

LED450-series



TECHNICAL DATA

Visible LED InGaN

LED450-series are InGaN LEDs mounted on a lead frame and encapsulated in various types of epoxy lens, which offers different design settings.

On forward bias, it emits a high power radiation of typical 20 mW at a peak wavelength at 450 nm.

Specifications

Structure: InGaN

Peak Wavelength: typ. 450 nm
Optical Ouput Power: typ. 20 mW
Resin Material: Epoxy resin

Solder: Lead free



Absolute Maximum Ratings (T_a=25°C)

Туре	Symbol	Value	Unit
Power Dissipation	P_{D}	200	mW
Forward Current	l _F	50	mA
Reverse Voltage	V_R	5	V
Operating Temperature	T _{OP}	-30 +85	°C
Storage Temperature	T_{STG}	-40 +100	°C
Soldering Temperature (for 5 sec.)	T _{SOL}	265	°C

Electro-Optical Characteristics (T_a=25°C)

Item	Symbol	Condition	Min.	Тур.	Max.	Unit
Forward Voltage	V_{F}	$I_F = 20 \text{ mA}$	-	3.3	4.0	V
Reverse Current	I_R	$V_R = 5 V$	-	-	10	μA
Radiated Power	Po	$I_F = 20 \text{ mA}$	-	20	-	mW
Peak Wavelength	λ_{P}	$I_F = 20 \text{ mA}$	440	450	460	nm
Half Width	Δλ	$I_F = 20 \text{ mA}$	-	25	-	nm



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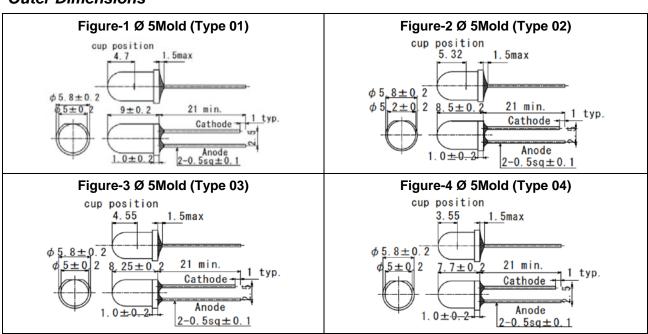
Characteristics of Radiant Intensity (T_a=25°C)

Туре	Viewing Half Angle	Brightness / Radiation Intensity (I _F = 20 mA) [Unit: mcd]			Outer Dimension	Dimension Figure
	3.0	Min.	Тур.	Max.		1.5
LED450-01	±8°		2400		Ø5	1
LED450-02	±5°		2500		Ø5	2
LED450-03	±10°		2400		Ø5	3
LED450-04	±20°		1000		Ø5	4
LED450-05	±50°		150		Ø5	5
LED450-06	±4°		4500		Ø5	6
L ED450.00	±25° (long)		4200		Ø5	7
LED450-09	±10° (short)		1300		Oval	
LED450-46					Ø5	8
LED450-41	±14°				Ø 4	9
LED450-42	±20°				Ø 4	10
LED450-31					Ø3	11
LED450-33	±13°		1200		Ø 3	12
LED450-34					Ø3	13
LED450-36	±25°		500		Ø 3	14

^{*} Radiant Power is measured by S3584-08

The above specifications are for reference purpose only and subjected to change without prior notice.

Outer Dimensions



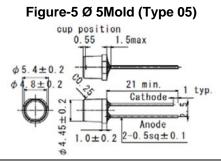
^{*} Brightness is measured by TekTronix J-16





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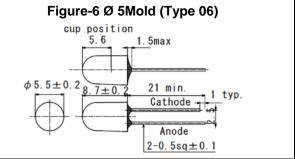
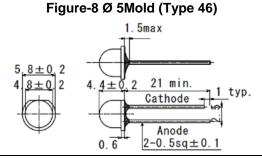
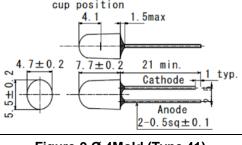
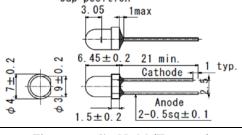


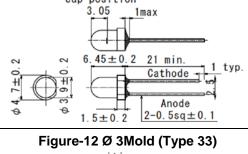
Figure-7 Ø 5Mold (Type 09) cup position 1.5max 7.7 ± 0.2 21 min. ¶1 typ.

