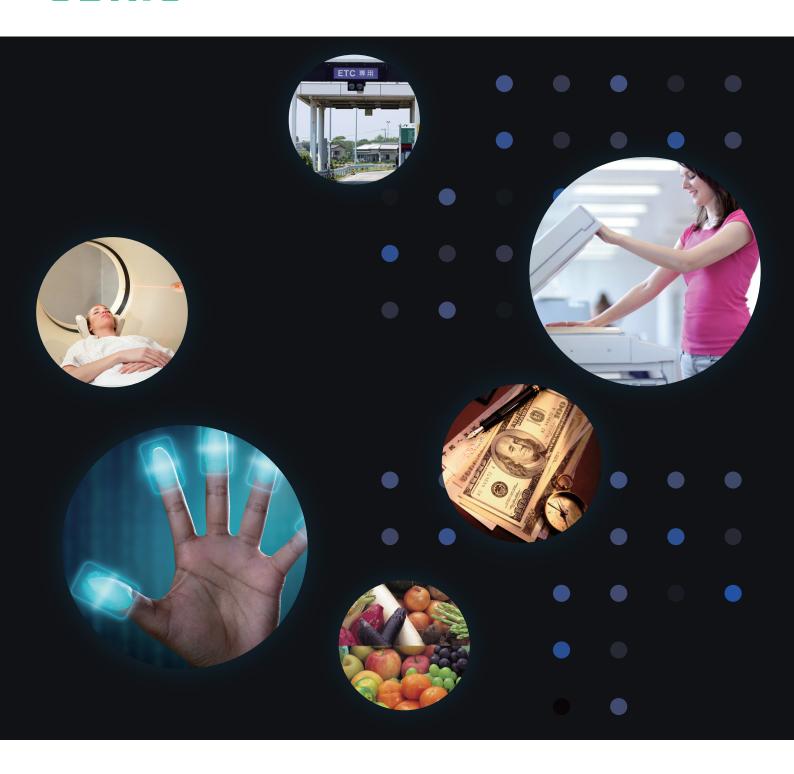
# **U5HI** Applying Light to Life



### I FDS

### Light Emitting Diodes - Solid State Lighting





2 LED Product Map

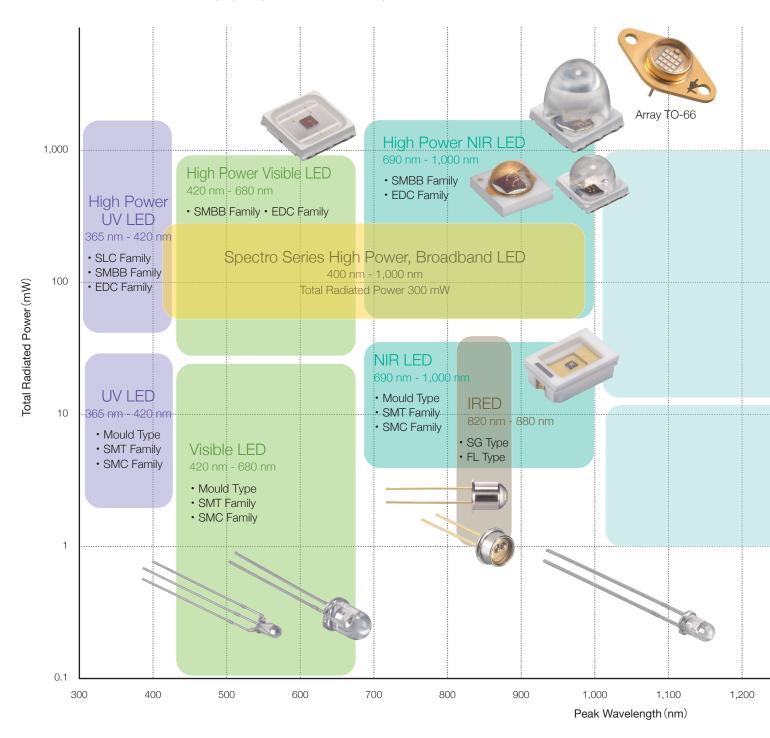
# LED Product Map

All wavelengths between 365 nm and 1,750 nm can be offered.



Covering all wavelengths in the ultraviolet (UV), visible, and infrared (IR) spectra, between 365 nm to 1,750 nm.

