DATASHEET

5mm Infrared LED , T-1 3/4
IR333-A(BY)

Features

- High reliability
- High radiant intensity
- Peak wavelength λp=940nm
- 2.54mm Lead spacing
- Low forward voltage
- Pb free
- This product itself will remain within RoHS compliant version.
- Compliance with EU REACH
- Compliance Halogen Free(Br < 900ppm, Cl < 900ppm, Br+Cl < 1500ppm)

Descriptions

- EVERLIGHT'S Infrared Emitting Diode (IR333-A(BY))is a high intensity diode , molded in a water clear plastic package.
- The device is spectrally matched with phototransistor , photodiode and infrared receiver module.

Applications

Free air transmission system

.Infrared remote control units with high power requirement

.Smoke detector

.Infrared applied system

Device Selection Guide

LED Part No.	Chip Material	Lens Color
IR333C-A(BY)	GaAlAs	Blue clear

Absolute Maximum Ratings (Ta=25℃)

Parameter	Symbol	Rating	Units
Continuous Forward Current	I_F	100	mA
Peak Forward Current(*1)	I_{FP}	1.0	A
Reverse Voltage	V_R	5	V
Operating Temperature	T_{opr}	-25 ~ +85	℃
Storage Temperature	T_{stg}	-40 ~ +85	℃
Soldering Temperature(*2)	T_{sol}	260	℃
Power Dissipation at(or below) 25℃ Free Air Temperature	P_d	150	mW

Notes: *1:I_{FP} Conditions--Pulse Width≦100 μs and Duty≦1%.

*2:Soldering time≦5 seconds.

Electro-Optical Characteristics (Ta=25℃)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Units
Radiant Intensity	Ie	I_F=20mA	21.0	---	48	mW/sr
		I_F=100mA Pulse Width≦100 μs ,Duty≦1%	--	100	--	
		I_F=1A Pulse Width≦100 μs ,Duty≦1%.	--	1000	--	
Peak Wavelength	λp	I_F=20mA	--	940	--	nm
Spectral Bandwidth	Δλ	I_F=20mA	--	45	--	nm
Forward Voltage	V_F	I_F=20mA		1.2	1.5	V
		I_F=100mA Pulse Width≦100 μs ,Duty≦1%	--	1.4	1.7	
		I_F=1A Pulse Width≦100 μs ,Duty≦1%.	--	2.6	4.0	
Reverse Current	I_R	V_R=5V	--	--	10	μA
View Angle	2θ1/2	I_F=20mA	--	20	--	deg

Rank

Condition：I_F=20mA

Unit：mW/sr

Bin Number	Q	R
Min	21.0	30
Max	34.0	48

Note:

