Cooler

Parameter	Symbol	Unit	min	typ	max
Current	I_{TEC}	A		0,4	
Voltage	U_{TEC}	V		1,3	
Power Dissipation (total loss at case)	P_{loss}	W		0,4	
Temperature Difference	ΔT	K			50

Measurement Conditions / Comments

Popt = 100 mW, $\Delta T = 20$ K
Popt = 100 mW, $\Delta T = 20$ K
Popt = 100 mW, $\Delta T = 20$ K
Popt = 100 mW, $\Delta T = |T_{case} - T_{chip}|$

Thermistor (Standard NTC Type)

Parameter	Symbol	Unit	min	typ	max
Resistance	R	kΩ		10	
Beta Coefficient	β			3892	
Steinhart & Hart Coefficient A	A			1.1293×10^{-3}	
Steinhart & Hart Coefficient B	B			2.3410×10^{-4}	
Steinhart & Hart Coefficient C	C			8.7755×10^{-8}	

Measurement Conditions / Comments

Tchip = 25° C
 $R_1/R_2 = e^{\beta(1/T_1 - 1/T_2)}$ at Tchip = 0° ... 50° C

EYP-DFB-0852-00100-1500-BFW01-0005

Revision 0.93

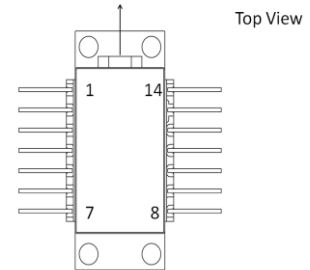
2024-04-11

SINGLE FREQUENCY LASER DFB Laser

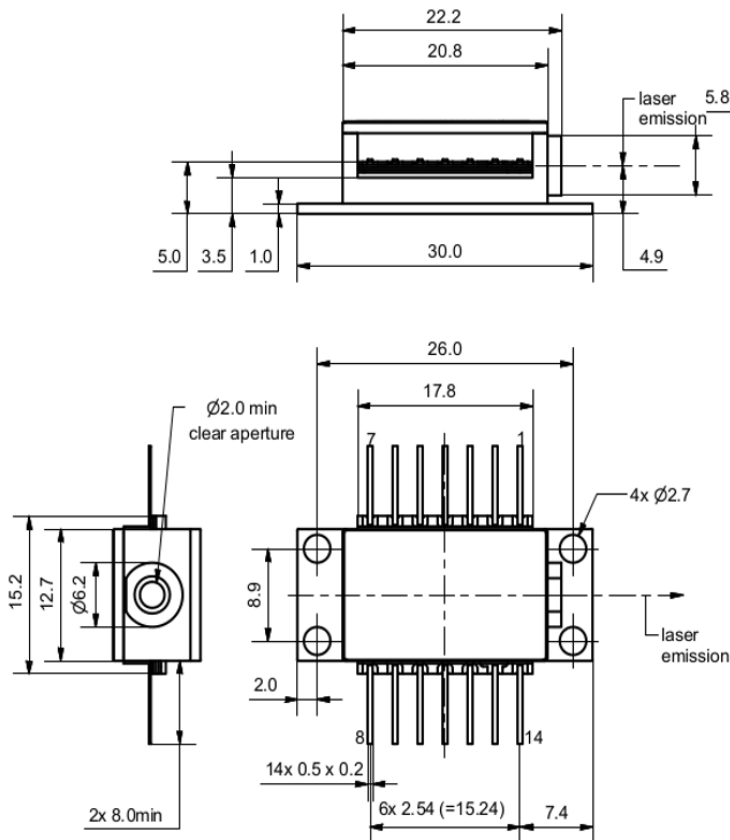
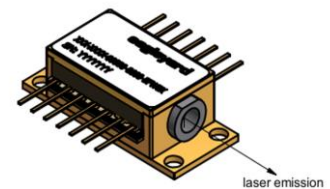


Pin Assignment

1 Thermoelectric Cooler (+)	14 Thermoelectric Cooler (-)
2 Thermistor	13 Case
3 Photo Diode Anode	12 not connected
4 Photo Diode Cathode	11 Laser Diode Cathode
5 Thermistor	10 Laser Diode Anode
6 not connected	9 not connected
7 not connected	8 not connected



Package Drawings



AIZ-20-1029-0928

EYP-DFB-0852-00100-1500-BFW01-0005

Revision 0.93

2024-04-11

SINGLE FREQUENCY LASER DFB Laser



Unpacking, Installation and Laser Safety

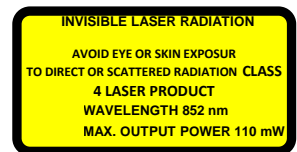
Unpacking the laser diodes should only be done at electrostatic safe workstations (EPA). Though protection against electro static discharge (ESD) is implemented in the laser package, charges may occur at surfaces. Please store this product in its original package at a dry, clean place until final use. During device installation, ESD protection has to be maintained.

