



## Technical Data Sheet

### Side Face Infrared LED

#### IR928-6C

#### Features

- High reliability
- High radiant intensity
- Peak wavelength  $\lambda_p=940\text{nm}$
- 2.54mm Lead spacing
- Low forward voltage
- Pb free



#### Descriptions

- EVERLIGHT's Infrared Emitting Diode IR928-6C 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.

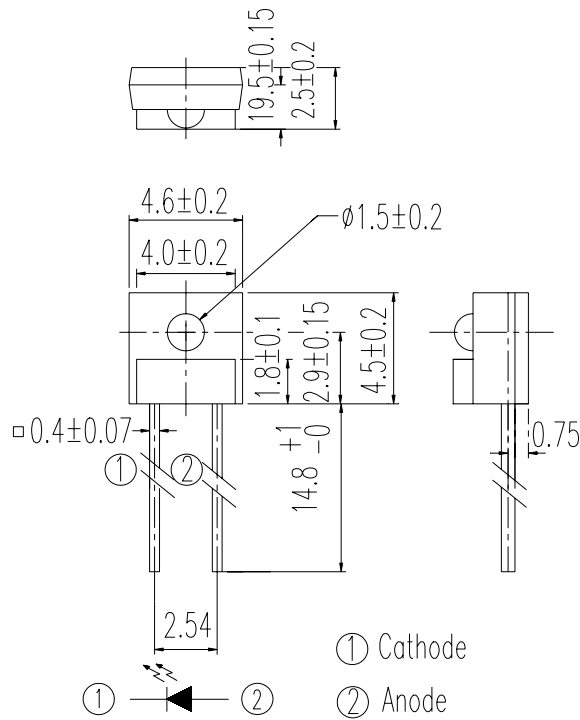
#### Applications

- Mouse
- Optoelectronic switch
- Infrared applied system

#### Device Selection Guide

| LED Part No. | Chip     | Lens Color  |
|--------------|----------|-------------|
|              | Material |             |
| IR           | GaAlAs   | Water clear |

**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)<br>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 |
|--------------------|----------------|--|------|------|------|-------|
| Light Current      | Ic(ON)         | I <sub>F</sub> =4mA, V <sub>CE</sub> =3.5V               | 350  | --   | 710  | μA    |
|                    |                | I <sub>F</sub> =5mA, V <sub>ON</sub> =5V                 | 20   | --   | 50   |       |
| 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<br>Pulse Width ≤ 100 μs, Duty ≤ 1% | --   | 1.4  | 1.8  |       |
|                    |                | I <sub>F</sub> =1A<br>Pulse Width ≤ 100 μs, 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                                     | --   | 60   | --   | deg   |

**Rank**

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

| Color Code | Parameter | Min | Max | Unit |
|------------|-----------|-----|-----|------|
| Red        | E1        | 140 | 260 | μA   |
| Blue       | E2        | 210 | 350 | μA   |
| Yellow     | E3        | 280 | 440 | μA   |
| Silver     | E4        | 350 | 530 | μA   |
| Green      | E5        | 420 | 620 | μA   |
| Purple     | E6        | 490 | 710 | μA   |
| White      | E7        | 560 | 800 | μA   |
| Brown      | E8        | 630 | 890 | μA   |
| Orange     | E9        | 700 | 980 | μA   |

**Rough Ranks**

| Parameter | Min | Max  | Unit |
|-----------|-----|------|------|
| 7-2       | 300 | 450  | μA   |
| 7-1       | 340 | 520  | μA   |
| 6-2       | 490 | 750  | μA   |
| 6-1       | 650 | 1300 | μA   |

