



# Technical Data Sheet

## 3mm Infrared LED, T-1

### IR204/H16/L10

#### Features

- High reliability
- 2.54mm lead spacing
- Low forward voltage
- Good spectral matching to Si photodetector

#### Descriptions

EVERLIGHT's infrared emitting diode (IR204/H16/L10) is a high intensity diode, molded in a blue transparent plastic package. The device is spectrally matched with phototransistor, photodiode and infrared receiver module.



#### Applications

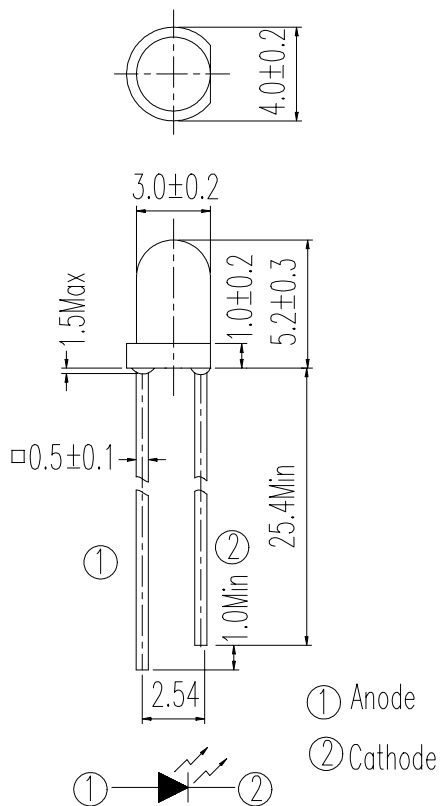
- Free air transmission system
- Optoelectronic switch
- Floppy disk drive
- Infrared applied system
- Smoke detector

#### Device Selection Guide

LED Part No.	Chip	Lens Color
	Material	
IR	GaAlAs	Blue

Device No:DIR-020-122

**Package Dimensions**



- Notes:** 1.All dimensions are in millimeters  
 2.Tolerances unless dimensions  $\pm 0.25\text{mm}$

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

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

- Notes:** \*1: $I_{FP}$  Conditions--Pulse Width  $\leq 100 \mu s$  and Duty  $\leq 1\%$ .  
 \*2:Soldering time  $\leq 5$  seconds.

**Electro-Optical Characteristics (Ta=25°C)**

Parameter	Symbol	Condition	Min.	Typ.	Max.	Units
Radiant Intensity	E <sub>e</sub>	I <sub>F</sub> =20mA	2.8	4.0	---	mW/sr
		I <sub>F</sub> =100mA Pulse Width ≤ 100 μs and Duty ≤ 1%	---	50	---	
		I <sub>F</sub> =1A Pulse Width ≤ 100 μs and Duty ≤ 1%	---	500	---	
Peak Wavelength	λ <sub>p</sub>	I <sub>F</sub> =20mA	---	940	---	nm
Spectral Bandwidth	Δλ	I <sub>F</sub> =20mA	---	45	---	nm
Forward Voltage	V <sub>F</sub>	I <sub>F</sub> =20mA	---	1.2	1.5	V
		I <sub>F</sub> =100mA Pulse Width ≤ 100 μs and Duty ≤ 1%	---	1.4	1.8	
		I <sub>F</sub> =1A Pulse Width ≤ 100 μs and Duty ≤ 1%	---	2.6	4.0	
Reverse Current	I <sub>R</sub>	V <sub>R</sub> =5V	---	--	10	μA
View Angle	2θ 1/2	I <sub>F</sub> =20mA	---	50	---	deg