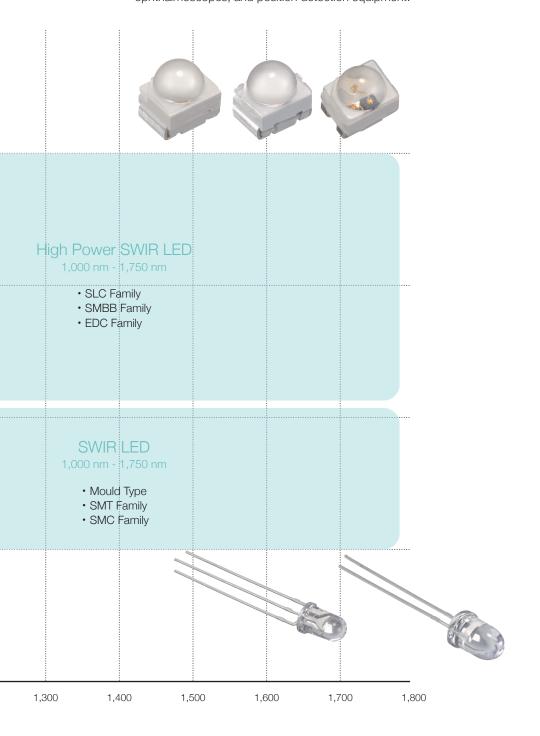
- Various models supporting all output ranges from low power to high power.
- Wide range of packages, suitable for your ideal optical design.
- We can also propose products that combine photosensors with LEDs.



LED Product Map 3



High output is achieved through the use of IRED's unique domed chip formation technology, and an excellent beam shape is provided by precision lens (package) design technology. The perfect light source collection for diverse applications such as CNC machine tools, robots, ophthalmoscopes, and position detection equipment.

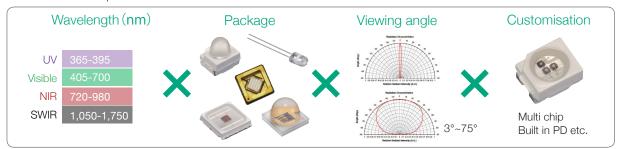


# Top Quality LEDs At Your Disposal

### Constructing the perfect LED

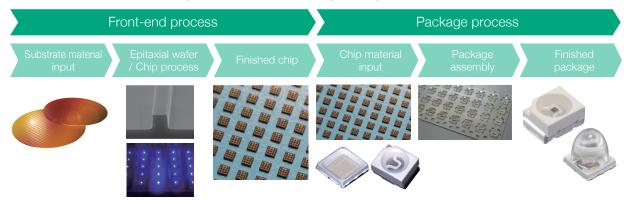
#### Select Wavelength × Package × Viewing angle × Customisation

Depending on the intended application, Ushio's Epitex LED series offers the opportunity to select from a number of wavelengths, package types, and lenses for the modification of radiation distribution and intensity. Further customisation is possible with the addition of extra components.



#### Over 30 years of LED manufacturing experience

Ushio carries out the whole process internally, from epitaxial formation to packaging processing. Utilising our expertise and 1,500 construction combinations, we provide customisable products that meet the size and configuration demands of the application, such as multiple wavelengths and a photodiode in a single package.



### Wide range of wavelengths available

#### UV 365 nm to SWIR 1,750 nm

You can select from a range of wavelengths, with shorter wavelength emitters available in 20 nm increments (below 1,000 nm), and longer wavelength emitters every 50 nm (over 1,000 nm). Multi-chip packages are available for applications requiring more than one wavelength to be emitted simultaneously.

UV	365 nm	375 nm	385 nm	395 nm	405 nm	415 nm	420 nm					
Violet	430 nm	435 nm	450 nm									
Blue	470 nm	490 nm										
Green	505 nm	525 nm	545 nm	565 nm								
	570 nm	590 nm										
Orange	600 nm	610 nm	620 nm									
Red	630 nm	640 nm	660 nm	670 nm	680 nm	690 nm	700 nm	710 nm	720 nm	730 nm	735 nm	740 nm
	750 nm											
IR/GaAs	760 nm	770 nm	780 nm	800 nm	810 nm	820 nm	830 nm	840 nm	850 nm	870 nm	880 nm	890 nm
	910 nm	940 nm	950 nm	970 nm	980 nm	1,050 nm						
IR/InP	1,050 nm	1,100 nm	1,150 nm	1,200 nm	1,300 nm	1,450 nm	1,550 nm	1,650 nm	1,750 nm			

Top Quality LEDs At Your Disposal 5



### Various packages suitable for your optics

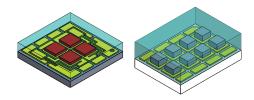
#### Single-chip package lineup

You can select your favourite LED package, from mould type to surface mounted, to suit your application, size, and viewing angle.