**Typical Electro-Optical Characteristics Curves**

Fig.1 Forward Current vs. Ambient Temperature

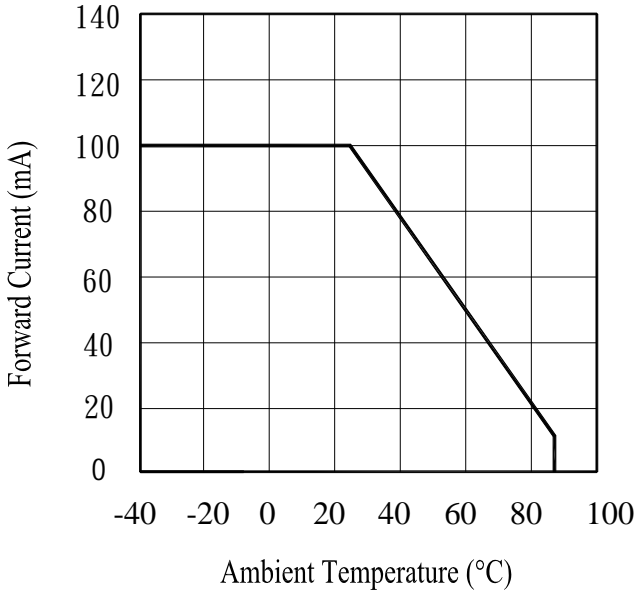


Fig.2 Spectral Distribution

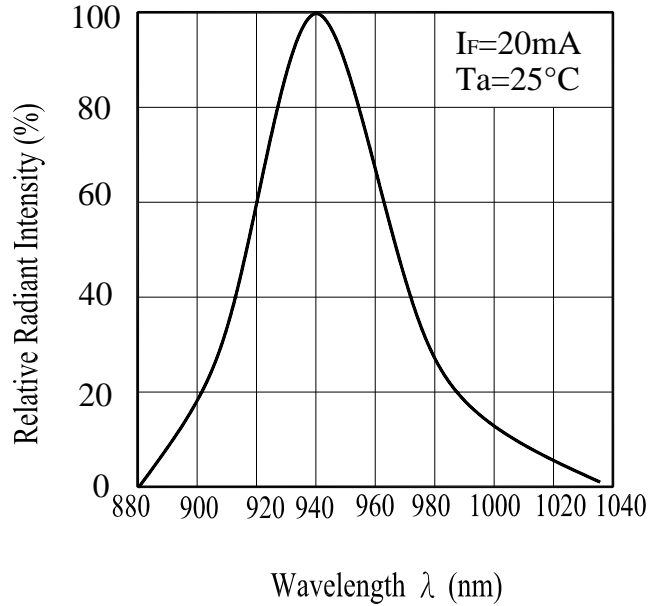


Fig.3 Peak Emission Wavelength vs. Ambient Temperature

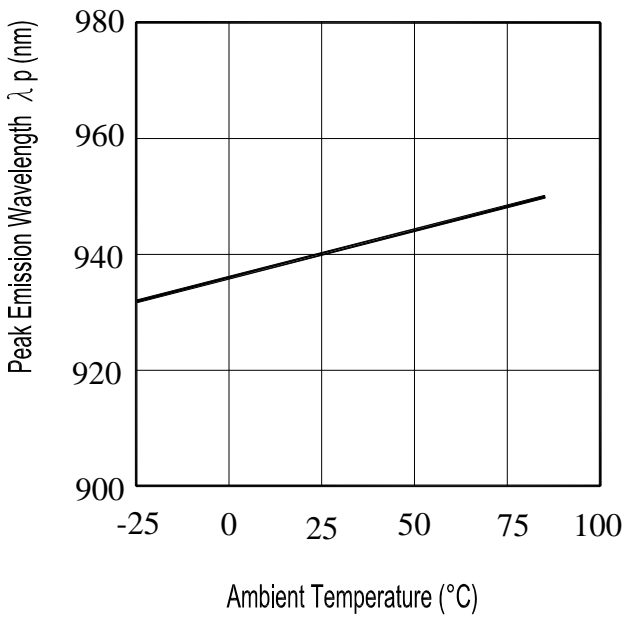
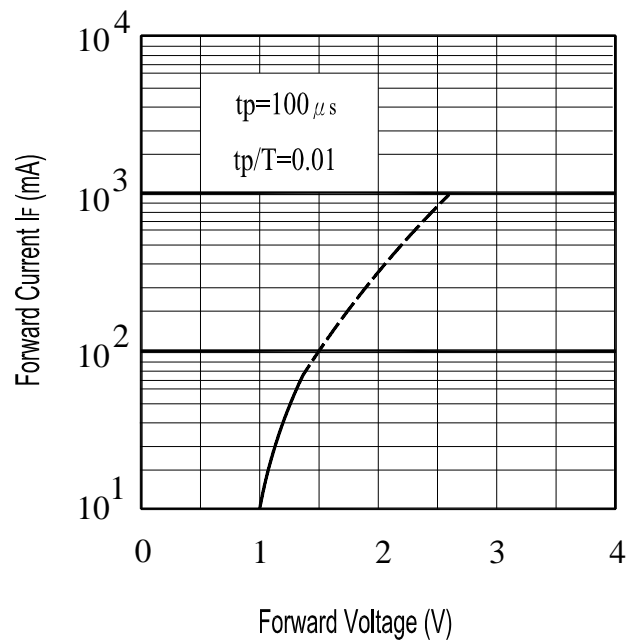


Fig.4 Forward Current vs. Forward Voltage



**Typical Electro-Optical Characteristics Curves**

Fig.5 Relative Intensity vs.

