



# TOYO LED ELECTRONICS LIMITED

Room 1610, Hong Kong Plaza, 188 Connaught Road West, Hong Kong.

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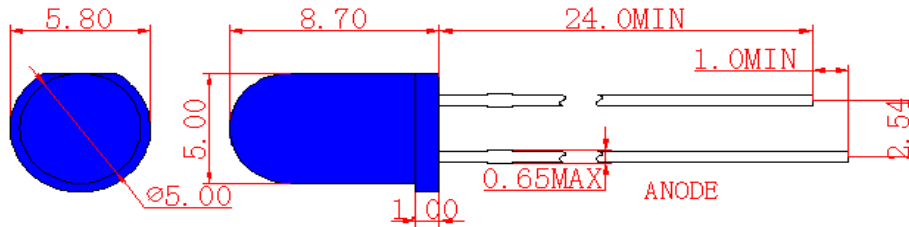
E-mail : sales@toyo-led.com



**P/N: TY-50IR4T20-940-15**

5mm Infrared Emitting Diode Series

## PACKAGE DIMENSION



### Features:

5mm with Infrared Chips

Colloid is blue and transparent

Long Leads

### Absolute Maximum Ratings(Ta=25C °)

Item	Symbol	Maximum	Unit
Power dissipation	Pd	150	mW
Peak Forward Current (1/10 Duty Cycle 0.1ms Pulse Width)	IFP	1	A
Forward Current	IF	100	mA
Reverse Voltage	VR	5	V
Operating Temperature Range	Topr/ Tstg	-40°C to +85°C	
Storage Temperature Range	Topr /Tstg	-40°C to +100°C	

### Electrical / Optical Characteristics(Ta=25C °)

Item	Symbol	Min.	Typ.	Max.	Unit	Condition
Forward Voltage	VF	--	1.20	1.50	V	IF=20mA
Reverse Current	IR	--	--	10	μA	VR=5V
Radiant Intensity	Ee	5	15	--	mW/sr	IF=20mA
Peak Wavelength	λp	--	940	--	nm	IF=20mA
Viewing Angle	2θ ½	--	20	--	deg	IF=20mA

### NOTES:

- All dimensions are in millimeter(mm);
- Tolerance is ±0.25mm unless other specified; luminous intensity tolerance is ±10%;



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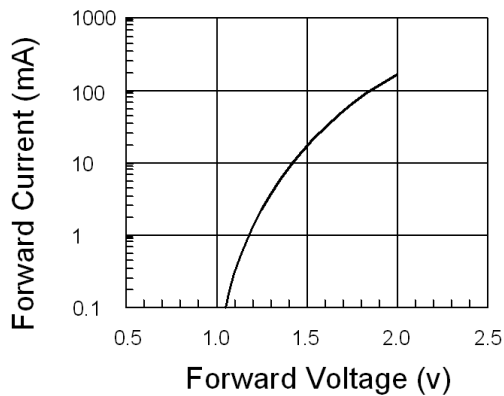
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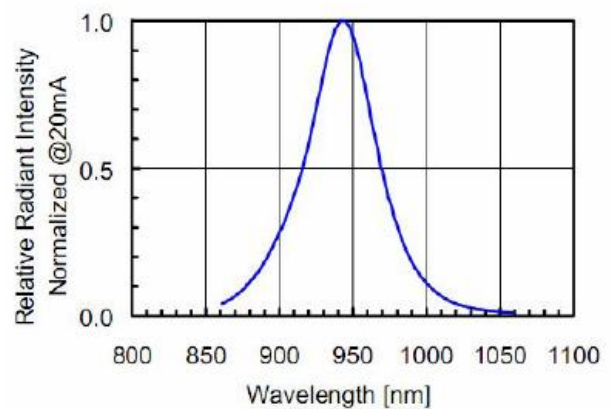
## TYPICAL ELECTRO-OPTICAL CHARACTERISTIC CURVE