A laser diode is sensitive against optical feedback, so an optical isolator may be required in order to avoid any disturbance of the emission spectrum. Operating at moderate temperatures on proper heat sinks will contribute to a long lifetime of the diode.

Avoid direct and/or indirect exposure to the free running beam. Collimating and focussing the free running beam with optics as common in optical instruments will increase threat to the human eye.

Each laser diode will come with an individual test protocol verifying the parameters given in this document.

Performance figures, data and any illustrative material provided in this specification are typical and must be specifically confirmed in writing by eagleyard Photonics before they become applicable to any particular order or contract. In accordance with the eagleyard Photonics policy of continuous improvement specifications may change without notice.



IEC-60825-1



info@amstechnologies.com
www.amstechnologies-webshop.com



EYP-DFB-0852-00150-1500-TOC03-0000

Revision 1.07

2018-06-28

SINGLE FREQUENCY LASER DIODES

Distributed Feedback Laser

General Product Information

Product	Application
852 nm DFB Laser	Spectroscopy
with hermetic 8-Pin TO Package (RoHS compliant)	Metrology
including Monitor Diode, Thermoelectric Cooler and Thermistor	THz Generation

Absolute Maximum Ratings

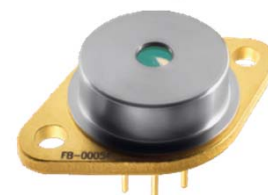
Parameter	Symbol	Unit	min	typ	max
Storage Temperature	T_S	$^{\circ}\text{C}$	-40		85
Operational Temperature at Case	T_C	$^{\circ}\text{C}$	-20		75
Operational Temperature at Laser Chip	T_{LD}	$^{\circ}\text{C}$	5		50
Forward Current	I_F	mA			270
Reverse Voltage	V_R	V			2
Output Power	P_{opt}	mW			160
TEC Current	I_{TEC}	A			1.8
TEC Voltage	V_{TEC}	V			3.2

Recommended Operational Conditions

Parameter	Symbol	Unit	min	typ	max
Operational Temperature at Case	T_{case}	$^{\circ}\text{C}$	-20		65
Operational Temperature at Laser Chip	T_{LD}	$^{\circ}\text{C}$	5		45
Forward Current	I_F	mA			250
Output Power	P_{opt}	mW	30		150

Characteristics at $T_{LD} = 25^{\circ}$ at BOL

Parameter	Symbol	Unit	min	typ	max
Center Wavelength	λ_C	nm	851	852	853
Linewidth (FWHM)	$\Delta\lambda$	MHz		2	
Temperature Coefficient of Wavelength	$d\lambda / dT$	nm / K		0.06	
Current Coefficient of Wavelength	$d\lambda / dI$	nm / mA		0.003	
Sidemode Suppression Ratio	SMSR	dB	30	45	



Measurement Conditions / Comments

Stress in excess of one of the Absolute Maximum Ratings may damage the laser. Please note that a damaging optical power level may occur although the maximum current is not reached. These are stress ratings only, and functional operation at these or any other conditions beyond those indicated under Recommended Operational Conditions is not implied.

Measurement Conditions / Comments

measured by integrated Thermistor

Measurement Conditions / Comments

see images on page 4

$P_{opt} = 150 \text{ mW}$

EYP-DFB-0852-00150-1500-TOC03-0000

Revision 1.07

2018-06-28

SINGLE FREQUENCY LASER DIODES

Distributed Feedback Laser

Characteristics at $T_{LD} = 25^\circ$ at BOL cont'd

Parameter	Symbol	Unit	min	typ	max
Laser Current @ $P_{opt} = 150$ mW	I_{LD}	mA			250
Slope Efficiency	η	W / A	0.6	0.8	1.1
Threshold Current	I_{th}	mA			70
Divergence parallel (FWHM)	$\Theta_{ }$	°		8	
Divergence perpendicular (FWHM)	Θ_{\perp}	°		21	
Degree of Polarization	DOP	%		90	

Measurement Conditions / Comments

parallel to short axis of the housing (see p. 3)

parallel to long axis of the housing (see p. 3)

150 mW; E field perpendicular to long axis of housing

Monitor Diode

Parameter	Symbol	Unit	min	typ	max
Monitor Detector Responsivity	I_{mon} / P_{opt}	$\mu A / mW$	1		20

Measurement Conditions / Comments

 $U_R = 5$ V

Thermoelectric Cooler

Parameter	Symbol	Unit	min	typ	max
Current	I_{TEC}	A		0.4	
Voltage	U_{TEC}	V		0.8	
Power Dissipation (total loss at case)	P_{loss}	W		0.5	
Temperature Difference	ΔT	K			50

Measurement Conditions / Comments

 $P_{opt} = 150$ mW, $\Delta T = 20$ K $P_{opt} = 150$ mW, $\Delta T = 20$ K $P_{opt} = 150$ mW, $\Delta T = 20$ K $P_{opt} = 150$ mW, $\Delta T = |T_{case} - T_{LD}|$

