

JAPAN USHIO INC.
1-6-5 Marunouchi Chiyoda-ku, Tokyo 100-8150 JAPAN
TEL: +81 3-5657-1040
FAX: +81 3-5657-1044

ASIA USHIO HONG KONG LTD. / 牛尾香港有限公司
Suites 3113-14, 31/F, Tower 6, The Gateway, 9 Canton Road,
Tsim Sha Tsui, Kowloon, Hong Kong
TEL: +852 2756-7880
FAX: +852 2798-9861

USHIO TAIWAN, INC. / 優志旺股份有限公司
8F, No.4, Sec.1, Zhongxiao W.Rd., Taipei 10041, Taiwan, R.O.C.
TEL: +886-2-2312-3358
FAX: +886-2-2312-3858

USHIO KOREA, INC. / 韓國 우시오株式会社
(Seocho-dong, Deokheung Bldg), 14F, 363, Gangnam-daero,
Seocho-gu, Seoul, 06621 Rep. of Korea
TEL: +82 2-587-1115
FAX: +82 2-587-1118

USHIO SHANGHAI, INC. / 牛尾貿易(上海)有限公司
Hang Seng Bank Tower, 10/F, 1000 Lujiazui Ring Road,
Pudong New Area, Shanghai, 200120, P.R.C.
TEL: +86 21-6841-1135
FAX: +86 21-6841-1150

USHIO ASIA PACIFIC PTE. LTD.
28 Genting Lane, #05-05, Platinum 28, Singapore 349585
TEL: +65 6274-5311
FAX: +65 6274-5300

AMERICA USHIO AMERICA, INC.
801 Ames Avenue, Milpitas, CA 95035, U.S.A.
TEL: +1 669-244-6417
FAX: +1 408-404-0817

EUROPE USHIO EUROPE B.V.
Breguetlaan 53, 1438 BD Oude Meer, The Netherlands
TEL: +31 20-446-9333



Opto Devices

Product Information

LED

Product Map

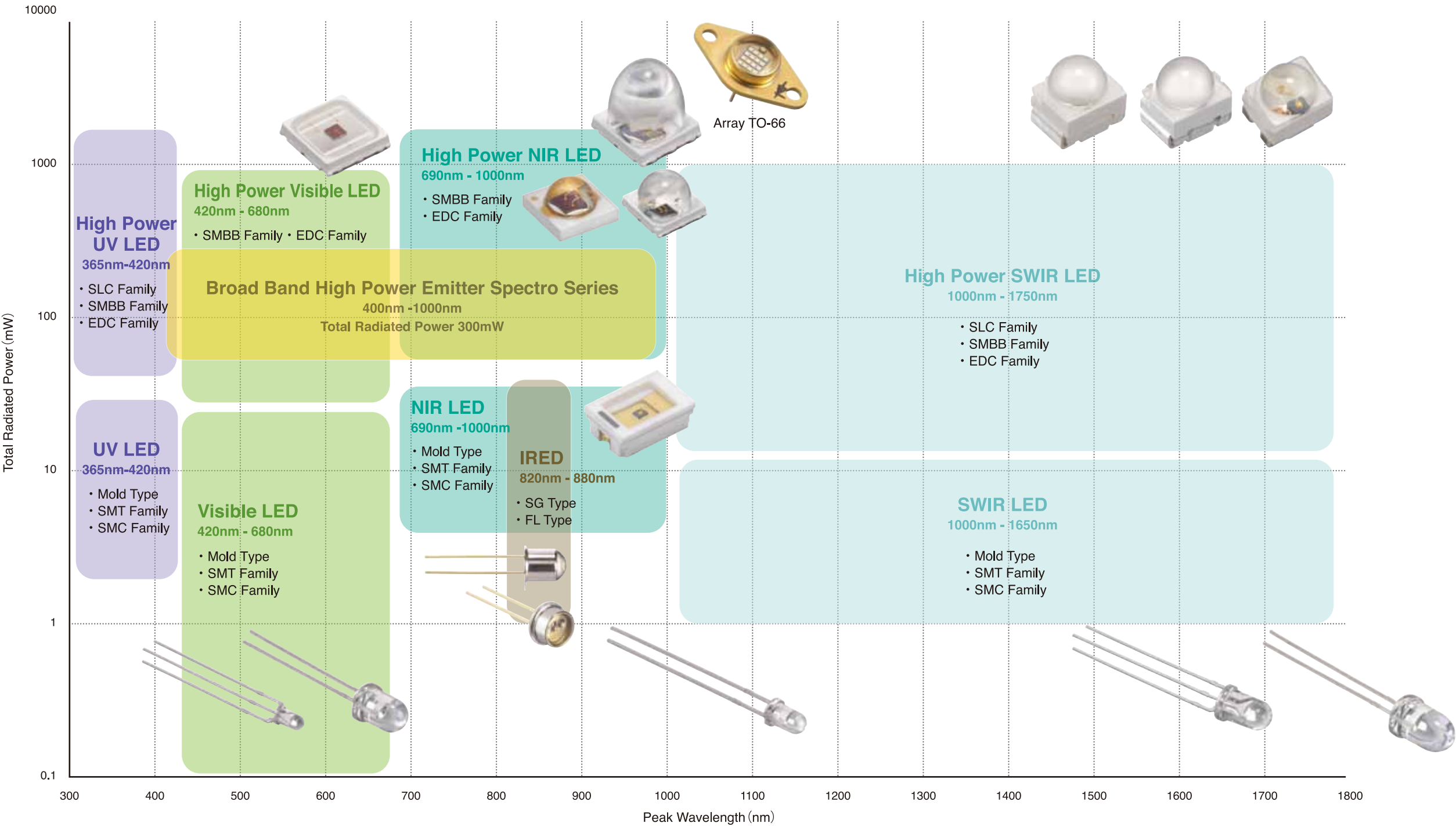
All wavelengths between 365nm and 1,750nm can be offered.