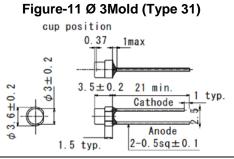


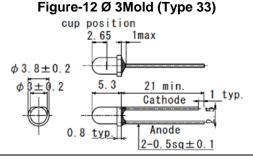


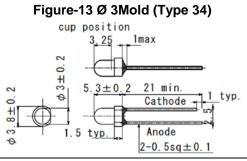


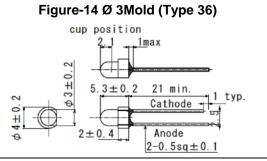










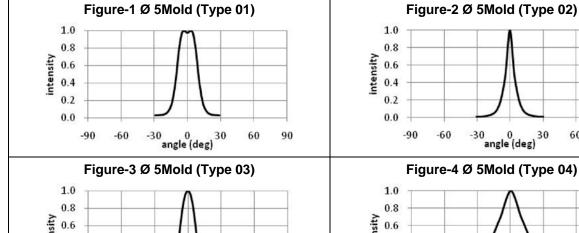


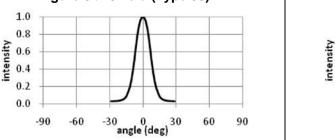


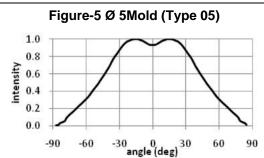


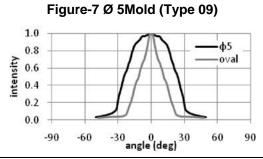
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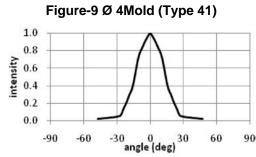
Viewing half angle

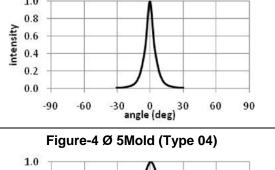


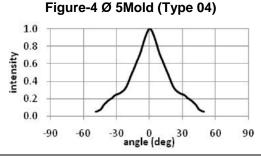












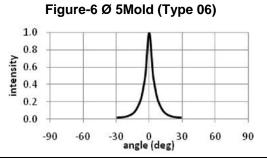
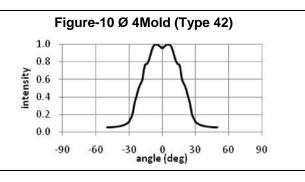


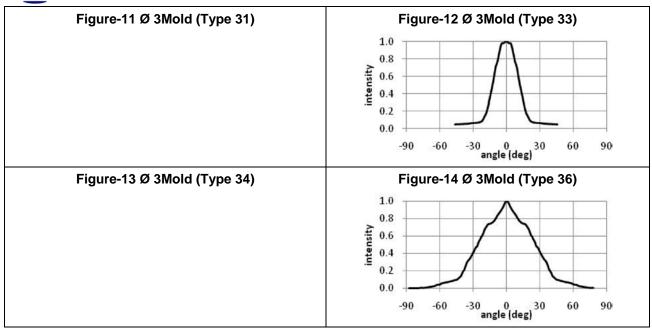
Figure-8 Ø 5Mold (Type 46)



