

5mm Infrared LED (T-1 3/4)

Features

- High reliability
- High radiant intensity
- Peak wavelength $\lambda_p=940\text{nm}$
- 2.54mm lead spacing
- Low forward voltage
- Good spectral matching to Si photo detector



T-1 3/4

Descriptions

- The device is specially matched with phototransistor, photodiode and infrared receiver module.
- The infrared emitting diode is a high intensity diode, molded blue transparent plastic package.

Applications

- Free air transmission system
- Optoelectronic switch
- Floppy disk drive
- Smoke detector
- Infrared applied system

Device Selection Guide

Part No.	Chip	Lens Color
	Material	
TIR940-R5B-333H0	GaAIAs	Blue

Absolute Maximum Ratings (T_a=25°C)

Parameter	Symbol	Value	Unit
Reverse Voltage	V_R	5	V
Continuous Forward Current	I_F	100	mA
Peak Forward Current (Note 1)	I_{FP}	1000	mA
Power Dissipation	P_d	150	mW
Operating Temperature	T_{opr}	-40 ~ +85	°C
Storage Temperature	T_{stg}	-40 ~ +100	°C
Soldering Temperature (Note 2)	T_{sol}	260	°C

Notes:

1. Pulse Width ≤100us and Duty ≤1%
2. Soldering time ≤ 5 seconds

Electro-Optical Characteristics (T_a=25°C)

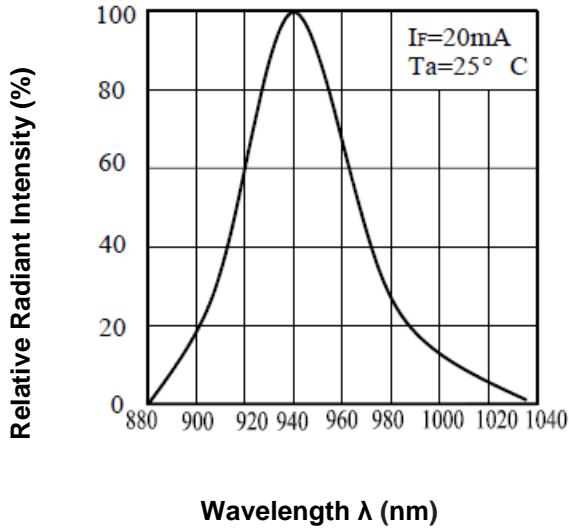
Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Radiant Intensity	E_e	4.0	7.8	-----	mW/sr	IF =20mA
		-----	35	-----		IF =100mA (Note 3)
		-----	350	-----		IF =1A (Note 3)
Viewing Angle	2θ_{1/2}	-----	40	-----	deg	IF =20mA
Peak Wavelength	λ_p	-----	940	-----	nm	IF =20mA
Spectrum Radiation Bandwidth	Δλ	-----	45	-----	nm	IF =20mA
Forward Voltage	V_F	-----	1.2	1.5	V	IF =20mA
		-----	1.4	1.8		IF =100mA (Note 3)
		-----	2.6	4.0		IF =1A (Note 3)
Reverse Current	I_R	-----	-----	10	μA	V _R =5V

Notes:

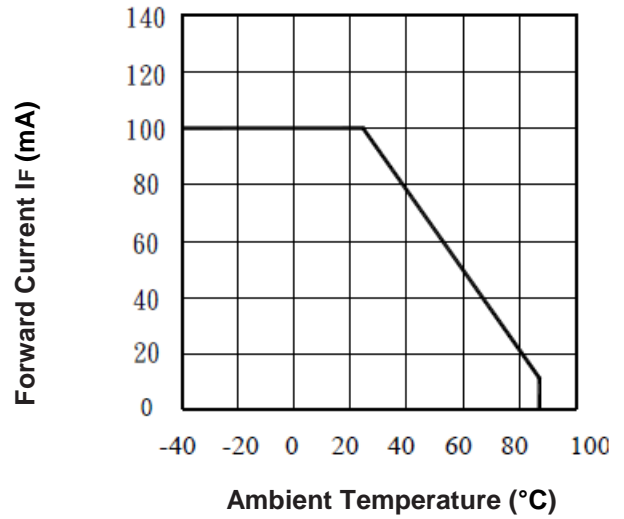
3. Pulse Width ≤100us and Duty ≤1%

Typical Electro-Optical Characteristics Curves

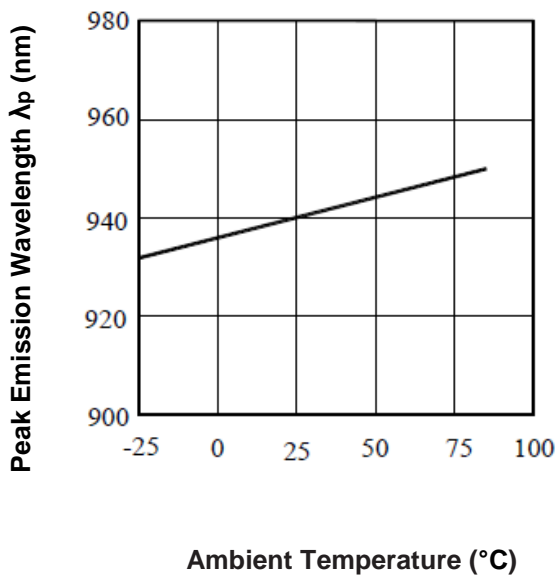
Spectral Distribution



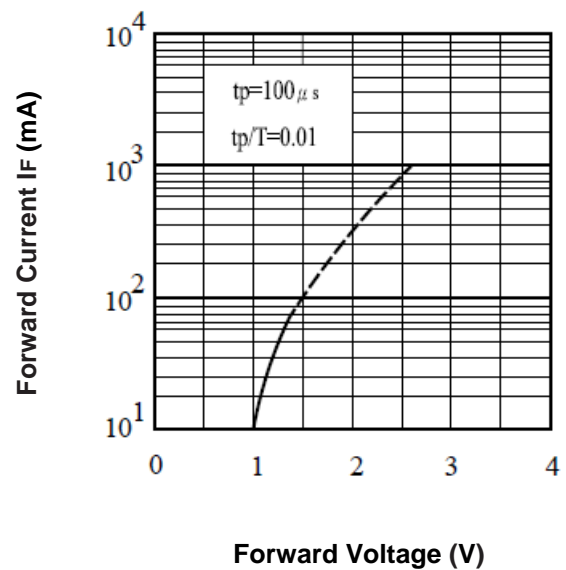
Forward Current vs. Ambient Temperature



Peak Emission Wavelength vs. Ambient Temperature

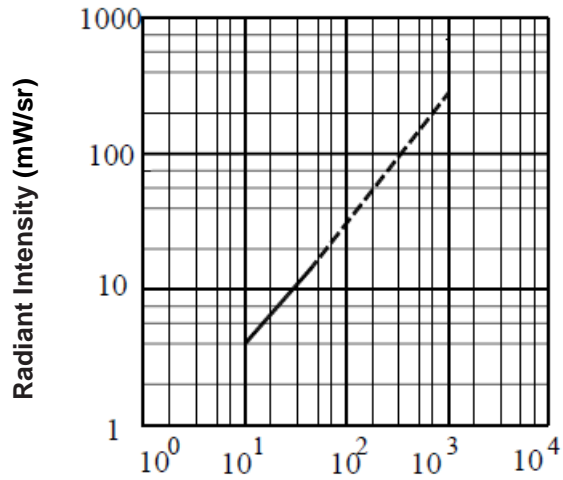


Forward Current vs. Forward Voltage



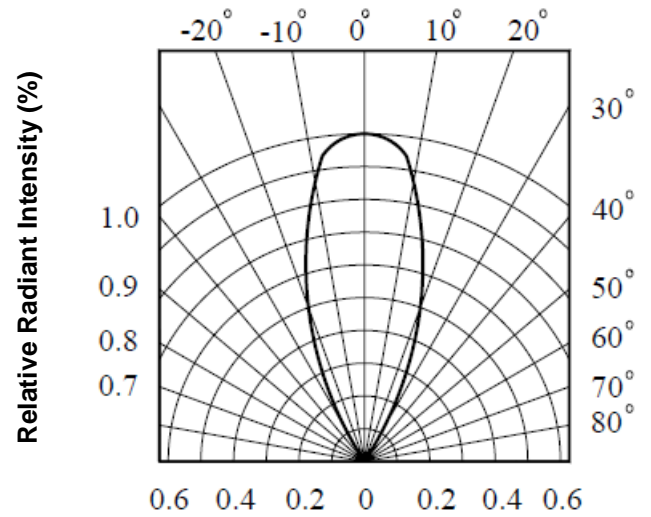
Typical Electro-Optical Characteristics Curves