epitex Series

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

- Various models supporting all output ranges from low power to high power
- Wide-range packages line up suitable for your ideal optical design.

We can also propose products that combine photo sensors with LEDs.



IRED Series

High output is achieved through the use of the unique domed-chip formation technology. And an excellent beam shape is provided by precision lens (package) design technology. Enable a suitable product selection as the light source for NC machine tools, robots, ophthalmoscopes and position detection equipment.

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 1750 nm. Ushio manufactures multiple classes of LEDs that meet the demands of the application

Wavelength (nm)

UV365-395

Visible405-700

NIR720-980

SWIR1050-1750

Package

Viewing angle

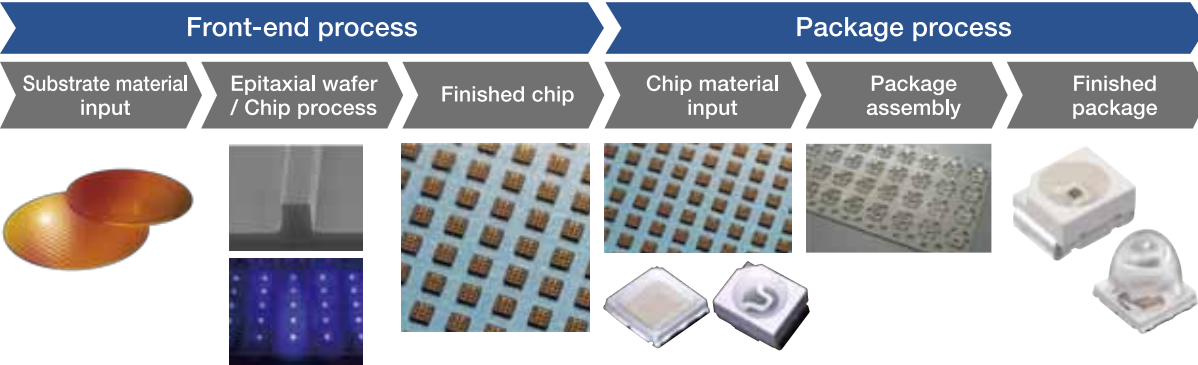
3°~75°

Customize

Multi chip
Built in PD etc.