Thermistor (Standard NTC Type)

Parameter	Symbol	Unit	min	typ	max
Resistance	R	k Ω		10	
Beta Coefficient	β			3892	
Steinhart & Hart Coefficient A	A			1.1293×10^{-3}	
Steinhart & Hart Coefficient B	B			2.3410×10^{-4}	
Steinhart & Hart Coefficient C	C			8.7755×10^{-8}	

Measurement Conditions / Comments

 $T_{LD} = 25^\circ$ C $R_1 / R_2 = e^{\beta(1/T_1 - 1/T_2)}$ at $T_{LD} = 0^\circ \dots 50^\circ$ C $1/T = A + B(\ln R) + C(\ln R)^3$

T: temperature in Kelvin

R: resistance at T in Ohm

EYP-DFB-0852-00150-1500-TOC03-0000

Revision 1.07

2018-06-28

SINGLE FREQUENCY LASER DIODES

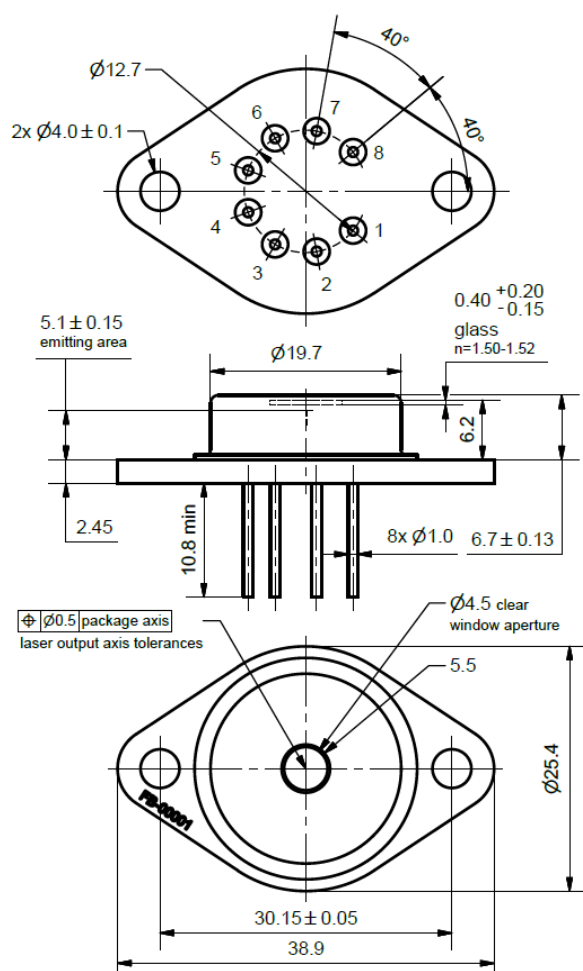
Distributed Feedback Laser

Pin Assignment

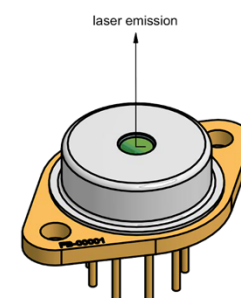
1 Thermoelectric Cooler (+)	5 Laser Diode Anode
2 Thermistor	6 Monitor Diode Anode
3 Thermistor	7 Photo Diode Cathode
4 Laser Diode Cathode	8 Thermoelectric Cooler (-)

All 8 pins are isolated from case.

Package Drawings



AIZ-16-311-1543-B

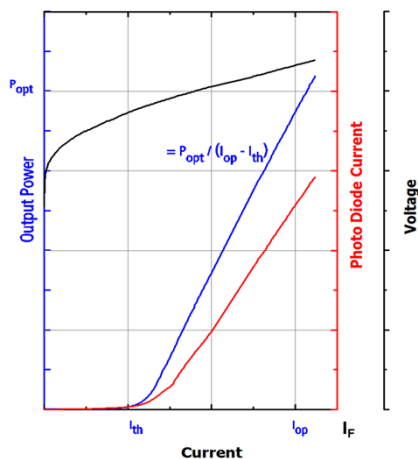


SINGLE FREQUENCY LASER DIODES

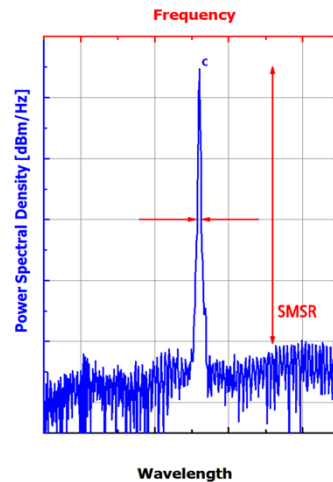
Distributed Feedback Laser

Typical Measurement Results

Output Power vs. Current



Spectra at Specified Optical Output Power



Performance figures, data and any illustrative material provided in this specification are typical and must be specifically confirmed in writing by eagleyard Photonics before they become applicable to any particular order or contract. In accordance with the eagleyard Photonics policy of continuous improvement specifications may change without notice.