*Measurement Uncertainty of Forward Voltage: ±0.1V

*Measurement Uncertainty of Luminous Intensity: ±10%

*Measurement Uncertainty of Dominant Wavelength ±1.0nm

Typical Electro-Optical Characteristics Curves

Fig.1 Forward Current vs. Ambient Temperature

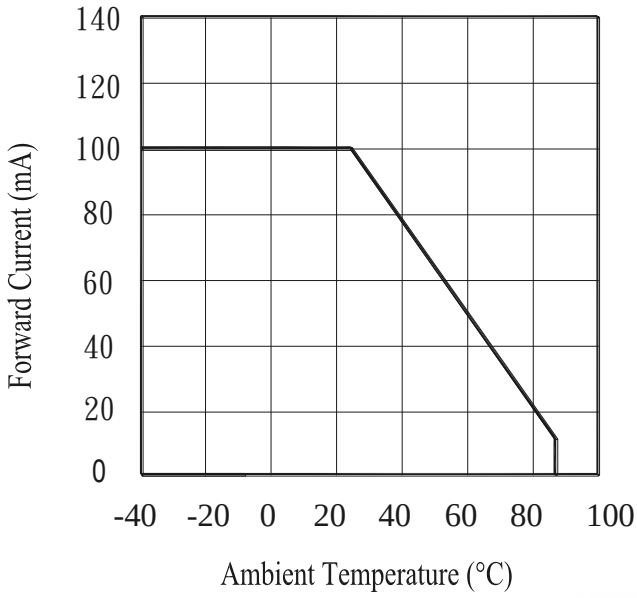


Fig.2 Spectral Distribution

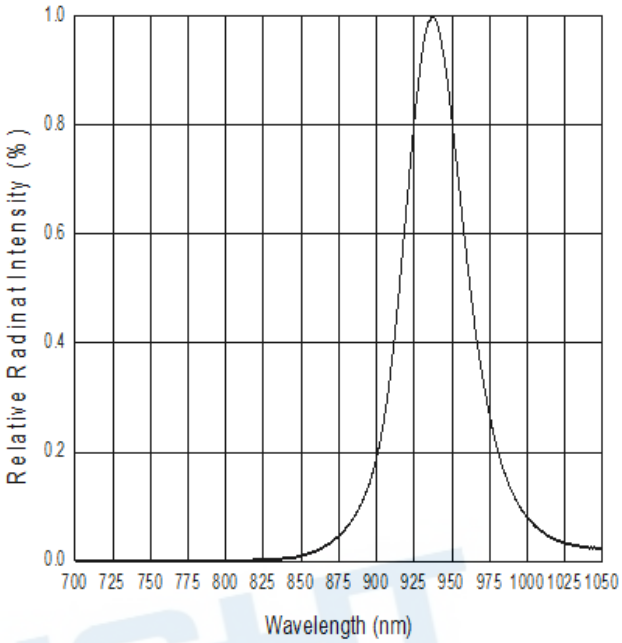


Fig.3 Peak Emission Wavelength Ambient Temperature

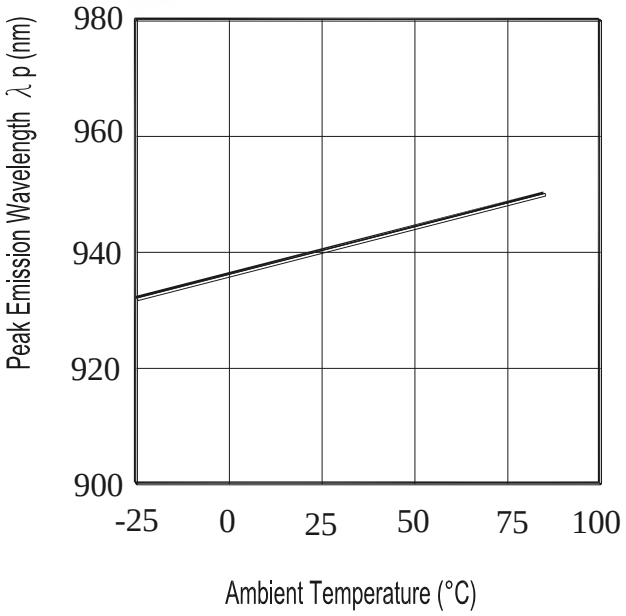
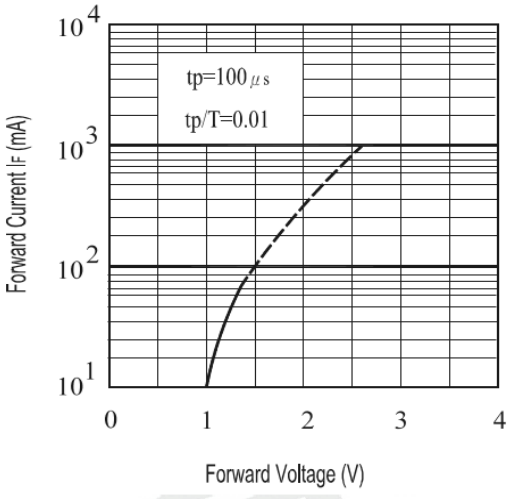


Fig.4 Forward Current vs. Forward Voltage



Typical Electro-Optical Characteristics Curves

Fig.5 Relative Intensity vs.