Over 30 years know-how based on whole manufacturing process

Ushio owns whole process internally, from epi formation to packaging process. Utilizing our expertise, we provide products that meet the demands 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 1750 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	525nm	545nm	565nm															
Yellow	570nm	590nm																	
Orange	600nm	610nm	620nm																
Red	630nm	640nm	660nm	670nm	680nm	690nm	700nm	710nm	720nm	730nm	735nm	740nm							
	750nm																		
IR/GaAs*	760nm	770nm	780nm	800nm	810nm	820nm	830nm	840nm	850nm	870nm	880nm	890nm							
	910nm	940nm	950nm	970nm	980nm	1050nm													
IR/InP*	1050nm	1100nm	1150nm	1200nm	1300nm	1450nm	1550nm	1650nm	1750nm										

3 Various packages suitable for your optics

Single chip package lineup

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

ChipSize	300μm, 350μm, 400μm					500μm, 600μm	1mm or More	
Output Power	Standard					Medium		
Line Up	epitex			iRED		iRED	epitex	
	Mold Type	SMC Family	SMT Family	FL Type	SG Type	SG Type	SMBB Family	EDC Family
Package								

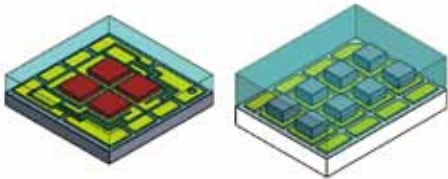
Multi chip package lineup

You can select from a vast line-up to guarantee both fine wavelength selection and multiple wavelength combinations. Photosensors can be provided according to the light source as well.

	SMTT Family	SMT Family	SMTQ Family	SMB Family	SMBB Family
Desogn image					
Size	3,2mm×2,8mm	3,5mm×2,8mm	3,5mm×2,8mm	7,4mm×5mm	5,2mm×5mm
Number of Chips (300μm-400μm)	3pcs Max.	3pcs Max.	3pcs Max.	5pcs Max.	—
Number of Chips (1mm-)	—	—	—	3pcs Max.	3pcs Max.

Deal in customized packages for your ideal optical design

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



epitex Series

High Power TOP LED
SMBB Family



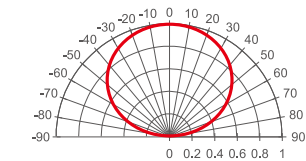
Features

- All wavelengths between 365nm and 1,650nm 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]

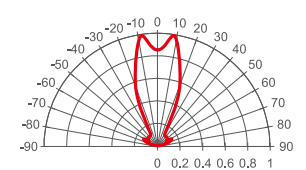
Flat Type

- Viewing Half Angle: ± 64 deg.



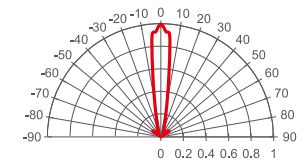
03 Lens Type

- Viewing Half Angle: ± 22 deg.



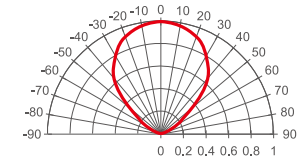
02 Lens Type

- Viewing Half Angle: ± 9 deg.



05 Lens Type

- Viewing Half Angle: ± 45 deg.



epitex Series

High Power TOP LED
EDC Family



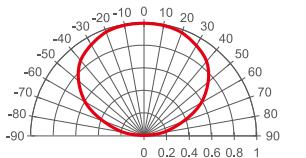
Features

- All wavelengths between 365nm and 1,650nm 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]

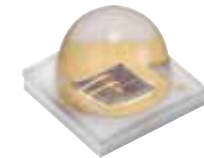
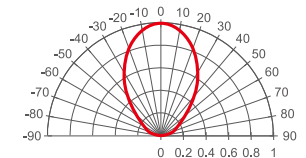
Flat Type

- Viewing Half Angle: ± 66 deg.



S5 Lens Type

- Viewing Half Angle: ± 39 deg.



epitex Series

Surface Mount Type LED
SMT Family



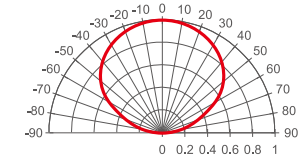
Features

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

Specifications [e.g. SMT780 Series]

Flat Type

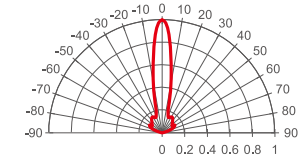
- Viewing Half Angle: ± 62 deg.