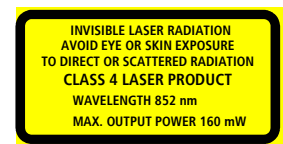
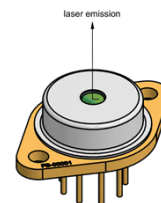
Unpacking, Installation and Laser Safety

Unpacking the laser diodes should only be done at electrostatic safe workstations (EPA). Though protection against electro static discharge (ESD) is implemented in the laser package, charges may occur at surfaces. Please store this product in its original package at a dry, clean place until final use. During device installation, ESD protection has to be maintained.

The DFB laser is sensitive against optical feedback, so an optical isolator may be required in order to avoid any disturbance of the emission spectrum. Operating at moderate temperatures on proper heat sinks will contribute to a long lifetime of the diode.

Avoid direct and/or indirect exposure to the free running beam. Collimating and focussing the free running beam with optics as common in optical instruments will increase threat to the human eye.

Performance figures, data and any illustrative material provided in this specification are typical and must be specifically confirmed in writing by eagleyard Photonics before they become applicable to any particular order or contract. In accordance with the eagleyard Photonics policy of continuous improvement specifications may change without notice.



IEC-60825-0



Complies with 21 CFR 1040.10 and 1040.40

Distributor



info@amstechnologies.com
www.amstechnologies-webshop.com

Contact us



EYP-DFB-0852-00150-1500-TOC03-0002

Revision 1.07

2018-06-28

SINGLE FREQUENCY LASER DIODES

Distributed Feedback Laser

General Product Information

Product	Application
Tunable 852 nm DFB Laser	Spectroscopy
with hermetic 8-Pin TO Package (RoHS compliant)	Metrology
including Monitor Diode, Thermoelectric Cooler and Thermistor	THz Generation

Absolute Maximum Ratings

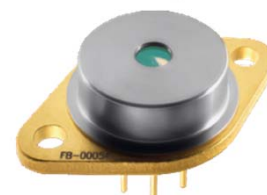
Parameter	Symbol	Unit	min	typ	max
Storage Temperature	T_S	$^{\circ}\text{C}$	-40		85
Operational Temperature at Case	T_C	$^{\circ}\text{C}$	-20		75
Operational Temperature at Laser Chip	T_{LD}	$^{\circ}\text{C}$	5		50
Forward Current	I_F	mA			270
Reverse Voltage	V_R	V			2
Output Power	P_{opt}	mW			160
TEC Current	I_{TEC}	A			1.8
TEC Voltage	V_{TEC}	V			3.2

Recommended Operational Conditions

Parameter	Symbol	Unit	min	typ	max
Operational Temperature at Case	T_{case}	$^{\circ}\text{C}$	-20		65
Operational Temperature at Laser Chip	T_{LD}	$^{\circ}\text{C}$	5		45
Forward Current	I_F	mA			250
Output Power	P_{opt}	mW	30		150

Characteristics at $T_{LD} = 25^{\circ}$ at BOL

Parameter	Symbol	Unit	min	typ	max
Center Wavelength	λ_c	nm	851	852	853
Linewidth (FWHM)	$\Delta\lambda$	MHz		2	
Mode-hop free Tuning Range	$\Delta\lambda_{tune}$	pm		1500	
Temperature Coefficient of Wavelength	$d\lambda / dT$	nm / K		0.06	
Current Coefficient of Wavelength	$d\lambda / dI$	nm / mA		0.003	
Sidemode Suppression Ratio	SMSR	dB	30	45	



Measurement Conditions / Comments

Stress in excess of one of the Absolute Maximum Ratings may damage the laser. Please note that a damaging optical power level may occur although the maximum current is not reached. These are stress ratings only, and functional operation at these or any other conditions beyond those indicated under Recommended Operational Conditions is not implied.

Measurement Conditions / Comments

measured by integrated Thermistor

Measurement Conditions / Comments

see images on page 4

reached by temperature modulation

$P_{opt} = 150 \text{ mW}$

EYP-DFB-0852-00150-1500-TOC03-0002

Revision 1.07

2018-06-28

SINGLE FREQUENCY LASER DIODES

Distributed Feedback Laser

Characteristics at $T_{LD} = 25^\circ$ at BOL cont'd

Parameter	Symbol	Unit	min	typ	max
Mode-hop free Temperature Range	T_{LD}	$^\circ\text{C}$	15		40
Mode-hop free Power Range	P_{opt}	mW	30		150
Laser Current @ $P_{opt} = 150\text{ mW}$	I_{LD}	mA			250
Slope Efficiency	η	W / A	0.6	0.8	1.1
Threshold Current	I_{th}	mA			70
Divergence parallel (FWHM)	$\Theta_{ }$	$^\circ$		8	
Divergence perpendicular (FWHM)	Θ_{\perp}	$^\circ$		21	
Degree of Polarization	DOP	%		90	

