USHIO Applying Light to Life

LED

Product Information

epitex

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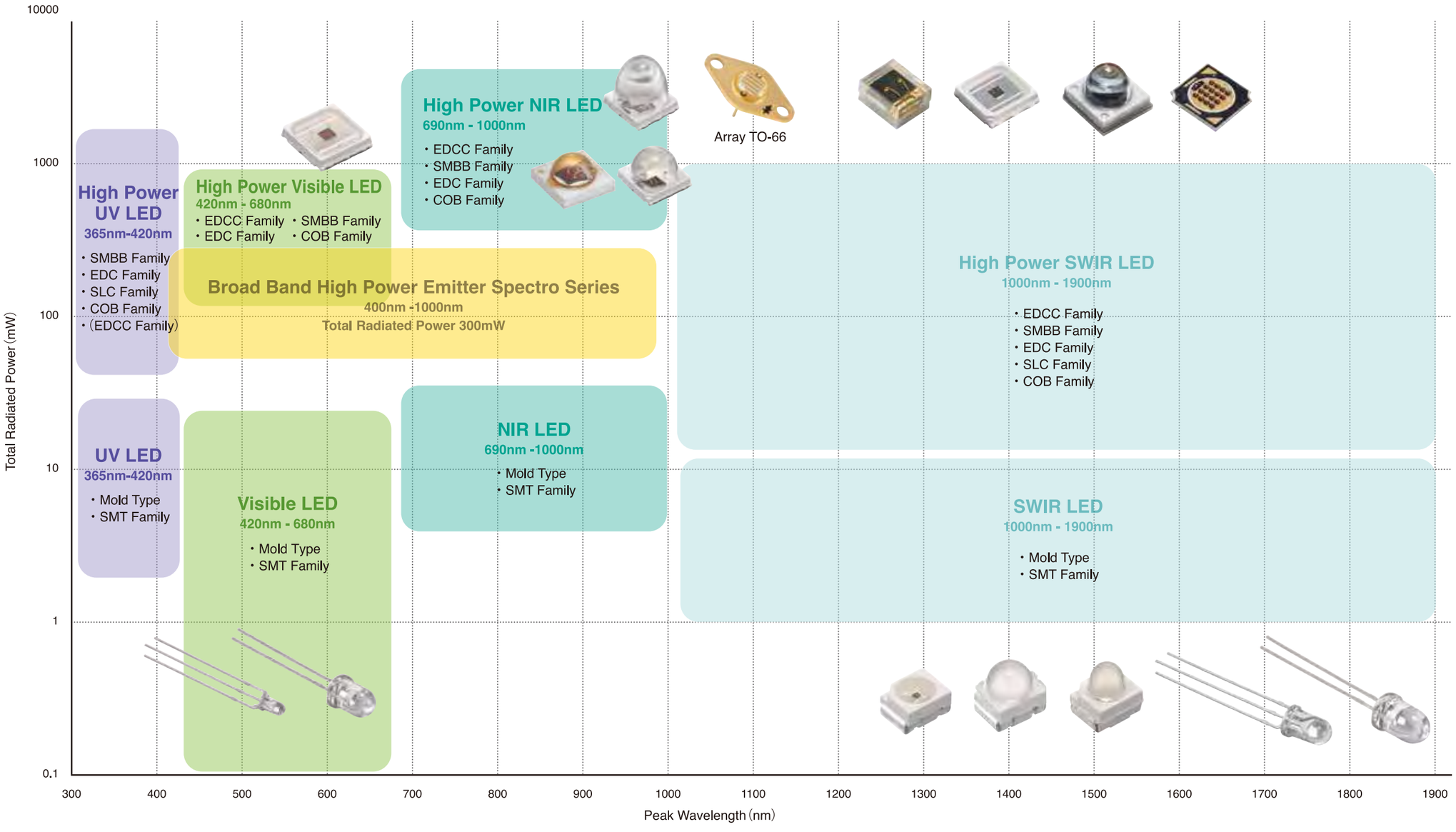
2412K⑤-200Ei①

Product Map

All wavelengths between 365nm and 1900nm can be offered.