**Typical Electro-Optical Characteristics Curves**

Fig.1 Forward Current vs. Ambient Temperature

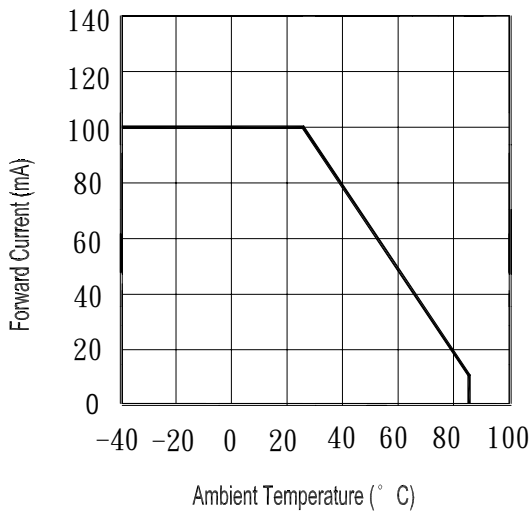


Fig.2 Spectral Distribution

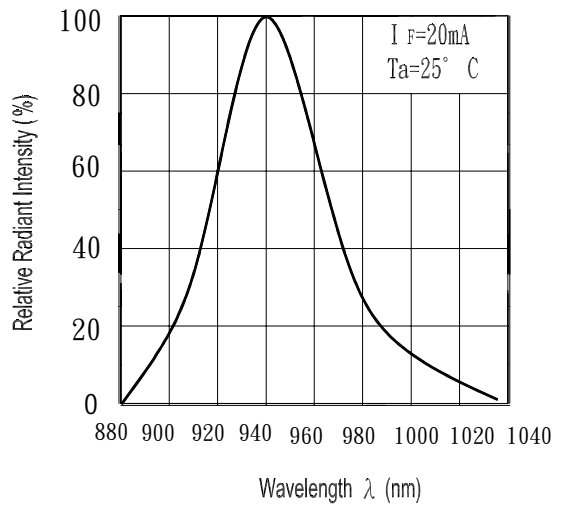


Fig.3 Peak Emission Wavelength vs. Ambient Temperature

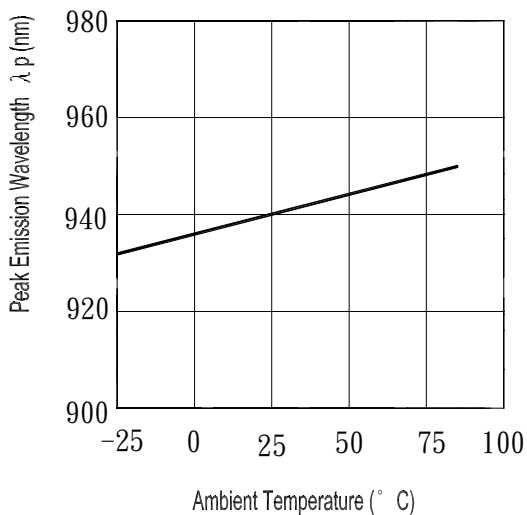
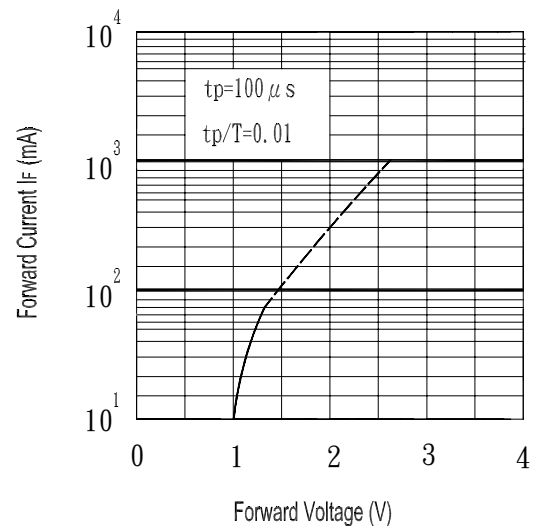