### Typical Electro-Optical Characteristics Curves

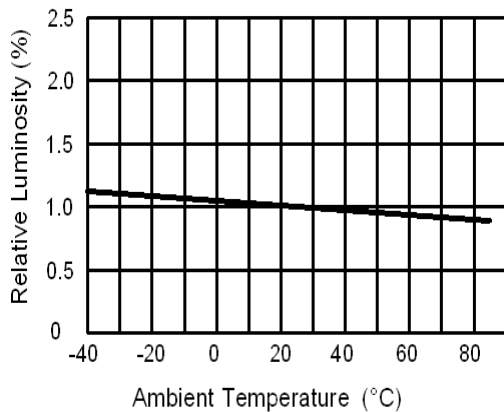
1. Forward Current vs. Forward Voltage



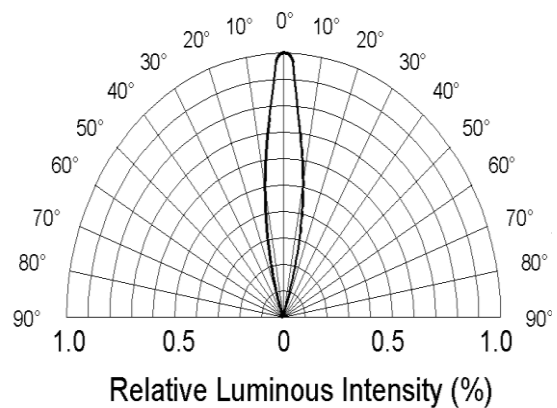
2. Relative Radiant Power vs. Wavelength



3. Relative Luminosity vs. Temperature



4. Relative Radiant Intensity vs. Angular Displacement





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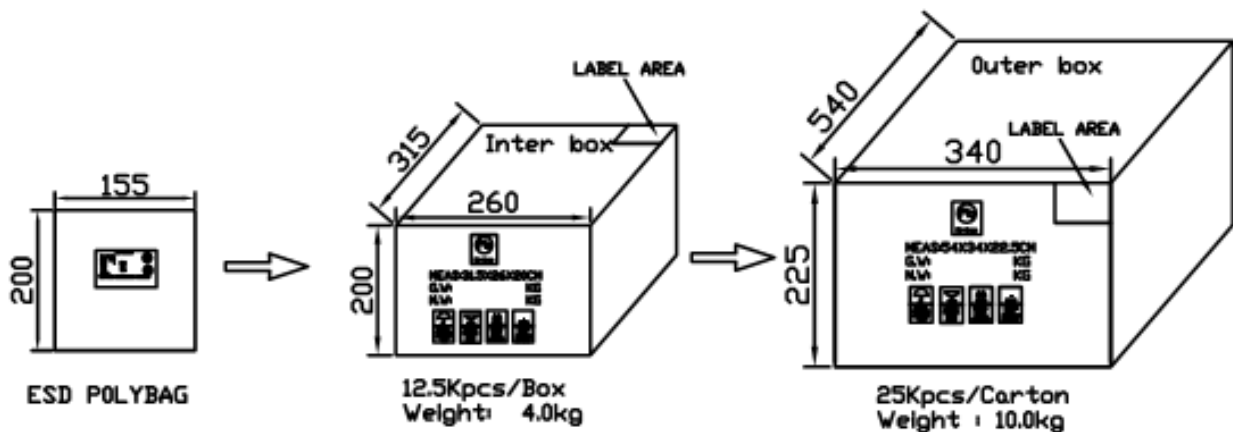
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## BULK PACKING



### Notes:

1. All dimension are in millimeter;
2. Tolerance is  $\pm 0.25\text{mm}$  unless otherwise specified.
3. Not recommend to solder within 3mm from the resin.
4. Any kind of LEDs can be made in taped.



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## OTHER NOTES

### Lead Forming

1. During lead formation, the leads should be bent at a point at least 3mm from the base of epoxy bulb.
2. Before soldering, the lead forming should be completed.
3. Stressing the LED package during leads forming is not allowed. The stress to the base may damage the LED's characteristics or it may break LEDs.
4. Cut the LED lead frames at room temperature and the lead frames cut at high temperatures may cause failure of the LEDs.
5. When mounting the LEDs onto a PCB, the PCB holes must be aligned exactly with the lead position of the LED. If the LEDs are mounted with stress at the leads, it causes deterioration of the epoxy resin and this will degrade the LEDs.