Coverage of all wavelengths in the UV (ultraviolet), visible and IR (infrared) spectra from 365nm to 1900nm.
- Multiple models to support all output power ranges from standard to high power.
- Wide range of packages suitable for your ideal optical design.

We can also offer products that combine photosensors with LEDs.

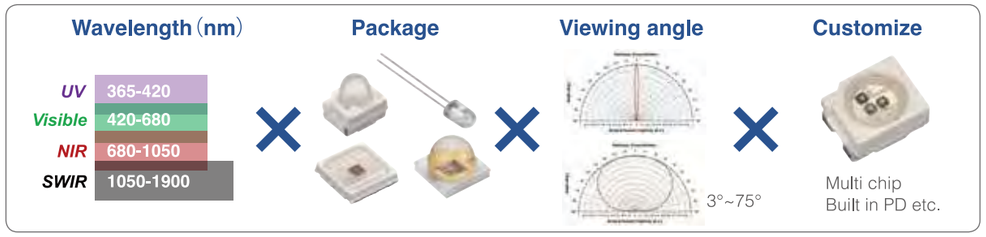


Top quality LEDs at your disposal

1 How to choose LED models

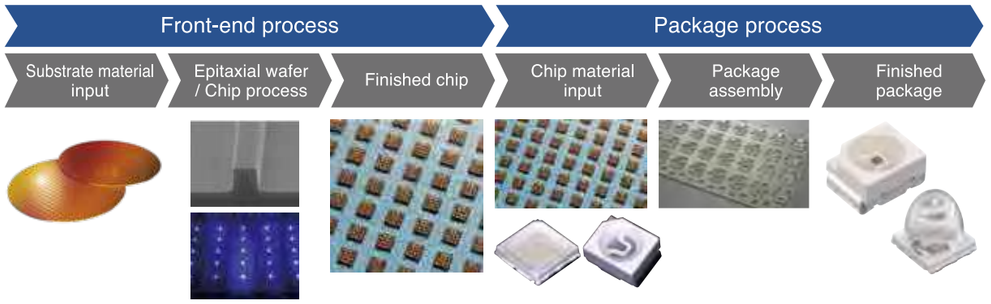
Select Wavelength × Package × Viewing angle × (Customize)

Our "epitex" series LED covers a wide range of wavelengths in the ultraviolet (UV), visible and infrared (IR) spectra, from 365 nm to 1900 nm, Ushio manufactures various types of LEDs to meet the requirements of the application.



Over 30 years know-how based on whole manufacturing process

Over 30 years of know-how based on complete manufacturing process.
Ushio owns the entire process in-house, from epi formation to packaging process. Utilizing our expertise, we provide products that meet the requirements of the application, such as multiple wavelengths & photodiode in 1 package in the desired size from more than 1500 LED configurations, as well as customized designs.



2 Wide wavelength range covering

UV 365 nm to SWIR 1900 nm

You can select the suitable LED wavelength for your application, with shorter wavelength emitters available in 20 nm increments (below 1000 nm), and longer wavelength emitters every 50 nm (over 1000 nm).

UV	365nm	375nm	385nm	395nm	405nm	415nm	420nm					
Violet	430nm	435nm	450nm									
Blue	470nm	490nm										
Green	505nm	520nm	525nm	545nm	550nm	565nm						
Yellow	570nm	590nm										
Orange	600nm	610nm	620nm									
Red	630nm	640nm	660nm	670nm	680nm							
IR/GaAs	690nm	700nm	710nm	720nm	730nm	735nm	740nm	750nm	760nm	770nm	780nm	790nm
	800nm	810nm	820nm	830nm	840nm	850nm	870nm	880nm	890nm	910nm	940nm	970nm
	980nm	1050nm	1100nm									
IR/InP	1050nm	1070nm	1100nm	1150nm	1200nm	1300nm	1370nm	1450nm	1550nm	1650nm	1750nm	1900nm

3 Multiple packages to fit your optics

Single Chip Package Lineup

You can select your favorite packages from molded to SMD depending on your application, size and viewing angle.