SMT with Silicone Lens

S1 Lens Type

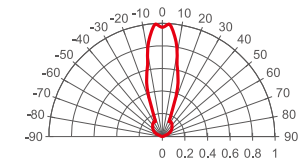
- SMT with Silicone Lens
- Viewing Half Angle: ± 10 deg.



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

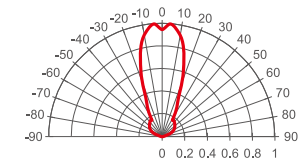
23 Lens Type

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



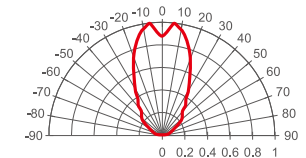
25 Lens Type

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



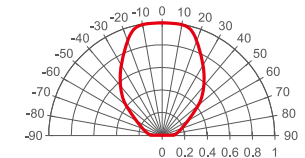
27 Lens Type

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

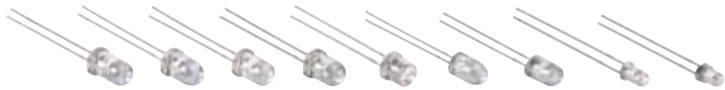


29 Lens Type

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



Molded Type



Features

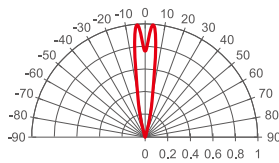
- Plastic Molded Type LED

Specifications [e.g. L750-AU Series]

01 Lens Type



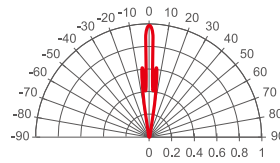
- ϕ 5 Plastic Molded LED
- Viewing Half Angle: ± 10 deg.



02 Lens Type



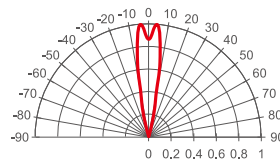
- ϕ 5 Plastic Molded LED
- Viewing Half Angle: ± 8 deg.



03 Lens Type



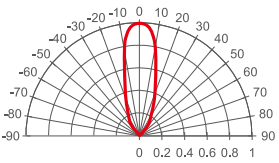
- ϕ 5 Plastic Molded LED
- Viewing Half Angle: ± 10 deg.



04 Lens Type



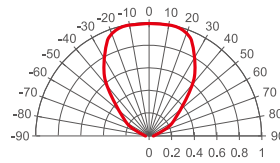
- ϕ 5 Plastic Molded LED
- Viewing Half Angle: ± 17 deg.



05 Lens Type



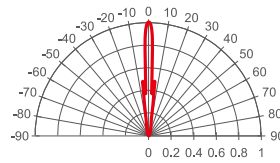
- ϕ 5 Plastic Molded LED
- Viewing Half Angle: ± 44 deg.



06 Lens Type



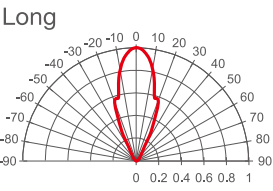
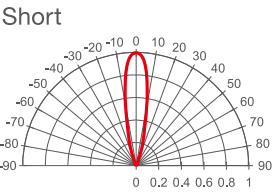
- ϕ 5 Plastic Molded LED
- Viewing Half Angle: ± 4 deg.



09 Lens Type



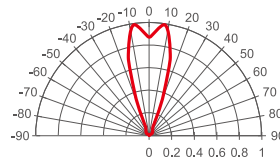
- ϕ 5 Plastic Molded LED
- Viewing Half Angle:
Short: ± 10 deg. Long: ± 21 deg.



33 Lens Type



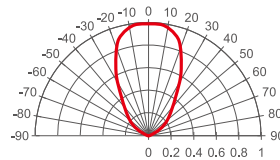
- ϕ 3 Plastic Molded LED
- Viewing Half Angle: ± 17 deg.