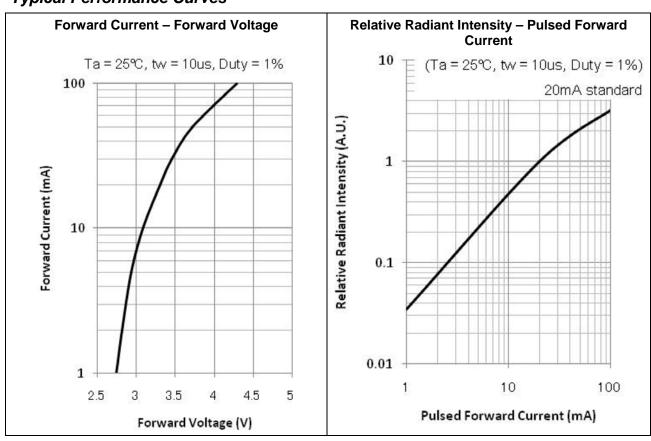


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Typical Performance Curves



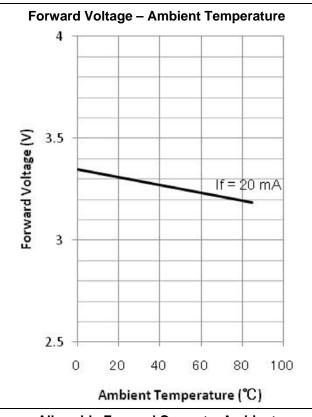




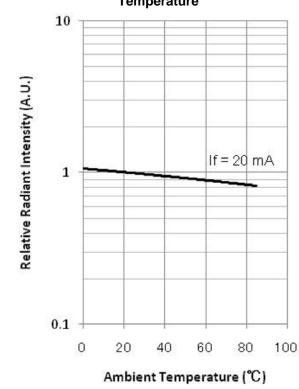
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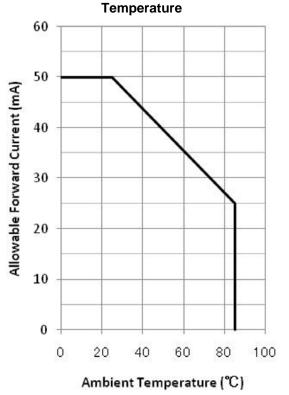
Forward Current - Pulse Duration



Relative Radiant Intensity – Ambient Temperature



Allowable Forward Current – Ambient Temperature

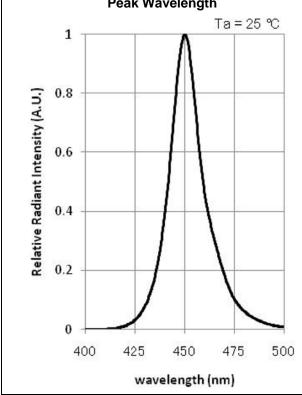


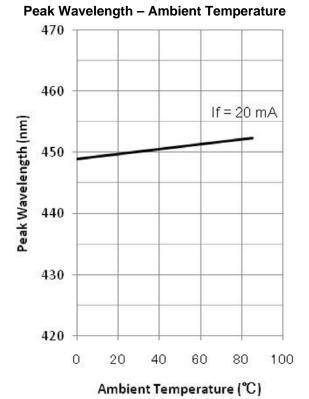


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Precaution for Use

1. Cautions

DO NOT look directly into the emitted light or look through the optical system. To prevent in adequate exposure of the radiation, wear protective glasses.

2. Lead Forming

- When forming leads, the leads should be bent at a point at least 3 mm from the base of the lead. DO NOT use the base of the leadframe as a fulcrum during lead forming.
- Lead forming should be done before soldering.
- DO NOT apply any bending stress to the base of the lead. The stress to the base may damage the LED's characteristics or it may break the LEDs.
- When mounted the LEDs onto the printed circuit board, the holes on the circuit board should be exactly aligned with the leads of LEDs. If the LEDs are mounted with stress at the leads, it causes deterioration of the lead and it will degrade the LEDs.

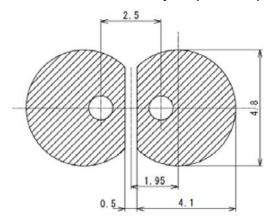


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Recommended Land Layout (Unit: mm)

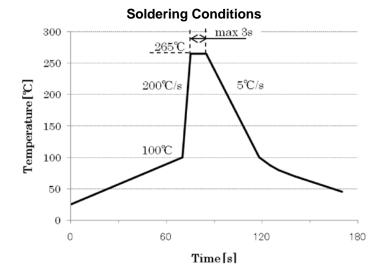


3. Soldering Conditions

Solder the LEDs no closer than 3 mm from the base of the lead.

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- DO NOT apply any stress to the lead particularly when heat.
- The LEDs must not be reposition after soldering.
- After soldering the LEDs, the lead should be protected from mechanical shock or vibration until the LEDs return to room temperature.
- When it is necessary to clamp the LEDs to prevent soldering failure, it is important to minimize the mechanical stress on the LEDs.
- Cut the LED leads at room temperature. Cutting the leads at high temperature may cause the failure of the LEDs.



4. Static Electricity

- The LEDs are very sensitive to Static Electricity and surge voltage. So it is recommended that a wrist band or an anti-electrostatic glove be used when handling the LEDs.
- All devices, equipment and machinery must be grounded properly. It is recommended that precautions should be taken against surge voltage to the equipment that mounts the LEDs.