Output Power	Standard			High			
ChipSize	270μm×170μm	300μm, 350μm, 400μm		1mm or More			
Package	EDP Family	Mold Type	SMT Family	EDCC Family	EDC Family	SMBB Family	SLC Family
	0.6mm×0.3mm	3φ / 5φ	3.5mm×2.8mm	1.5mm×1.85mm	3.45mm×3.45mm	5.2mm×5mm	3.9mm×3.9mm
	Under Development			New			Glass lens package
							

Multi-Chip Package Lineup

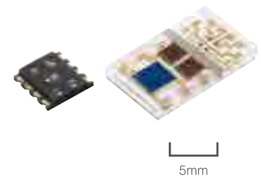
You can choose from a wide range to ensure both fine wavelength selection and multiple wavelength combinations.
Photosensors can also be provided according to the light source.

		Sterm	8 in 1	SMT Family	SMBB Family
Package image			New 		
Package Size		TO-5, TO-18, TO-46	2.9mm×2.2mm	3.5mm×2.8mm	5.2mm×5mm
Number of Chips	Standard Power 300μm-400μm□	7pcs Max. Please Ask	8pcs Max.	3pcs Max.	5pcs Max.
	High Power 1mm□-	—	—	—	3pcs Max.

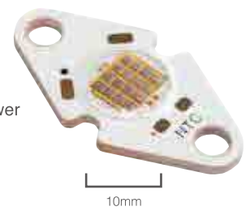
Offer custom packages for your ideal optical design

Please contact us even if you don't find the package design you need.
We will consider the optimal design according to your request.

Standard Power



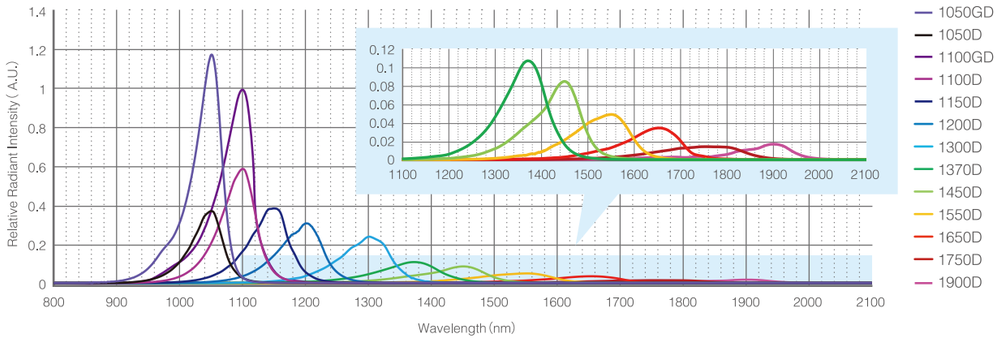
High Power



Short Wavelength Infrared LED

Features

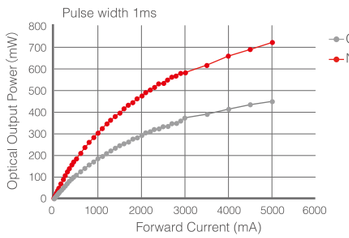
- Epitex series offers the world's highest class SWIR LED output power.
- Standard center wavelength is 1050,1070,1100,1150,1200,1300,1370,1450,1550,1650,1750,1900nm.
- We can also propose a more unique wavelength selection according to the customer's requirement.



New High Power Pulse Drive SWIR LED

Sample Available

- Reduced watt cost with higher output per LED (limited to pulsed drive) .
- Wavelength available from 1050nm to 1900nm.

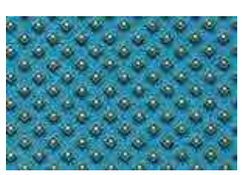


SMBB Package 1300nm

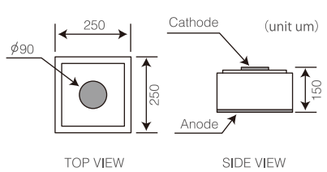
	PO (mW) Pulse IF=4A	VF (V) Pulse IF=4A
Conventional Product	400	2.4
New Product	660	4.9

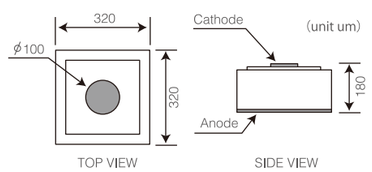
SWIR LED Bare Chip

- The epitex series also offers bare chips in the SWIR wavelength range in 250μm x 250μm and 320μm x 320μm sizes.
- Standard wavelengths include 1050, 1070, 1100, 1150, 1200, 1300, 1370, 1450, 1550, 1650, 1750, and 1900 nm.
- Wavelengths and chip sizes can be customized upon request.