36 Lens Type



- ϕ 3 Plastic Molded LED
- Viewing Half Angle: ± 32 deg.



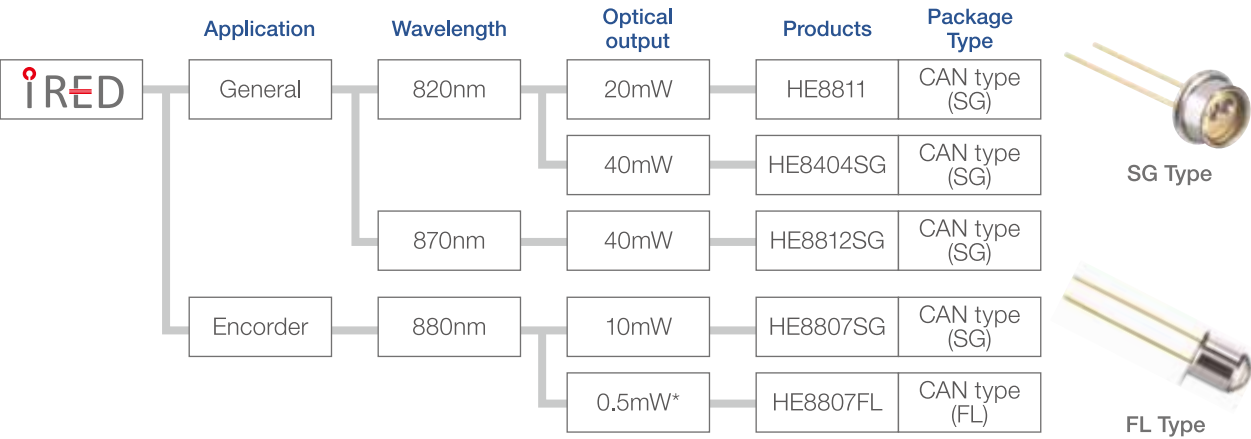
[Infrared Light Emitting Diodes]



Features

- Achieve high optical power by unique domed-chip formation technology.
- 2 wavelength bands line up of 820nm/870nm
- Set up SG-type of wide radiation beam and FL-type of collimated beam

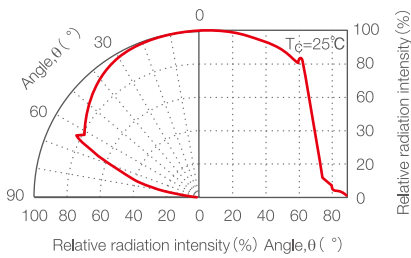
IREd's Product Lineup



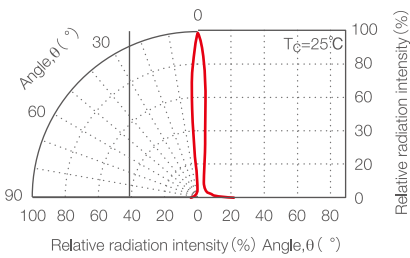
★ : The optical output within 9 degrees of the acceptance angle.

IREd Radiation Directional

SG Type



FL Type



IREd's Main Characteristics

Part No.	Absolute Maximum Rating		Optical and Electrical Characteristics												Test Conditions
	Forward current (mA)	Operating temperature (°C)	Optical output power (mW)			Peak wavelength (nm)			Spectral width (nm)			Forward voltage (V)			
			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=150mA
HE8404SG	250	-20 to 60	40	50	-	790	820	850	-	50	60	-	1.9	2.5	IF=200mA
HE8812SG	250	-20 to 60	40	50	-	840	870	900	-	50	60	-	1.8	2.5	IF=200mA
HE8807SG	200	-20 to 85	10	15	-	800	880	900	-	30	60	-	1.7	2.3	IF=150mA
HE8807FL	200	-20 to 85	0.5*	1.0*	-	800	880	900	-	30	60	-	1.7	2.3	IF=150mA