Measurement Conditions / Comments

Temperature at Laser Chip

parallel to short axis of the housing (see p. 3)

parallel to long axis of the housing (see p. 3)

150 mW; E field perpendicular to long axis of housing

Monitor Diode

Parameter	Symbol	Unit	min	typ	max
Monitor Detector Responsivity	I_{mon} / P_{opt}	$\mu\text{A/mW}$	1		20

Measurement Conditions / Comments

 $U_R = 5\text{ V}$

Thermoelectric Cooler

Parameter	Symbol	Unit	min	typ	max
Current	I_{TEC}	A		0.4	
Voltage	U_{TEC}	V		0.8	
Power Dissipation (total loss at case)	P_{loss}	W		0.5	
Temperature Difference	ΔT	K			50

Measurement Conditions / Comments

 $P_{opt} = 150\text{ mW}$, $\Delta T = 20\text{ K}$ $P_{opt} = 150\text{ mW}$, $\Delta T = 20\text{ K}$ $P_{opt} = 150\text{ mW}$, $\Delta T = 20\text{ K}$ $P_{opt} = 150\text{ mW}$, $\Delta T = |T_{case} - T_{LD}|$

Thermistor (Standard NTC Type)

Parameter	Symbol	Unit	min	typ	max
Resistance	R	k Ω		10	
Beta Coefficient	β			3892	
Steinhart & Hart Coefficient A	A			1.1293×10^{-3}	
Steinhart & Hart Coefficient B	B			2.3410×10^{-4}	
Steinhart & Hart Coefficient C	C			8.7755×10^{-8}	

Measurement Conditions / Comments

 $T_{LD} = 25^\circ\text{C}$ $R_1 / R_2 = e^{\beta(1/T_1 - 1/T_2)}$ at $T_{LD} = 0^\circ \dots 50^\circ\text{C}$ $1/T = A + B(\ln R) + C(\ln R)^3$

T: temperature in Kelvin

R: resistance at T in Ohm

EYP-DFB-0852-00150-1500-TOC03-0002

Revision 1.07

2018-06-28

SINGLE FREQUENCY LASER DIODES

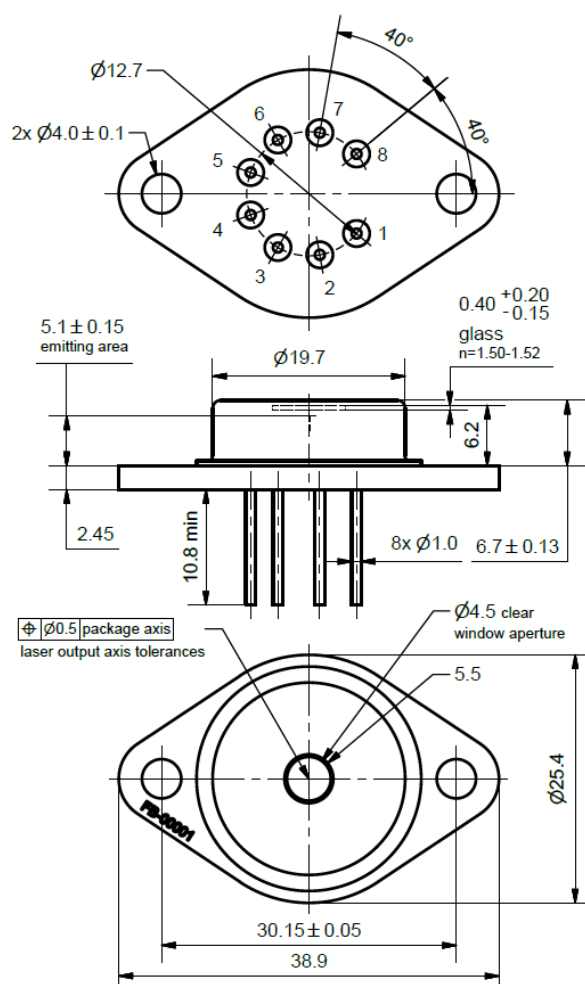
Distributed Feedback Laser

Pin Assignment

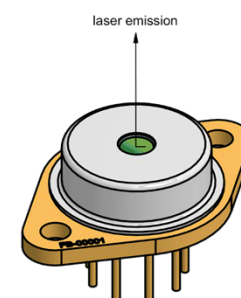
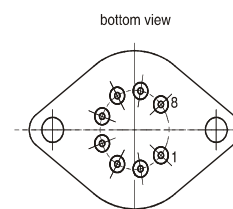
1 Thermoelectric Cooler (+)	5 Laser Diode Anode
2 Thermistor	6 Monitor Diode Anode
3 Thermistor	7 Photo Diode Cathode
4 Laser Diode Cathode	8 Thermoelectric Cooler (-)

All 8 pins are isolated from case.