Microphotograph

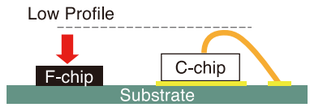




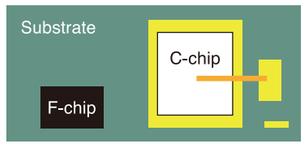
New SWIR Flip-Chip LED

- Samples of the world's first flip-chip LED using InP materials have been released.
- It is 45% smaller than existing products while maintaining the same light output with high efficiency.
- Bonding without wire results in low-profile and adaptable installation.
- Available as a bare chip (170μm × 270μm) or in a 0603 EDP package (600μm × 300μm) ※1

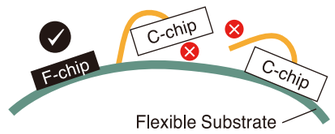
Low Profile



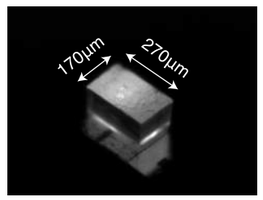
Compact Footprint



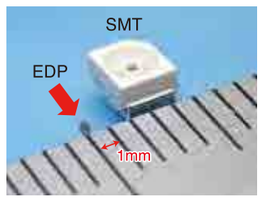
Flexible Mounting



Bare Chip



Package -EDP Family-



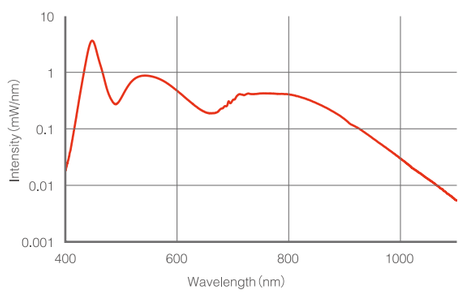
Comparison with SMT Package

※1 Please contact us for any custom specifications, including size, output, and chip combination, etc.

Spectro Series

Features

- The Spectro series are high-power, broadband LEDs capable of emitting visible to near-infrared light.
- It is hoped that Spectro will enable an individual to measure with spectroscopy at hand.



Total Radiated Power (typ) (λ =400-500nm)	140mW (IF 500mA)
Total Radiated Power (typ) (λ =500-1000nm)	160mW (IF 500mA)

Compact High-Power LED

EDCC Family New

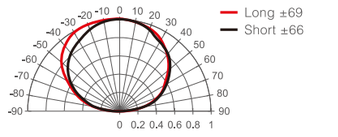
Features

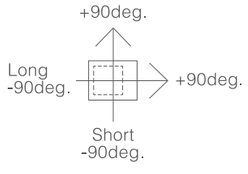
- All wavelengths from 365nm to 1900nm can be offered.
- Compact-sized package, comparable to CSP and high-power 1mm×1mm LED chips, facilitating easy customization in an SMD-type LED format.
- Package design optimized for high-density integration.

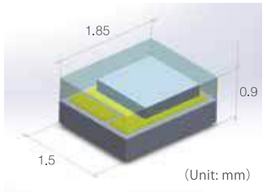
Specifications [e.g. EDCC*****]

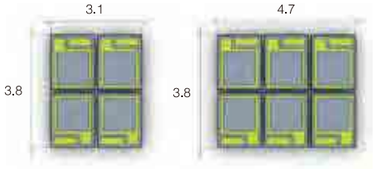
Flat Type

- Viewing Half Angle: Long ±69 Short ±66









Makes it easy to create unique designs,
e.g. high-density mounting of multiple LEDs together
or mixing multiple wavelengths.