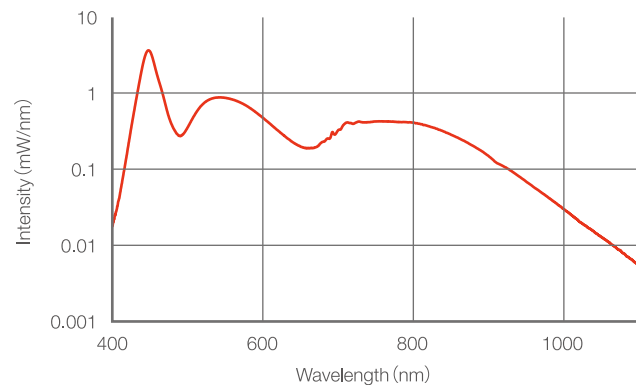
★ : The optical output within 9 degrees of the acceptance angle.



Spectro Series

Features

- Spectro is high-output broadband LEDs capable of emitting visible light to near-infrared light.
- It is hoped that Spectro enables an individual to measure the sugar content or fat content of foodstuffs.

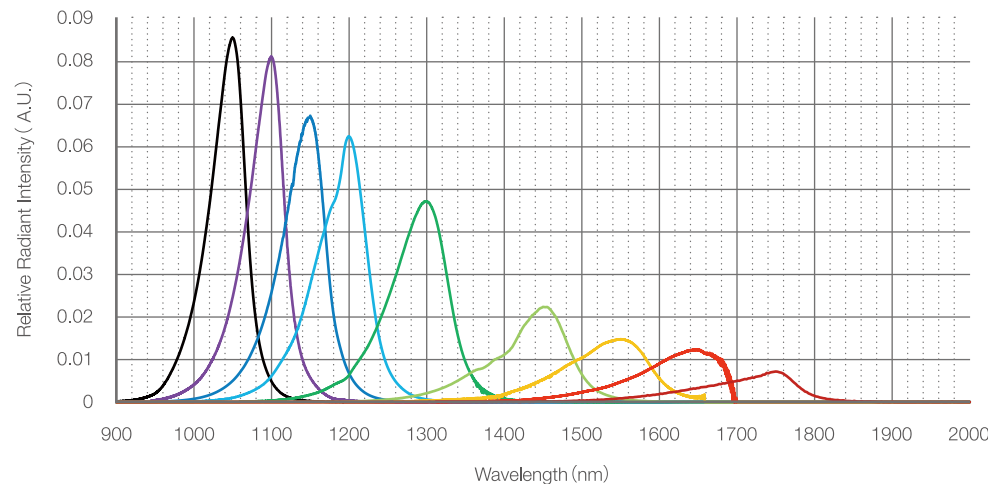


Total Radiated Power (typ) (λ=400-500nm)	140mW (if 500mA)
Total Radiated Power (typ) (λ=500-1000nm)	160mW (if 500mA)

Short Wavelength Infrared LED

Features

- epitex offers the world highest class output power SWIR LED.
- Standard center wavelengths is 1050,1100,1150,1200,1300,1450,1550,1650,1750 nm.
- We can also propose a more unique wavelength selection according to the customer's required volume.

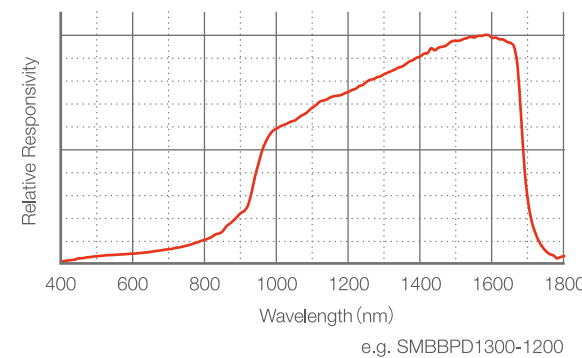


Photosensor

Features

- We offer a variety of photosensor products according to the to the light source as well.
- Not only single chip products of mold or surface mount package but also products combining LED and photodiode in one package are available.

Relative Responsivity vs. Wavelength



Ushio provides the best light source solution

- We will continue to create innovative LED and other products owing to contribution of Ushio's technology and experiences.
- As Ushio Inc, we can propose not only LEDs but also optimized optical solutions for customers through a variety of light source products.