Relative Intensity vs. Forward Current

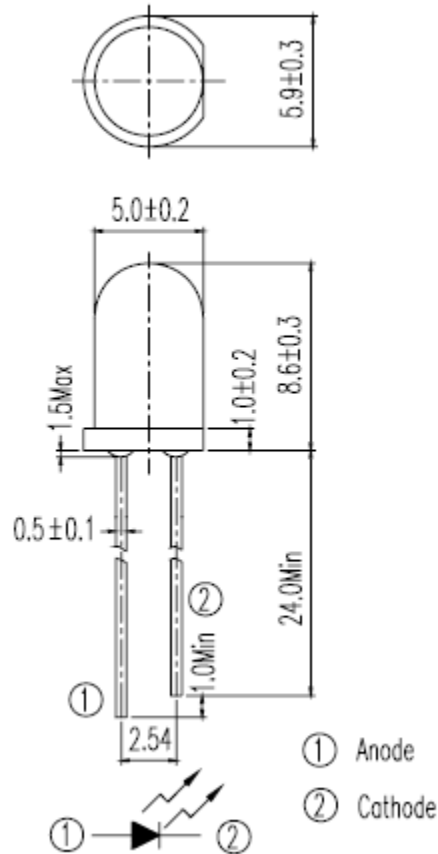


Forward Current (mA)

Relative Radiant Intensity vs. Angular Displacement



Package Dimensions (In mm)



Note:

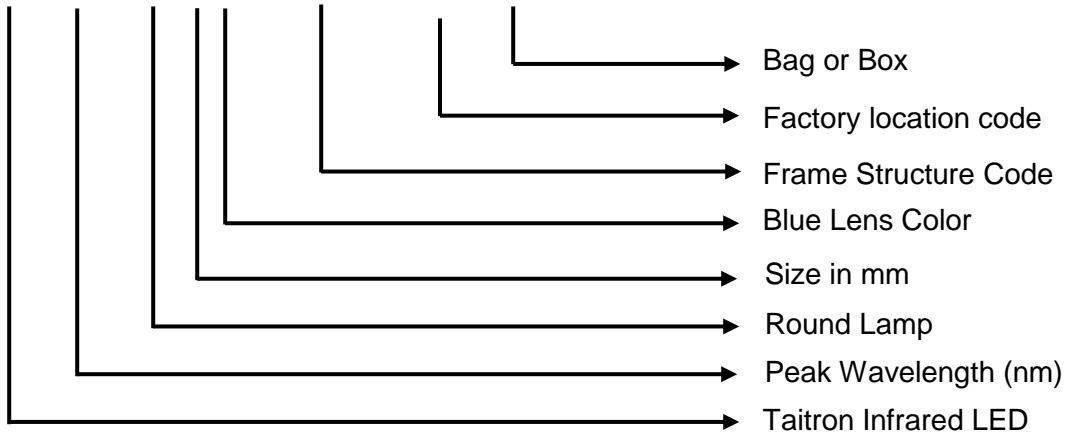
1. All dimensions are in millimeters
2. Tolerances unless dimensions ± 0.25 mm

Packing Quantity Specification

Packing Type	PCS per Bag	PCS Per Inner Box	PCS Per Carton
Bulk	500	2,500	25,000

Ordering Information

TIR 940 -R 5 B -333H0 - 92 - B



Label Explanation

CAT: Ranks

HUE: Peak Wavelength

REF: Reference



Radiant Intensity Ranks

Bin Code	Min.	Max.	Unit	Condition
K	4.0	6.4	mW/sr	IF=20mA
L	5.6	8.9		
M	7.8	12.5		
N	11.0	17.6		
P	15.0	24.0		

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