High Power TOP LED

SMBB Family

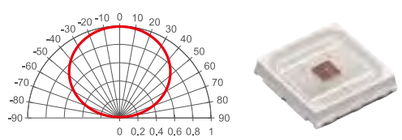
Features

- All wavelengths from 365nm to 1900nm can be offered.
- High power TOP LED using 1mm x 1mm chip.
- Package of 5mm x 5mm equipped with copper heat sink.
- Max. 3 pcs of 1mm x 1mm size chip can be mounted.

Specifications [e.g. SMBB760D Series]

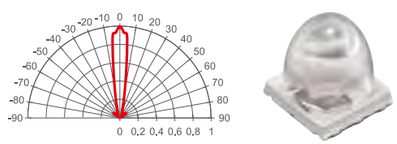
Flat Type

- Viewing Half Angle: ±64 deg.



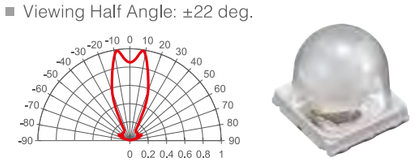
02 Lens Type

- Viewing Half Angle: ±9 deg.



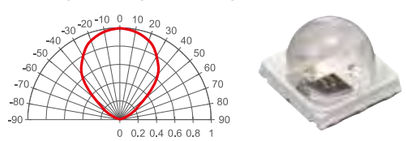
03 Lens Type

- Viewing Half Angle: ±22 deg.



05 Lens Type

- Viewing Half Angle: ±45 deg.



High Power TOP LED

EDC Family

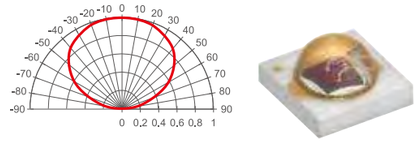
Features

- All wavelengths from 365nm to 1900nm can be offered.
- High power TOP LED using 1mm x 1mm chip.
- Ceramic Package of 3.5mm x 3.5mm.

Specifications [e.g. EDC850DS Series]

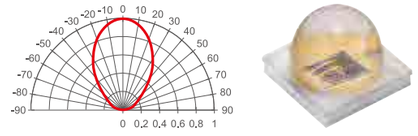
Flat Type

- Viewing Half Angle: ±66 deg.



S5 Lens Type

- Viewing Half Angle: ±39 deg.



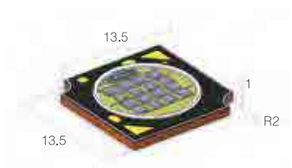
High Power Emitter

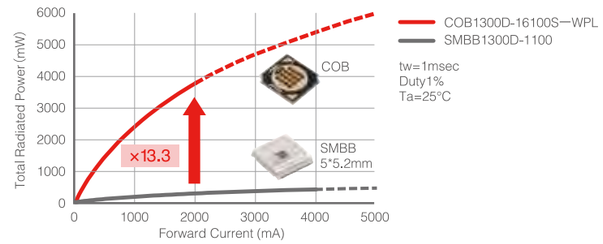
COB Family New

Features

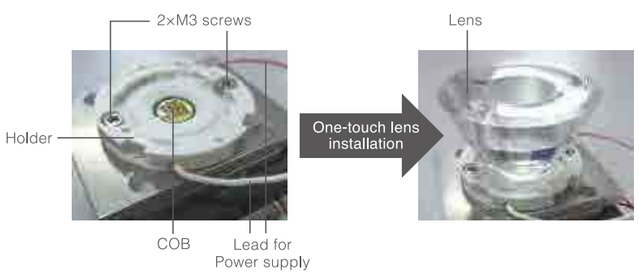
- All wavelengths of 1mm x 1mm high power chips from visible to SWIR can be mounted.
- Improved light extraction efficiency by placing a potting lens on each LED chip.
- On-board NTC thermistor.
- Optimal applications include infrared lighting, machine vision, surveillance cameras, and optical sorting.

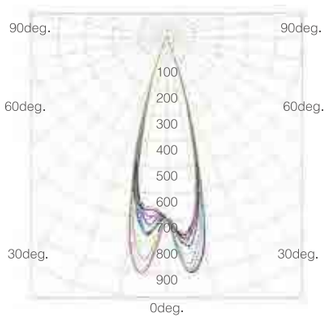
Specifications [e.g. COB*****]





Holders, lenses and other accessories available for general purpose COBs can be used. (e.g. LEDiL C16686_ILONA-RS)





Surface Mount Type LED

SMT Family

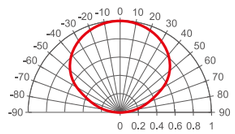
Features

- All wavelengths from 365nm to 1900nm can be offered.
- Package dimension: 3.5mm × 2.8mm.