Package Drawings



AIZ-16-311-1543-B



EYP-DFB-0852-00150-1500-TOC03-0002

Revision 1.07

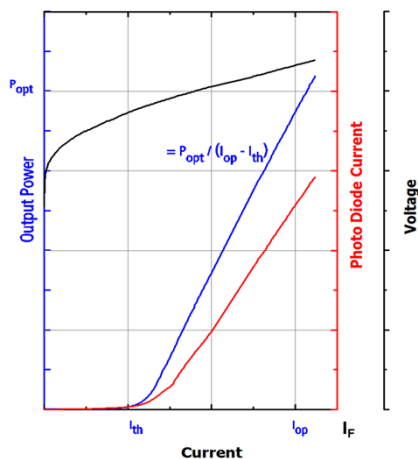
2018-06-28

SINGLE FREQUENCY LASER DIODES

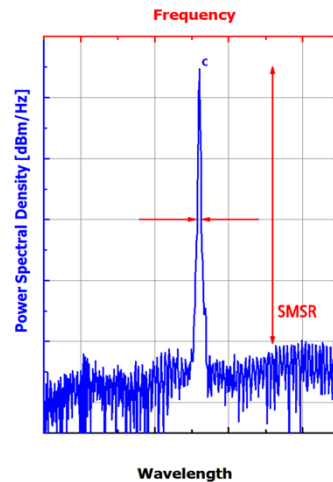
Distributed Feedback Laser

Typical Measurement Results

Output Power vs. Current



Spectra at Specified Optical Output Power



Performance figures, data and any illustrative material provided in this specification are typical and must be specifically confirmed in writing by eagleyard Photonics before they become applicable to any particular order or contract. In accordance with the eagleyard Photonics policy of continuous improvement specifications may change without notice.

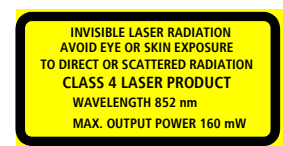
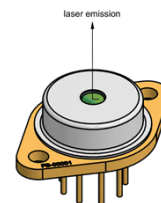
Unpacking, Installation and Laser Safety

Unpacking the laser diodes should only be done at electrostatic safe workstations (EPA). Though protection against electro static discharge (ESD) is implemented in the laser package, charges may occur at surfaces. Please store this product in its original package at a dry, clean place until final use. During device installation, ESD protection has to be maintained.

The DFB laser is sensitive against optical feedback, so an optical isolator may be required in order to avoid any disturbance of the emission spectrum. Operating at moderate temperatures on proper heat sinks will contribute to a long lifetime of the diode.

Avoid direct and/or indirect exposure to the free running beam. Collimating and focussing the free running beam with optics as common in optical instruments will increase threat to the human eye.

Performance figures, data and any illustrative material provided in this specification are typical and must be specifically confirmed in writing by eagleyard Photonics before they become applicable to any particular order or contract. In accordance with the eagleyard Photonics policy of continuous improvement specifications may change without notice.



IEC-60825-0



Complies with 21 CFR 1040.10 and 1040.40



info@amstechnologies.com
www.amstechnologies-webshop.com

Contact us 

EYP-DFB-0852-00150-1500-TOC03-0005

Revision 1.07

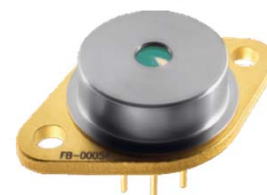
2018-06-28

SINGLE FREQUENCY LASER DIODES

Distributed Feedback Laser

General Product Information

Product	Application
852 nm DFB Laser	Spectroscopy (Cs D2 line)
with hermetic 8-Pin TO Package (RoHS compliant)	Metrology
including Monitor Diode, Thermoelectric Cooler and Thermistor	THz Generation
	Atomic Clock



Absolute Maximum Ratings

Parameter	Symbol	Unit	min	typ	max
Storage Temperature	T_S	$^{\circ}\text{C}$	-40		85
Operational Temperature at Case	T_C	$^{\circ}\text{C}$	-20		75
Operational Temperature at Laser Chip	T_{LD}	$^{\circ}\text{C}$	5		50
Forward Current	I_F	mA			270
Reverse Voltage	V_R	V			2
Output Power	P_{opt}	mW			160
TEC Current	I_{TEC}	A			1.8
TEC Voltage	V_{TEC}	V			3.2

Measurement Conditions / Comments

Stress in excess of one of the Absolute Maximum Ratings may damage the laser. Please note that a damaging optical power level may occur although the maximum current is not reached. These are stress ratings only, and functional operation at these or any other conditions beyond those indicated under Recommended Operational Conditions is not implied.