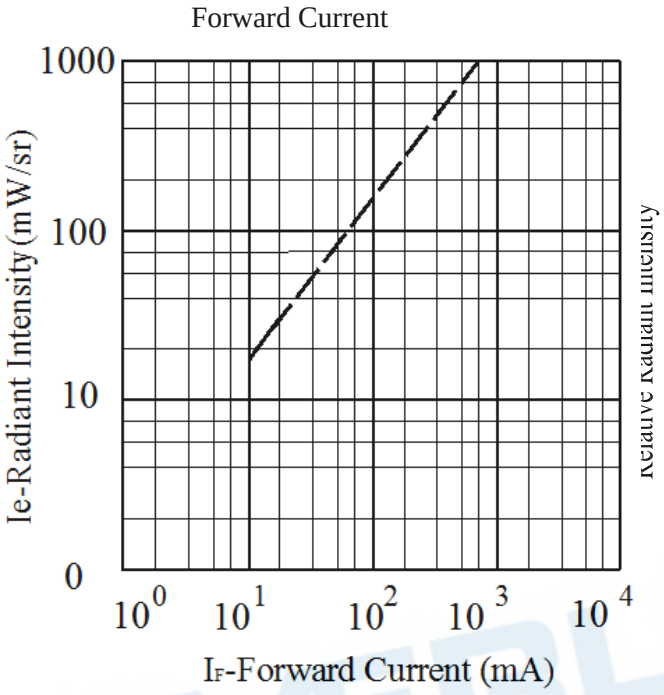
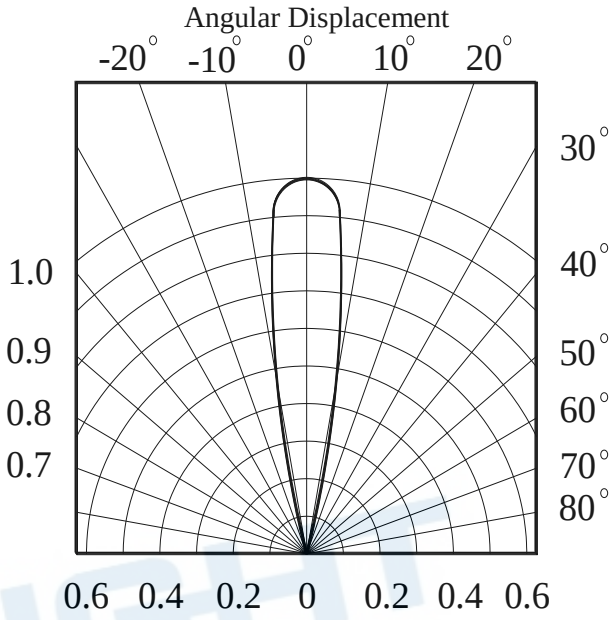
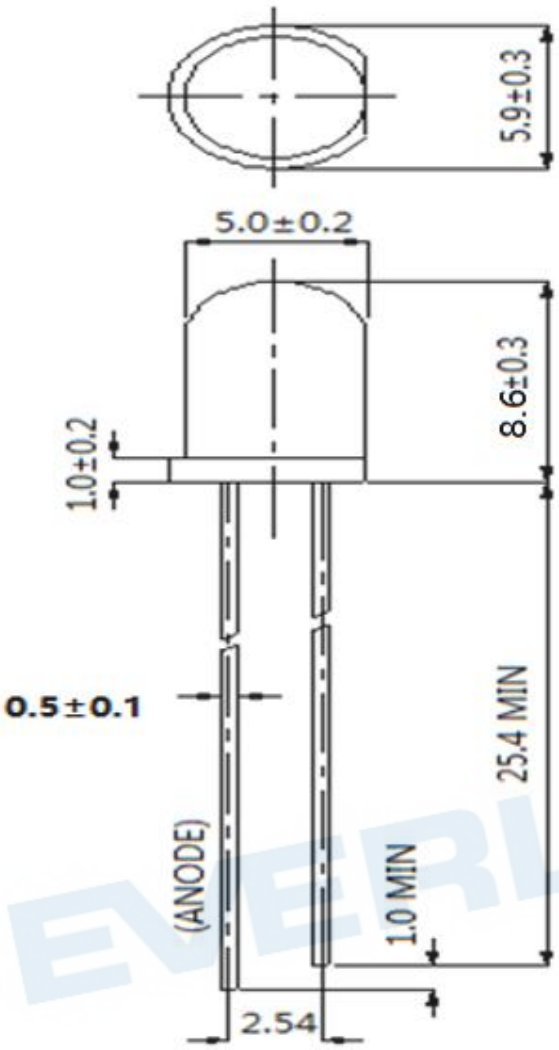


