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With the principle of "Quality Parts, Customers Priority, Honest Operation, and Considerate Service", our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip, ALPS, ROHM, Xilinx, Pulse, ON, Everlight and Freescale. Main products comprise IC, Modules, Potentiometer, IC Socket, Relay, Connector. Our parts cover such applications as commercial, industrial, and automotives areas.

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#### **Technical Data Sheet**

### 1.5mm Side Face Infrared LED

#### IR928-6C-F



#### **Features**

- High reliability
- High radiant intensity
- Peak wavelength  $\lambda$  p=940nm
- 2.54mm Lead spacing
- Low forward voltage
- Pb.Free
- This product itself will remain within RoHS compliant version.

#### **Descriptions**

- EVERLIGHT's Infrared Emitting Diode (IR928-6C-F) is a high intensity diode, molded in a water clear plastic package.
- The miniature side- facing device has a chip, that emits radiation from the side of the clear package.

### **Applications**

- Mouse
- · Optoelectronic switch
- Infrared applied system

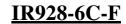
#### **Device Selection Guide**

I ED Dowt No	Chip	Lens Color	
LED Part No.	Material	Lens Color	
IR928-6C-F	GaAlAs	Water clear	

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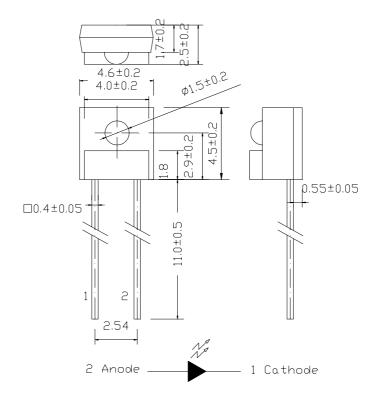
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### **Package Dimensions**



**Notes:** 1.All dimensions are in millimeters

2.Tolerances unless dimensions ±0.25mm

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

Parameter	Symbol	Rating	Units
Continuous Forward Current	$I_{\mathrm{F}}$	50	mA
Peak Forward Current(*1)	$I_{\mathrm{FP}}$	1.0	A
Reverse Voltage	$V_R$	5	V
Operating Temperature	$T_{opr}$	-25 ~ +85	$^{\circ}$
Storage Temperature	$T_{stg}$	-40 ~ +85	$^{\circ}\!\mathbb{C}$
Soldering Temperature(*2)	$T_{sol}$	260	$^{\circ}\!\mathbb{C}$
Power Dissipation at(or below) 25°C Free Air Temperature	P <sub>d</sub>	75	mW

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

\*2:Soldering time ≤ 5 seconds.

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# **Electro-Optical Characteristics** (Ta=25 $^{\circ}$ C)

Parameter Symbol		Condition	Min.	Typ.	Max.	Units
Light Current	Ic(ON)	$I_F=4\text{mA}, V_{CE}=3.5\text{V}$	265		1870	$\mu$ A
Peak Wavelength	λр	I <sub>F</sub> =20mA		940		nm
Spectral Bandwidth	Δλ	I <sub>F</sub> =20mA		50		nm
Forward Voltage	$V_{F}$	I <sub>F</sub> =20mA		1.2	1.5	V
Reverse Current	$I_R$	V <sub>R</sub> =5V			10	μΑ
View Angle	2 θ 1/2	$I_F=20mA$		40		deg

### Wide Rank

Parameter	Symbol	Min	Max	Unit	Test Condition
5-2	Ic(ON)	1053	1870	$\mu$ A	$I_F=4\text{mA}, V_{CE}=3.5\text{V}$
6-1	Ic(ON)	650	1274	$\mu$ A	$I_F=4\text{mA}, V_{CE}=3.5\text{V}$
6-2	Ic(ON)	465	750	$\mu$ A	$I_F=4\text{mA}, V_{CE}=3.5\text{V}$
7-1	Ic(ON)	347	550	$\mu$ A	$I_F=4\text{mA}, V_{CE}=3.5\text{V}$
7-2	Ic(ON)	306	441	$\mu$ A	$I_F=4\text{mA}, V_{CE}=3.5\text{V}$
7-3	Ic(ON)	265	358	$\mu$ A	$I_F=4mA, V_{CE}=3.5V$

### **Thin Rank**

Color Code	Ranks	Symbol	Min	Max	Unit	Test Condition
Yellow	E3	Ic(ON)	286	431	$\mu$ A	$I_F=4\text{mA}, V_{CE}=3.5\text{V}$
Silver	E4	Ic(ON)	357	519	$\mu$ A	$I_F=4\text{mA}, V_{CE}=3.5\text{V}$
Green	E5	Ic(ON)	428	608	$\mu$ A	I <sub>F</sub> =4mA,V <sub>CE</sub> =3.5V
Purple	E6	Ic(ON)	500	696	$\mu$ A	I <sub>F</sub> =4mA,V <sub>CE</sub> =3.5V
White	E7	Ic(ON)	571	784	$\mu$ A	$I_F=4\text{mA}, V_{CE}=3.5\text{V}$
Brown	E8	Ic(ON)	643	872	$\mu$ A	$I_F=4\text{mA}, V_{CE}=3.5\text{V}$
Orange	E9	Ic(ON)	714	960	$\mu$ A	$I_F=4\text{mA}, V_{CE}=3.5\text{V}$

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### **Typical Electro-Optical Characteristics Curves**

Fig.1 Forward Current vs.