Recommended Operational Conditions

Parameter	Symbol	Unit	min	typ	max
Operational Temperature at Case	T_{case}	$^{\circ}\text{C}$	-20		65
Operational Temperature at Laser Chip	T_{LD}	$^{\circ}\text{C}$	5		45
Forward Current	I_F	mA			250
Output Power	P_{opt}	mW	30		150

Measurement Conditions / Comments

measured by integrated Thermistor

Characteristics at $T_{LD} = 25^{\circ}$ at BOL

Parameter	Symbol	Unit	min	typ	max
Center Wavelength	λ_C	nm	851	852	853
Target Wavelength	λ_T	nm		852.347	
Linewidth (FWHM)	$\Delta\lambda$	MHz		0.6	1
Sidemode Suppression Ratio	SMSR	dB	30	45	
Temperature Coefficient of Wavelength	$d\lambda / dT$	nm / K		0.06	
Current Coefficient of Wavelength	$d\lambda / dI$	nm / mA		0.003	
Mode-hop free Tuning Range	$\Delta\lambda_{tune}$	pm	25		

Measurement Conditions / Comments

see images on page 4

reached within $T_{LD} = 15^{\circ} \dots 45^{\circ}\text{C}$ at 150 mW

$P_{opt} = 150\text{ mW}$

> 10 GHz, at target wavelength

EYP-DFB-0852-00150-1500-TOC03-0005

Revision 1.07

2018-06-28

SINGLE FREQUENCY LASER DIODES

Distributed Feedback Laser

Characteristics at $T_{LD} = 25^\circ$ at BOL cont'd

Parameter	Symbol	Unit	min	typ	max
Laser Current @ $P_{opt} = 150$ mW	I_{LD}	mA			250
Slope Efficiency	η	W / A	0.6	0.8	1.1
Threshold Current	I_{th}	mA			70
Divergence parallel (FWHM)	$\Theta_{ }$	°		8	
Divergence perpendicular (FWHM)	Θ_{\perp}	°		21	
Degree of Polarization	DOP	%		90	

Measurement Conditions / Comments

parallel to short axis of the housing (see p. 3)

parallel to long axis of the housing (see p. 3)

 $P_{opt} = 150$ mW; E field perpendicular to long axis of housing

Monitor Diode

Parameter	Symbol	Unit	min	typ	max
Monitor Detector Responsivity	I_{mon} / P_{opt}	$\mu A / mW$	1		20

Measurement Conditions / Comments

 $U_R = 5$ V

Thermoelectric Cooler

Parameter	Symbol	Unit	min	typ	max
Current	I_{TEC}	A		0.4	
Voltage	U_{TEC}	V		0.8	
Power Dissipation (total loss at case)	P_{loss}	W		0.5	
Temperature Difference	ΔT	K			50

Measurement Conditions / Comments

 $P_{opt} = 150$ mW, $\Delta T = 20$ K $P_{opt} = 150$ mW, $\Delta T = 20$ K $P_{opt} = 150$ mW, $\Delta T = 20$ K $P_{opt} = 150$ mW, $\Delta T = |T_{case} - T_{LD}|$

Thermistor (Standard NTC Type)

Parameter	Symbol	Unit	min	typ	max
Resistance	R	k Ω		10	
Beta Coefficient	β			3892	
Steinhart & Hart Coefficient A	A			1.1293×10^{-3}	
Steinhart & Hart Coefficient B	B			2.3410×10^{-4}	
Steinhart & Hart Coefficient C	C			8.7755×10^{-8}	

Measurement Conditions / Comments

 $T_{LD} = 25^\circ$ C $R_1 / R_2 = e^{\beta(1/T_1 - 1/T_2)}$ at $T_{LD} = 0^\circ \dots 50^\circ$ C $1/T = A + B(\ln R) + C(\ln R)^3$