Fig.6 Relative Radiant Intensity vs.

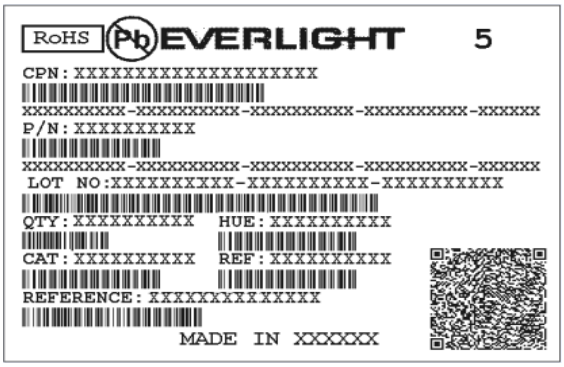


Package Dimensions



Notes: 1.All dimensions are in millimeters
2.Tolerances unless dimensions ±0.25mm

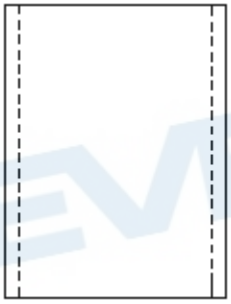
Label Form Specification



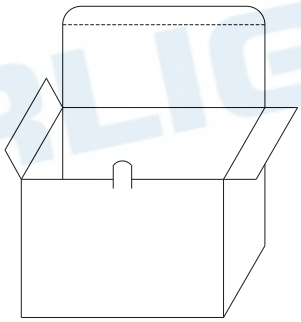
CPN: Customer's Production Number
P/N : Production Number
QTY: Packing Quantity
CAT: Ranks
HUE: Peak Wavelength
REF: Reference
LOT No: Lot Number