Specifications [e.g. SMT780 Series except 22 lens]

Flat Type

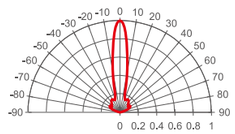
- Viewing Half Angle: ±62 deg.



SMT with Silicone Lens

S1 Lens Type

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

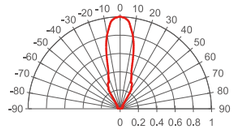


SMT with Epoxy Lens (Allowable Wavelengths: between 470nm and 1,650nm)

22 Lens Type

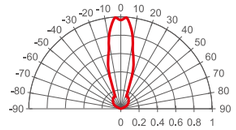
- SMT with Epoxy Lens
- Viewing Half Angle: ±15 deg.

★ Appicable for specific wavelength ・SWIR Dtype ・NIR D and DS type
[e.g. SMT1550D-22]



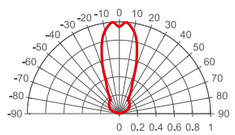
23 Lens Type

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



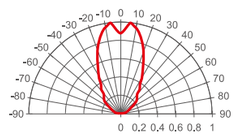
25 Lens Type

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



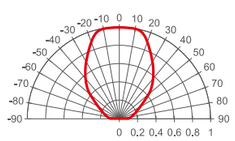
27 Lens Type

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



29 Lens Type

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



Molded Type

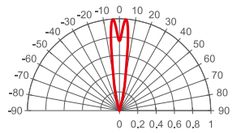
Features

- Plastic Molded Type LED.
- All wavelengths from 365nm to 1900nm can be offered.

Specifications [e.g. L750-AU Series]

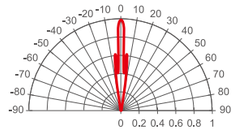
01 Lens Type

- ϕ5 Plastic Molded LED
- Viewing Half Angle: ±10 deg.



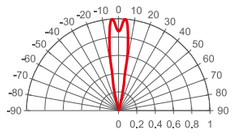
02 Lens Type

- ϕ5 Plastic Molded LED
- Viewing Half Angle: ±8 deg.

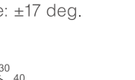


03 Lens Type

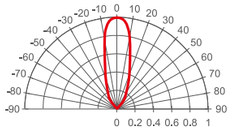
- ϕ5 Plastic Molded LED
- Viewing Half Angle: ±10 deg.



04 Lens Type

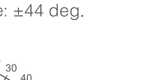


- ϕ5 Plastic Molded LED
- Viewing Half Angle: ±17 deg.

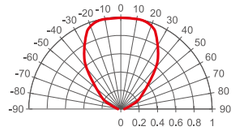


NRND

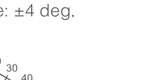
05 Lens Type



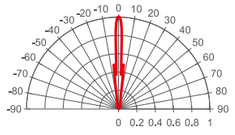
- ϕ5 Plastic Molded LED
- Viewing Half Angle: ±44 deg.



06 Lens Type



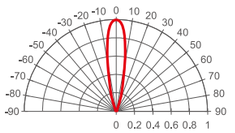
- ϕ5 Plastic Molded LED
- Viewing Half Angle: ±4 deg.



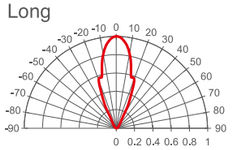
09 Lens Type

- ϕ5 Plastic Molded LED
- Viewing Half Angle:
  Short: ±10 deg. Long: ±21 deg.

Short

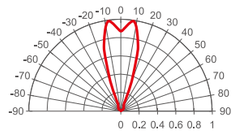


Long



33 Lens Type

- ϕ3 Plastic Molded LED
- Viewing Half Angle: ±17 deg.



36 Lens Type

- ϕ3 Plastic Molded LED
- Viewing Half Angle: ±32 deg.