Fig.4 Forward Current vs. Forward Voltage



**Device No:DIR-020-122**

**Typical Electro-Optical Characteristics Curves**

Fig. 5 Relative Intensity vs. Forward Current

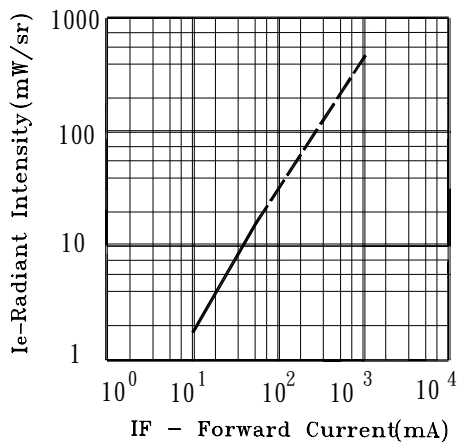


Fig. 6 Relative Radiant Intensity vs. Angular Displacement

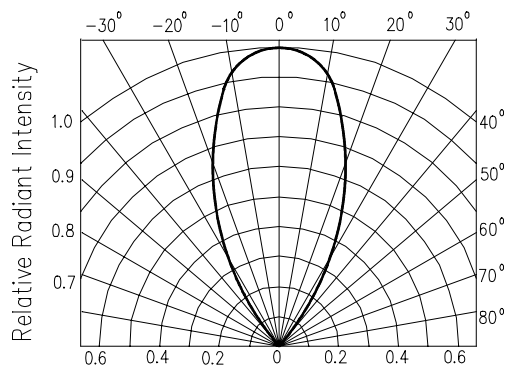


Fig. 7 Relative Intensity vs. Ambient Temperature (°C)

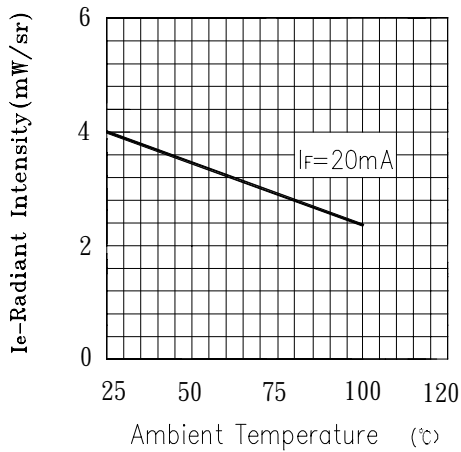
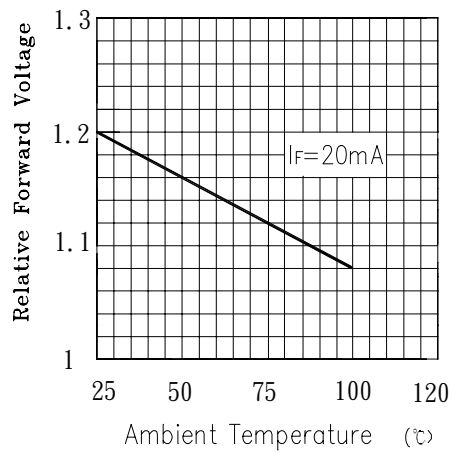


Fig. 8 Forward Current vs. Ambient Temperature (°C)



**Reliability Test Item And Condition**

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

Confidence level : 90%

LTPD : 10%

NO.	Item	Test Conditions	Test Hours/ Cycles	Sample Sizes	Failure Judgement Criteria	Ac/Re
1	Solder Heat	TEMP. : 260°C ± 5°C	10secs	22pcs	$I_R \geq U \times 2$ $E_e \leq L \times 0.8$ $V_F \geq U \times 1.2$  U : Upper Specification  Limit L : Lower Specification Limit	0/1
2	Temperature Cycle	H : +85°C     30mins ↑↓     5mins L : -55°C     30mins	50Cycles	22pcs		0/1
3	Thermal Shock	H : +100°C     5mins ↑↓     10secs L : -10°C     5mins	50Cycles	22pcs		0/1
4	High Temperature Storage	TEMP. : +100°C	1000hrs	22pcs		0/1
5	Low Temperature Storage	TEMP. : -55°C	1000hrs	22pcs		0/1
6	DC Operating Life	$I_F = 20\text{mA}$	1000hrs	22pcs		0/1
7	High Temperature/ High Humidity	85°C / 85% R.H	1000hrs	22pcs		0/1

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