Chip Size		300 L	ım, 350 μm, 4	500 μm, 600 μm					
Output Power			Standard	Medium	1 mm or more				
Lineup		epitex		ῗR•	ED	ใR€D	epitex		
	Mould Type	SMC Family	SMT Family	FL Type	SG Type	SG Type	SMBB Family	EDC Family	
Package		Ial							

#### Discover customised packages for a unique optical design

Please contact us if you cannot find your required LED package design. We are happy to recommend the optimal LED design based on the intended application.



6 SMBB Family | EDC Family

# High Power TOP LEDs SMBB Family





epitex series



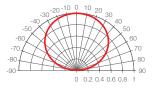
#### **Features**

- ♦ All wavelengths between 365 nm and 1,650 nm can be offered
- ♦ High power TOP LEDs using 1 mm x 1 mm chip
- Package of 5 mm x 5 mm, equipped with copper heat sink
- Up to three 1 mm x 1 mm chips can be mounted in a single package

#### Specifications [e.g. SMBB760D series]

#### Flat Type

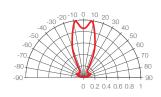
Viewing Half Angle: ±64 deg.





#### 03 Lens Type

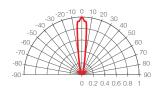
Viewing Half Angle: ±22 deg.





#### 02 Lens Type

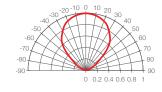
♦ Viewing Half Angle: ±9 deg.





#### 05 Lens Type

◆ Viewing Half Angle: ±45 deg.





### High Power TOP LEDs

# EDC Family

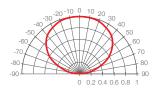
#### **Features**

- All wavelengths between 365 nm and 1,650 nm can be offered
- ♦ High power TOP LEDs using 1 mm x 1 mm chip
- Ceramic Package of 3.5 mm x 3.5 mm

#### Specifications [e.g. EDC850DS series]

#### Flat Type

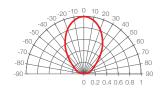
Viewing Half Angle: ±66 deg.





#### S5 Lens Type

Viewing Half Angle: ±39 deg.







SMT Family 7

### Surface Mount Type LEDs

# SMT Family











epitex series



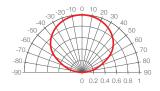
#### **Features**

- ♦ All wavelengths between 365 nm and 1,650 nm can be offered
- Package dimension: 3.5 mm x 2.8 mm

#### Specifications [e.g. SMT780 series]

#### Flat Type

Viewing Half Angle: ±62 deg.

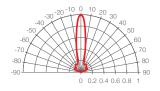




#### SMT with Silicone Lens

#### S1 Lens Type

- ◆ SMT with Silicone Lens
- ◆ Viewing Half Angle: ±10 deg.

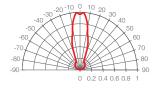




#### SMT with Epoxy Lens (Available wavelengths: between 470 nm and 1,650 nm)

#### 23 Lens Type

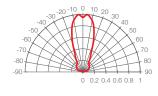
- SMT with Epoxy Lens
- Viewing Half Angle: ±16 deg.





#### 25 Lens Type

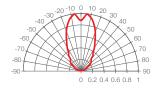
- SMT with Epoxy Lens
- Viewing Half Angle: ±20 deg.





#### 27 Lens Type

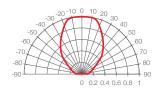
- SMT with Epoxy Lens
- Viewing Half Angle: ±39 deg.





#### 29 Lens Type

- SMT with Epoxy Lens
- Viewing Half Angle: ±45 deg.





8 Moulded Type

# Moulded Type

### epitex series

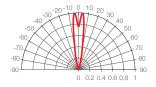
#### **Features**

Plastic Moulded Type LEDs

#### Specifications [e.g. L750-AU series]

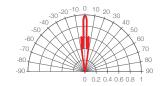
#### 01 Lens Type

- Ø5 Plastic Moulded LED
- Viewing Half Angle: ±10 deg.



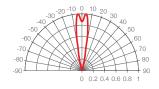
#### 02 Lens Type

- Ø5 Plastic Moulded LED
- Viewing Half Angle: ±8 deg.



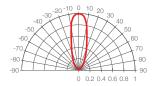
#### 03 Lens Type

- Ø5 Plastic Moulded LED
- ♦ Viewing Half Angle: ±10 deg.