Ambient Temperature

140 120 100 Forward Current (mA) 80 60 40 20 0 -40 -20 0 20 40 60 80 100 Ambient Temperature (°C)

Fig.2 Spectral Distribution

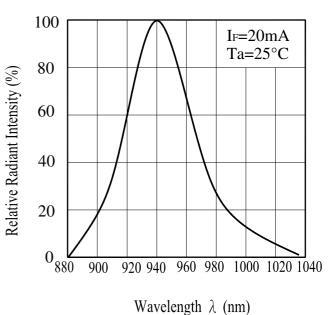


Fig.3 Peak Emission Wavelength Ambient Temperature

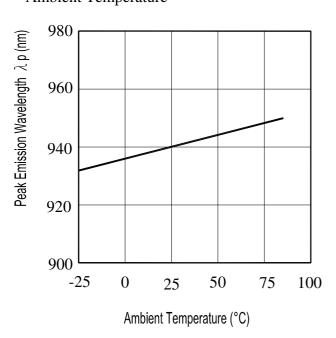
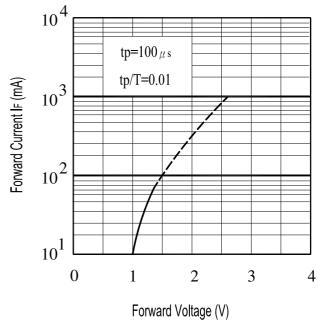


Fig.4 Forward Current vs. Forward Voltage



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## **Typical Electro-Optical Characteristics Curves**

Fig.5 Forward Voltage vs.

Ambient Temperature

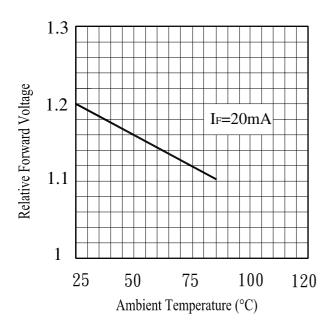
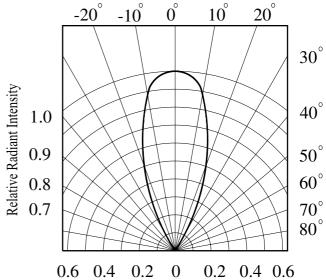


Fig.6 Relative Radiant Intensity vs.

Angular Displacement



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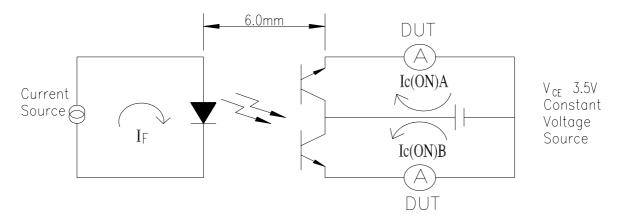
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## Test Method For I<sub>C(ON)</sub>:

Condition: I<sub>F</sub>=4mA,V<sub>CE</sub>=3.5V

The intensity testing method for infrared emitting diode



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## <u>IR928-6C-F</u>

### **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		0/1
2	Temperature Cycle	H: +100°C	300Cycles	22pcs	$I_R \ge U \times 2$	0/1
		5mins			$Ee \leq L \times 0.8$	
		L:-40°C 15min	S		$V_F \ge U \times 1.2$	
3	Thermal Shock	H :+100°C ▲ 5mins	300Cycles	22pcs		0/1
		▼ 10sec	S		U: Upper	
		L :-10°C 5mins			Specification	
4	High Temperature	TEMP. ∶ +100°C	1000hrs	22pcs	Limit	0/1
	Storage				L: Lower	
5	Low Temperature	TEMP. : -40°C	1000hrs	22pcs	Specification	0/1
	Storage				Limit	
6	DC Operating Life	$I_F=20mA$	1000hrs	22pcs		0/1
7	High Temperature/	85℃ / 85% R.H	1000hrs	22pcs		0/1
	High Humidity					

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#### **Packing Quantity Specification**

- 1. 1000PCS/1Bag,10Bag/1Box
- 2. 10Boxes/1Carton

### **Label Form Specification**

**EVERLIGHT** 

CPN: P/N:

IR928-6C-F

LOT NO:

HUF: RFF:

CAT:



CPN: Customer's Production Number

P/N: Production Number QTY: Packing Quantity

CAT: Ranks

HUE: Peak Wavelength

**REF:** Reference

LOT No: Lot Number

#### **Notes**

- 1. Above specification may be changed without notice. EVERLIGHT 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. EVERLIGHT 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.
- 3. These specification sheets include materials protected under copyright of EVERLIGHT corporation. Please don't reproduce or cause anyone to reproduce them without EVERLIGHT's consent.

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