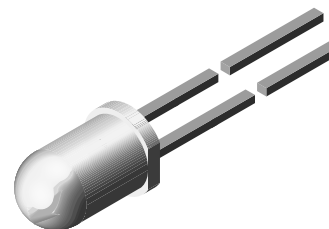


5mm Infrared LED (T-1 3/4)

Features

- High reliability
- High radiant intensity
- Peak wavelength $\lambda_p=940\text{nm}$
- 2.54mm lead spacing
- Low forward voltage
- RoHS compliance



QRE93BR5



Applications

- Free air transmission system
- Infrared remote control units with high power requirement
- Smoke detector
- Infrared applied system

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.

Device Selection Guide

Part No.	Chip	Lens Color
	Material	
TIR940-R5B-33329	GaAlAs	Blue

Absolute Maximum Ratings (Ta=25°C)

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

Notes:

1. I_{FP} Conditions – Pulse Width ≤100us and Duty ≤1%
2. Soldering time ≤ 5 seconds

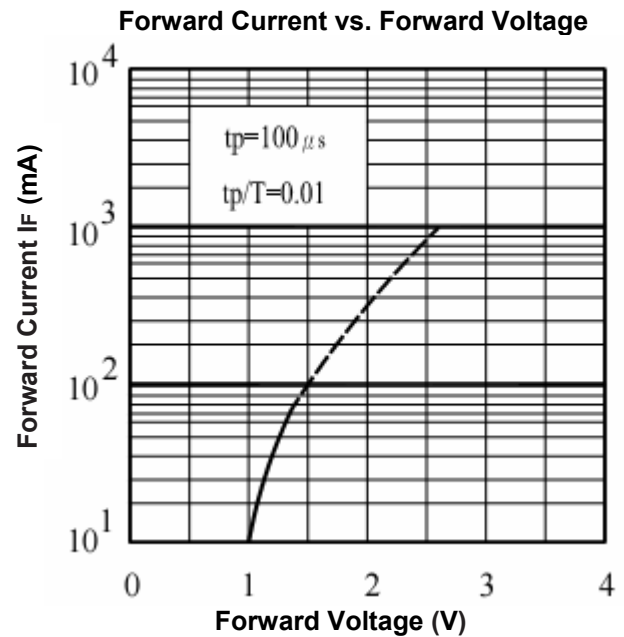
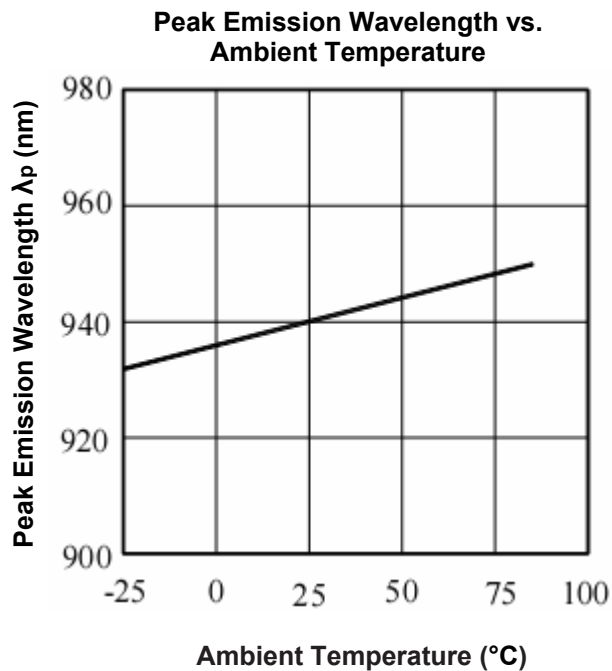
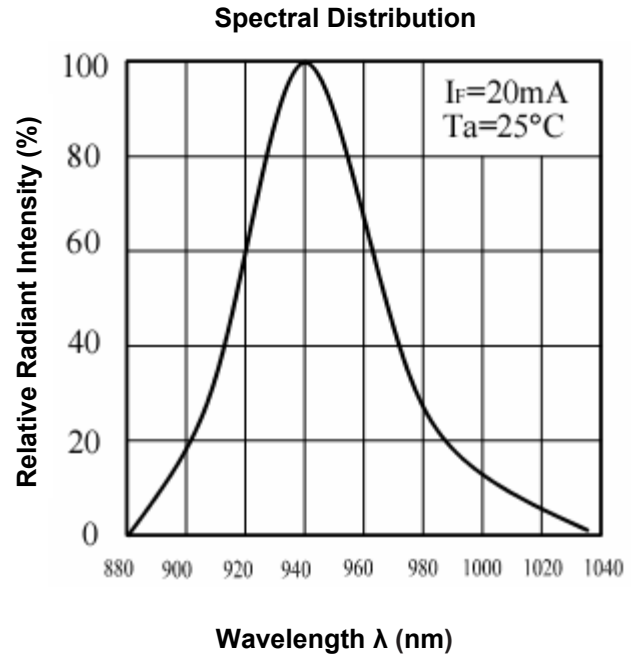
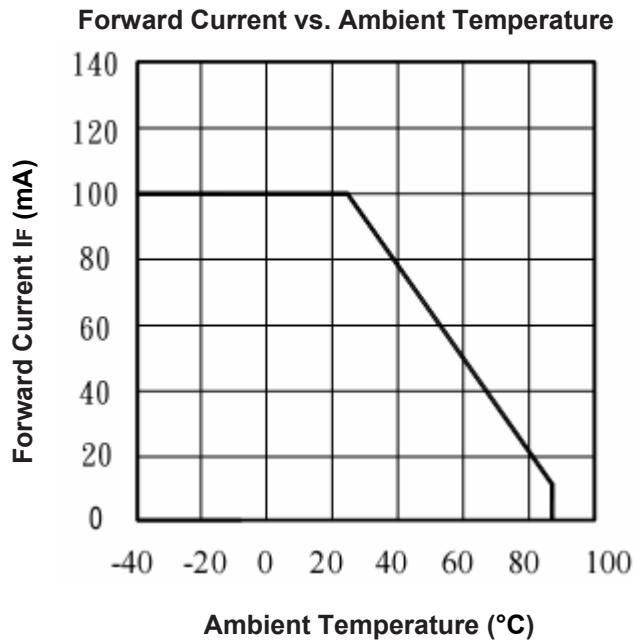
Electro-Optical Characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Radiant Intensity	E_e	11	20	----	mW/sr	IF =20mA
		----	85	----		IF =100mA *3
		----	750	----		IF =1A *3
Viewing Angle	2θ_{1/2}	----	20	----	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 *3
		----	2.6	4.0		IF =1A *3
Reverse Current	I_R	----	----	10	μA	VR=5V