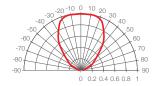
#### 04 Lens Type

- Ø5 Plastic Moulded LED
- ◆ Viewing Half Angle: ±17 deg.



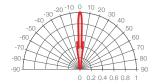
#### 05 Lens Type

- Ø5 Plastic Moulded LED
- Viewing Half Angle: ±44 deg.



#### 06 Lens Type

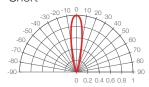
- Ø5 Plastic Moulded LED
- Viewing Half Angle: ±4 deg.



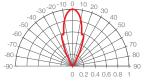
#### 09 Lens Type

- Ø5 Plastic Moulded LED
- Viewing Half Angle:
   Short: ±10 deg. Long: ±21 deg.



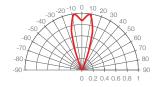


#### Long



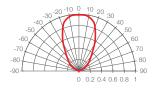
### 33 Lens Type

- Ø3 Plastic Moulded LED
- Viewing Half Angle: ±17 deg.



#### 36 Lens Type

- Ø3 Plastic Moulded LED
- Viewing Half Angle: ±32 deg.



IRED Series 9

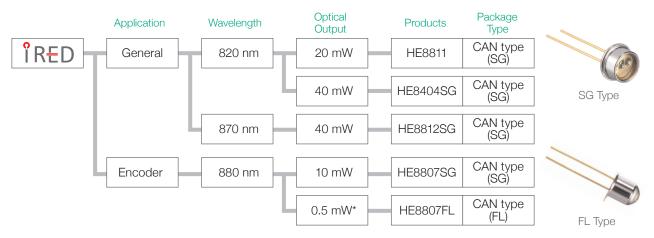
# IRED Series

#### **Features**

- ◆ Achieves high optical power with unique domed chip formation technology
- 2 wavelength bands, 820 nm / 870 nm
- Set up options: SG type for a wide radiation beam and FL type for a collimated beam



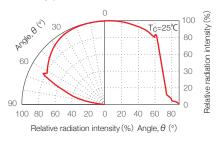
#### **IRED Product Lineup**



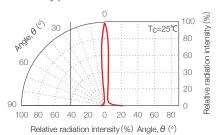
<sup>\*</sup> The optical output within 9 degrees of the acceptance angle.

#### **IRED** Radiation Distribution

#### SG Type



#### FL Type



#### IRED's Main Characteristics

Part No.	Absolute Ra	Optical and Electrical Characteristics													
	Forward Current (mA)	Operating Temperature (°C)				Peak Wavelength (nm)			Spectral Width (nm)			Forward Voltage (V)			Test Conditions
			min.	typ.	max.	min.	typ.	max.	min.	typ.	max.	min.	typ.	max.	
HE8811	200	-20 to 60	20	30	-	780	820	900	-	50	60	-	2.0	2.5	IF=150 mA
HE8404SG	250	-20 to 60	40	50	-	790	820	850	-	50	60	-	1.9	2.5	IF=200 mA
HE8812SG	250	-20 to 60	40	50	-	840	870	900	-	50	60	-	1.8	2.5	IF=200 mA
HE8807SG	200	-20 to 85	10	15	-	800	880	900	-	30	60	-	1.7	2.3	IF=150 mA
HE8807FL	200	-20 to 85	0.5*	1.0*	-	800	880	900	-	30	60	-	1.7	2.3	IF=150 mA

<sup>\*</sup> The optical output within 9 degrees of the acceptance angle.



# Spectro Series

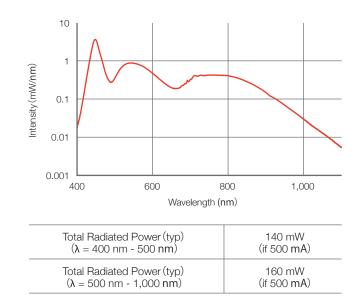


#### **Features**

- Spectro is a series of high-output broadband LEDs capable of emitting visible to near infrared (NIR) wavelengths
- Spectro can be used in machine vision and analysis applications, such as measuring the sugar or fat content of foodstuffs







# Short Wavelength Infrared LEDs

#### **Features**

- Epitex offers the world's highest output power in the SWIR LED class
- Standard centre wavelengths are 1,050, 1,100, 1,150, 1,200, 1,300, 1,450, 1,550, 1,650, and 1,750 nm
- We can also propose a unique wavelength selection according to the customer's required volume