### Storage

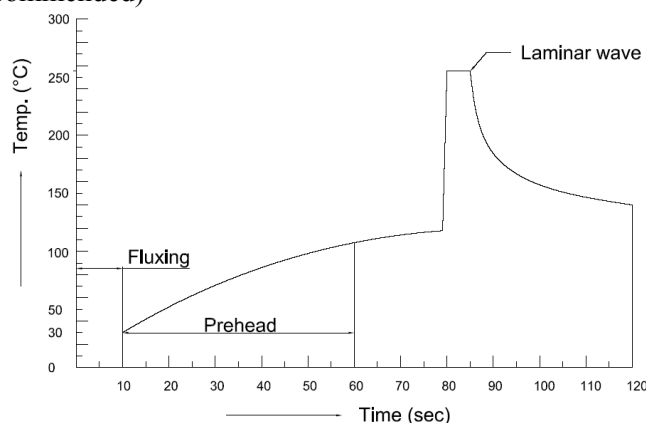
1. The LEDs should be stored at temp.  $\leq 30^{\circ}\text{C}$  & RH.  $\leq 70\%$  after being shipped from TOYO and the storage life limits are 3 months. If the LEDs are stored for 3 months or more, they can be stored for a year in a sealed container with a nitrogen atmosphere and absorbent material.
2. Please avoid rapid transitions in ambient temperature, especially, in high humidity environments where condensation can occur.

### Soldering

1. Careful attention should be paid during soldering. When soldering, leave more than 3mm from solder joint to epoxy bulb, and soldering beyond the base of the tie bar is recommended.
2. Soldering conditions(Recommended):

Hand Soldering		DIP Soldering	
Temp.at tip of iron	300°C, max.(30W max.)	Preheat temp.	100°C max.(60 sec max.)
Soldering time	3 sec max.	Bath temp.&time	260 max., 5 sec max
Distance	3mm min. (From solder joint to epoxy bulb)	Distance	3mm min. (From solder joint to epoxy bulb)

3. Soldering profile(Recommended)





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4. Prevent applying any stress to the lead frame while the LEDs are at high temp. particularly when soldering.
5. Dip and hand soldering should not be done more than one time.
6. After soldering the LEDs, the epoxy bulb should be protected from mechanical shock or vibration until the LEDs return to ambient temperature.
7. Wave soldering parameter must be set and maintain according to recommended temperature and dwell time in the solder wave.
8. A rapid-rate process is not recommended for cooling the LEDs down from the peak temperature. Although the recommended soldering conditions are specified in the above table, dip or hand soldering at the lowest possible temperature is desirable for the LEDs.

### Cleaning

1. At room temperature, cleaning should occur only with isopropyl alcohol for a duration of no more than one minute when necessary. Dry at room temperature before use.
2. Do not clean the LEDs by the ultrasonic. When it is absolutely necessary, the influence of ultrasonic cleaning on the LEDs depends on factors such ultrasonic power and the assembled condition. Ultrasonic cleaning shall be pre-qualified to ensure this will not cause damage to the LED.

### Heat Management

1. Heat management of LEDs must be taken into consideration during the design stage of LED application. The current should be de-rated appropriately by referring to the de-rating curve found in each product specification.
2. Surrounding temperature of LED in the application should be controlled. Please refer to the data sheet de-rating curve.

### Electrostatic Discharge(ESD)

1. LEDs can be damaged by electrostatic discharge or surge current (EOS).
2. An ESD wrist strap, ESD shoe strap or antistatic gloves must be worn whenever handling LEDs.
3. Grounded properly must be applied for all devices, equipment and machinery.
4. Use ion blower to neutralize the static charge which might have built up on surface of the LEDs plastic lens as a result of friction between LEDs during storage and handing.

### Other

1. Above specification may be changed without notice. TOYO will reserve authority on material change for above specification.
2. When using this product, please observe the absolute maximum ratings and the instructions for using outlined in these specification sheets. TOYO assumes no responsibility for any damage resulting from use of the product which does not comply with the absolute maximum ratings and the instructions included in these specification sheets.
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## REVISION HISTORY

DATE	REVISION CONTENTS	VERSION
2015-06-24	New	A