Packing Specification

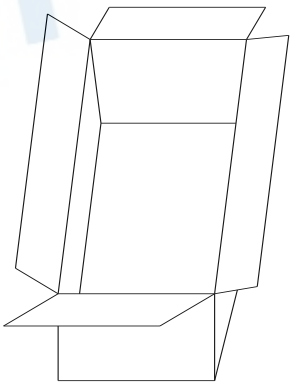
■ Anti-electrostatic bag



■ Box



■ Carton



■ Packing Quantity

1. 500PCS/1 Bag, 4 Bags/1 Box
2. 10 Boxes/1 Carton

Notes

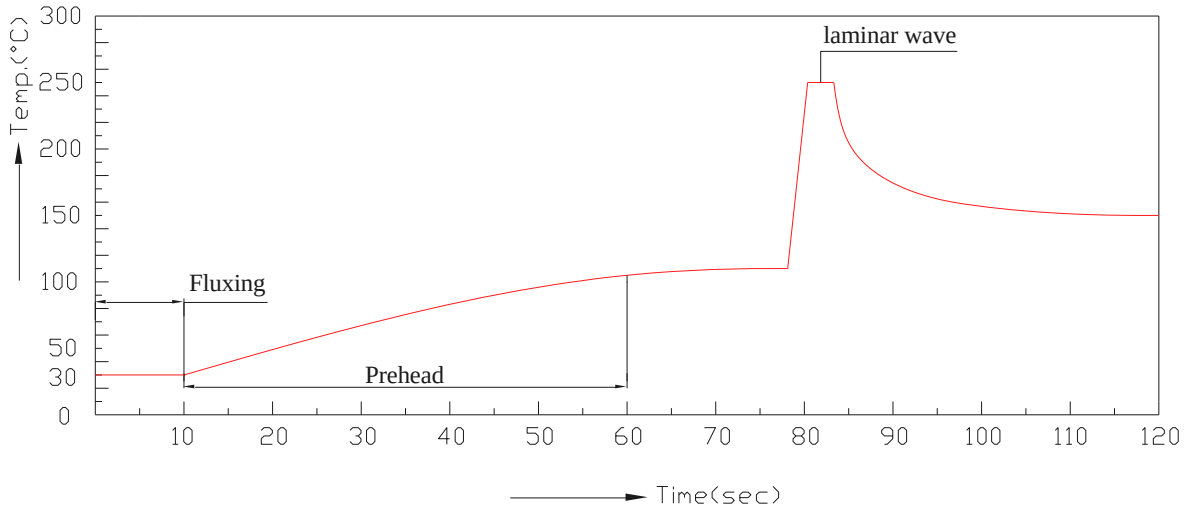
1. Lead Forming
   - During lead formation, the leads should be bent at a point at least 3mm from the base of the epoxy bulb.
   - Lead forming should be done before soldering.
   - Avoid stressing the PHOTOTRANSISTORs. package during leads forming. The stress to the base may damage the LED's characteristics or it may break the PHOTOTRANSISTORs.
   - Cut the PHOTOTRANSISTORs lead frames at room temperature. Cutting the lead frames at high temperatures may cause failure of the PHOTOTRANSISTORs.
   - When mounting the PHOTOTRANSISTORs. onto a PCB, the PCB holes must be aligned exactly with the lead position of the PHOTOTRANSISTORs.. If the LEDs are mounted with stress at the leads, it causes deterioration of the epoxy resin and this will degrade the PHOTOTRANSISTORs..

2. Storage
   - The PHOTOTRANSISTORs. should be stored at 30°C or less and 70%RH or less after being shipped from Everlight and the storage life limits are 3 months. If the PHOTOTRANSISTORs. are stored for 3 months or more, they can be stored for a year in a sealed container with a nitrogen atmosphere and moisture absorbent material.
   - Please avoid rapid transitions in ambient temperature, especially, in high humidity environments where condensation can occur.

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

Hand Soldering		DIP Soldering	
Temp. at tip of iron	300℃ Max. (30W Max.)	Preheat temp.	100℃ 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)

   - Recommended soldering profile



   - Avoiding applying any stress to the lead frame while the PHOTOTRANSISTORs.are at high temperature

particularly when soldering.

- Dip and hand soldering should not be done more than one time

- After soldering the PHOTOTRANSISTORs, the epoxy bulb should be protected from mechanical shock or vibration until the PHOTOTRANSISTORs. return to room temperature.
- A rapid-rate process is not recommended for cooling the PHOTOTRANSISTORs. 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 PHOTOTRANSISTORs..

- Wave soldering parameter must be set and maintain according to recommended temperature and dwell time in the solder wave.

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

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

6. ESD (Electrostatic Discharge)
   - Electrostatic discharge (ESD) or surge current (EOS) can damage PHOTOTRANSISTORs..
   - An ESD wrist strap, ESD shoe strap or antistatic gloves must be worn whenever handling PHOTOTRANSISTORs..
   - All devices, equipment and machinery must be properly grounded.
   - 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 PHOTOTRANSISTORs. during storage and handing.

DISCLAIMER

1. EVERLIGHT reserves the right(s) on the adjustment of product material mix for the specification.
2. The product meets EVERLIGHT published specification for a period of twelve (12) months from date of shipment.
3. The graphs shown in this datasheet are representing typical data only and do not show guaranteed values.
4. When using this product, please observe the absolute maximum ratings and the instructions for using outlined in these specification sheets. EVERLIGHT assumes no responsibility for any damage resulting from the 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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