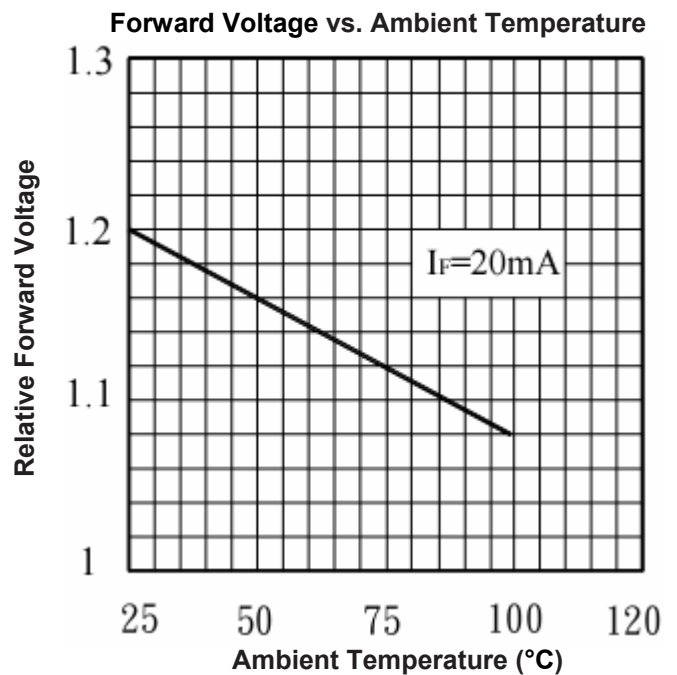
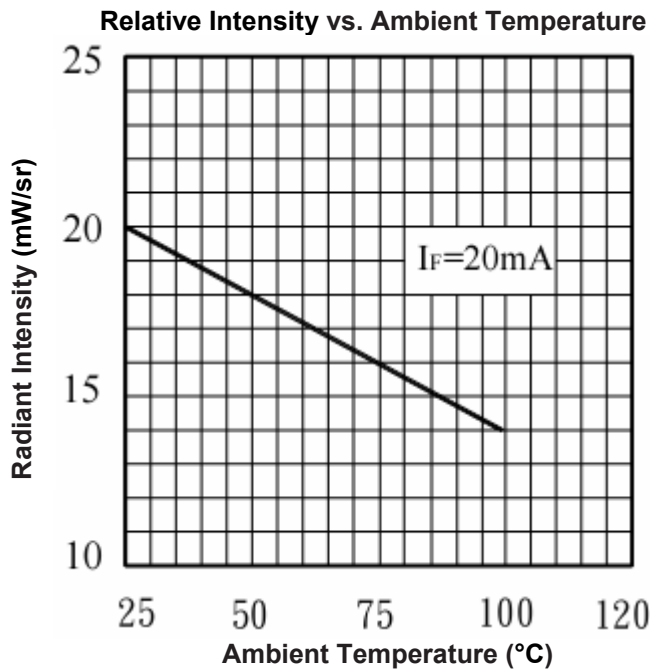
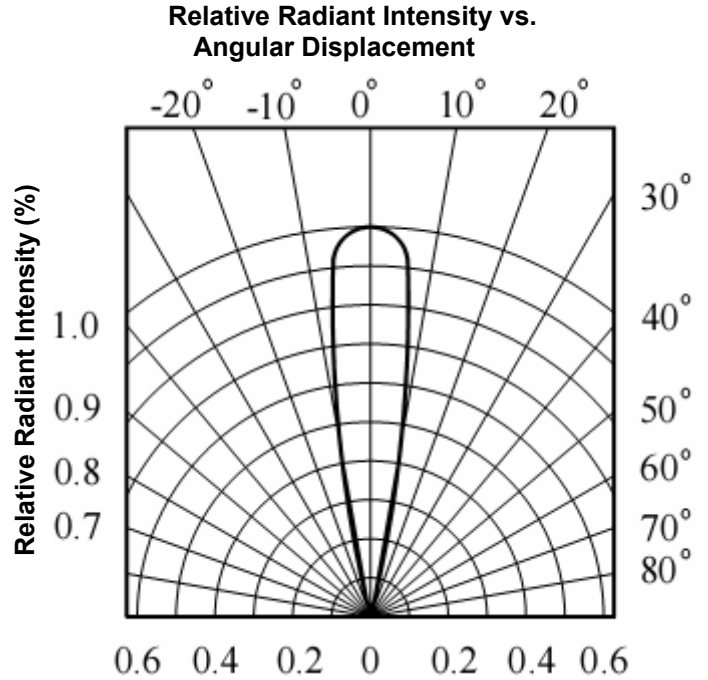
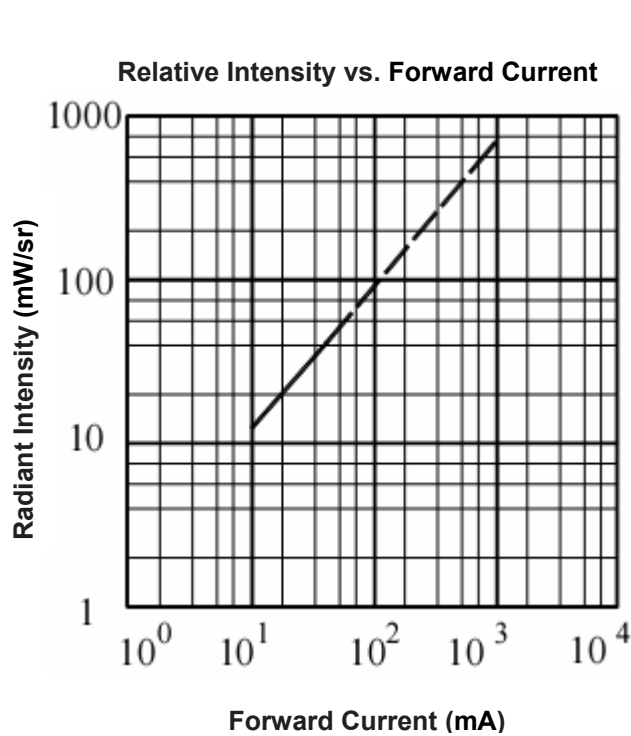
Notes:

3. Pulse Width ≤100us and Duty ≤1%

Typical Electro-Optical Characteristics Curves



Typical Electro-Optical Characteristics Curves



Reliability Test Items and Conditions

The reliability of products shall be satisfied with items listed below.

Confidence level : 90%

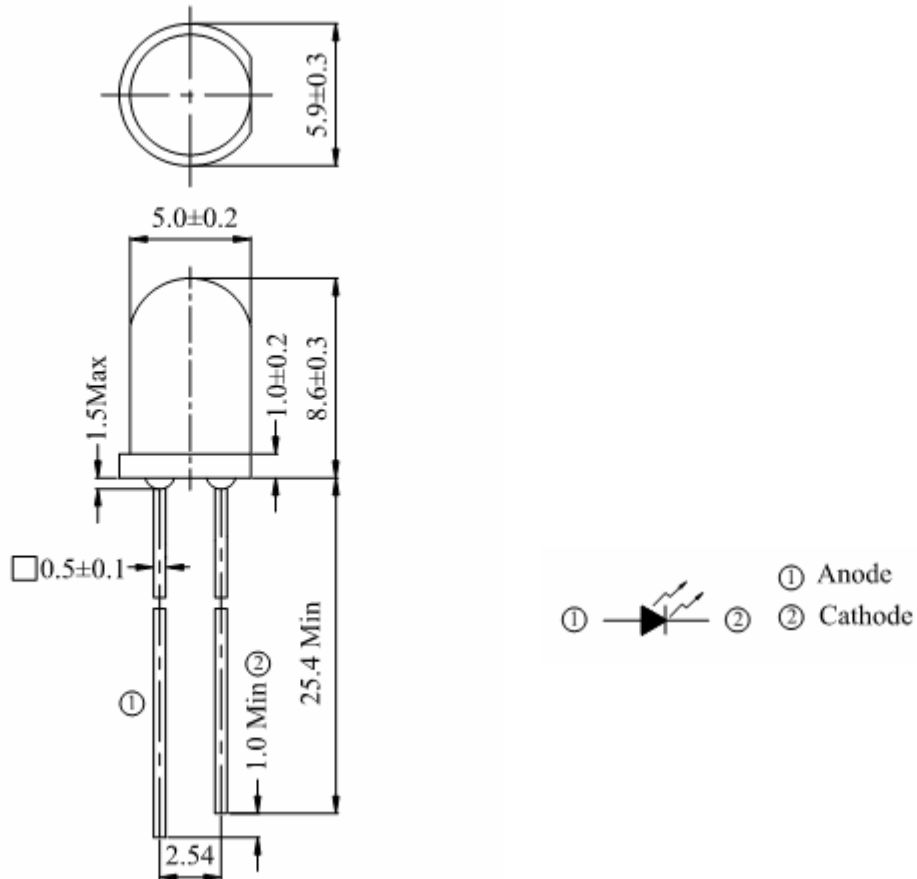
LTPD : 10%

No.	Items	Test Condition	Test Hours / Cycles	Sample Size	Failure Judgement Criteria	Ac/Re
1	Soldering Heat	Temp.: 260°C ±5°C	10 secs	22 PCS	IR ≥ Ux2 Ee ≤ Lx0.8 VF ≥ Ux1.2 U: Upper Specification Limit L: Lower Specification Limit	0/1
2	Temperature Cycle	H: +100°C 15mins ↓ 5 mins L: -40°C 15mins	300 Cycles	22 PCS		0/1
3	Thermal Shock	H: +100°C 5mins ↓ 10 secs L: -10°C 5mins	300 Cycles	22 PCS		0/1
4	High Temperature Storage	Temp: 100°C	1000 Hrs	22 PCS		0/1
5	Low Temperature Storage	Temp: -40°C	1000 Hrs	22 PCS		0/1
6	DC Operating Life	IF = 20 mA	1000 Hrs	22 PCS		0/1
7	High Temperature / High Humidity	85°C / 85%RH	1000 Hrs	22 PCS		0/1

5mm Infrared LED

TIR940-R5B-33329

Package Dimensions (In mm)



Note:

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

Packing Quantity Specification

1. 500 PCS / 1 Bag, 5 Bags / 1 Box
2. 10 Boxes / 1 Carton

Ordering Information



Rank of Radiant Intensity

Condition: $I_F=20\text{mA}$

Unit: mW/sr

Bin Number	N	P	Q
Min	11	15	21
Max	17.6	24	34

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