T: temperature in Kelvin

R: resistance at T in Ohm

EYP-DFB-0852-00150-1500-TOC03-0005

Revision 1.07

2018-06-28

SINGLE FREQUENCY LASER DIODES

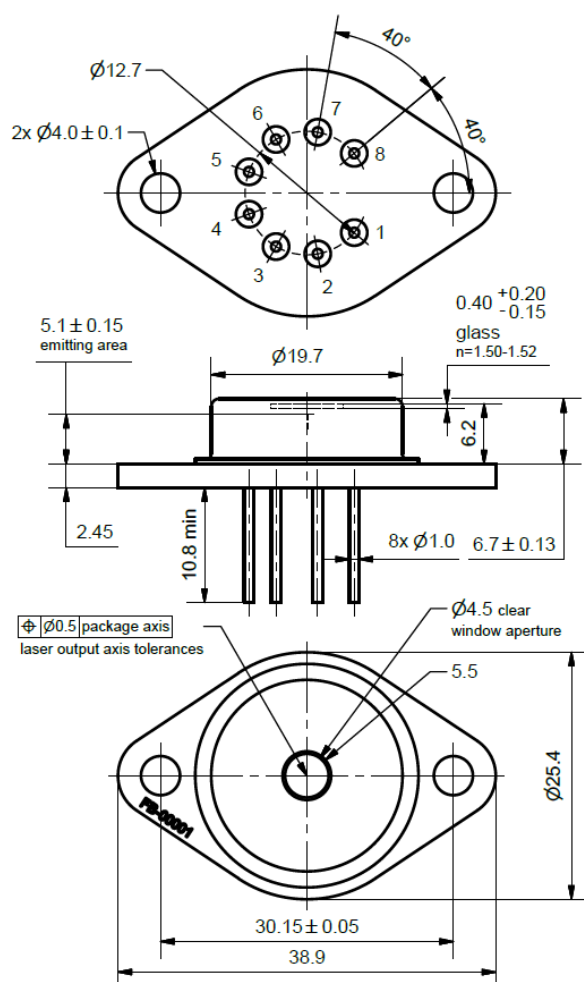
Distributed Feedback Laser

Pin Assignment

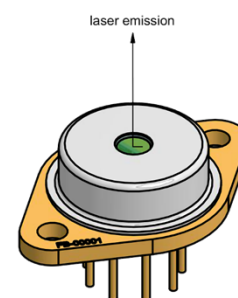
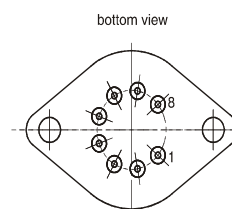
1 Thermoelectric Cooler (+)	5 Laser Diode Anode
2 Thermistor	6 Monitor Diode Anode
3 Thermistor	7 Photo Diode Cathode
4 Laser Diode Cathode	8 Thermoelectric Cooler (-)

All 8 pins are isolated from case.

Package Drawings



AIZ-16-311-1543-B



EYP-DFB-0852-00150-1500-TOC03-0005

Revision 1.07

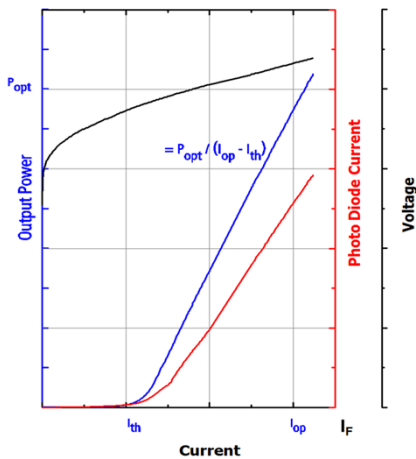
2018-06-28

SINGLE FREQUENCY LASER DIODES

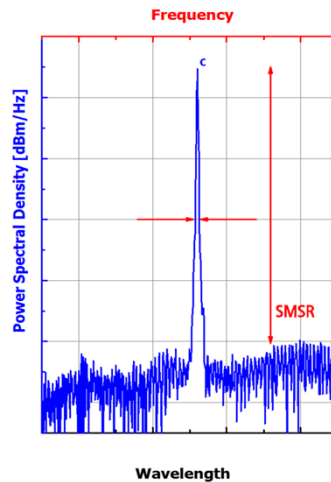
Distributed Feedback Laser

Typical Measurement Results

Output Power vs. Current



Spectra at Specified Optical Output Power



Performance figures, data and any illustrative material provided in this specification are typical and must be specifically confirmed in writing by eagleyard Photonics before they become applicable to any particular order or contract. In accordance with the eagleyard Photonics policy of continuous improvement specifications may change without notice.

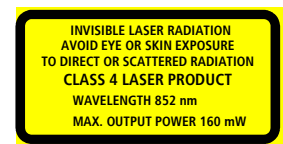
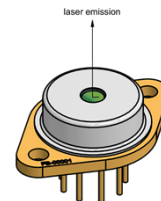
Unpacking, Installation and Laser Safety

Unpacking the laser diodes should only be done at electrostatic safe workstations (EPA). Though protection against electro static discharge (ESD) is implemented in the laser package, charges may occur at surfaces. Please store this product in its original package at a dry, clean place until final use. During device installation, ESD protection has to be maintained.

The DFB laser is sensitive against optical feedback, so an optical isolator may be required in order to avoid any disturbance of the emission spectrum. Operating at moderate temperatures on proper heat sinks will contribute to a long lifetime of the diode.

Avoid direct and/or indirect exposure to the free running beam. Collimating and focussing the free running beam with optics as common in optical instruments will increase threat to the human eye.

Performance figures, data and any illustrative material provided in this specification are typical and must be specifically confirmed in writing by eagleyard Photonics before they become applicable to any particular order or contract. In accordance with the eagleyard Photonics policy of continuous improvement specifications may change without notice.



IEC-60825-0



Complies with 21 CFR 1040.10 and 1040.40

Distributor



info@amstechnologies.com
www.amstechnologies-webshop.com

Contact us 