Forward Current

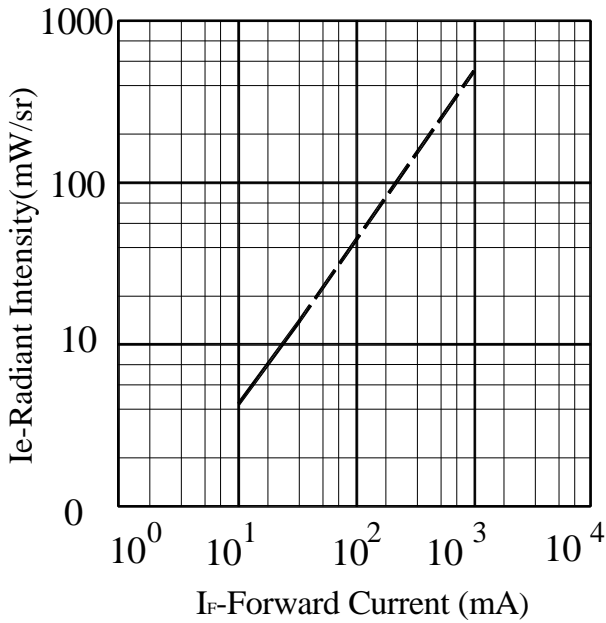


Fig.6 Relative Radiant Intensity vs.

Angular Displacement

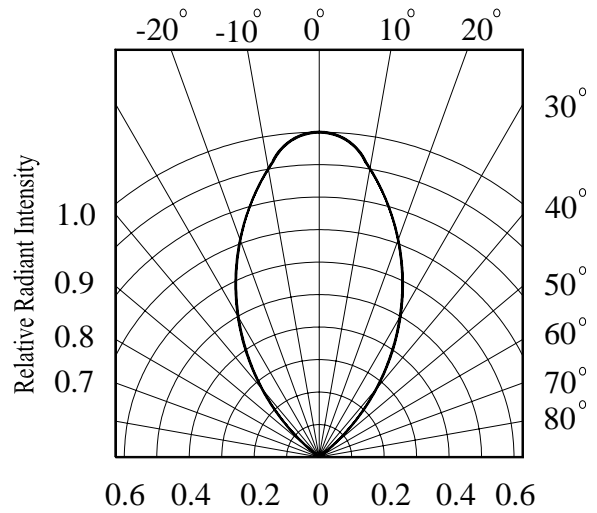


Fig.7 Relative Intensity vs.

Ambient Temperature(°C)

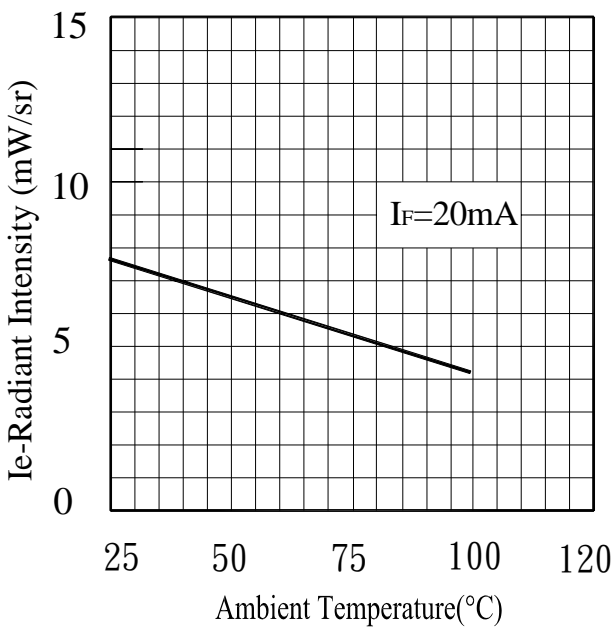
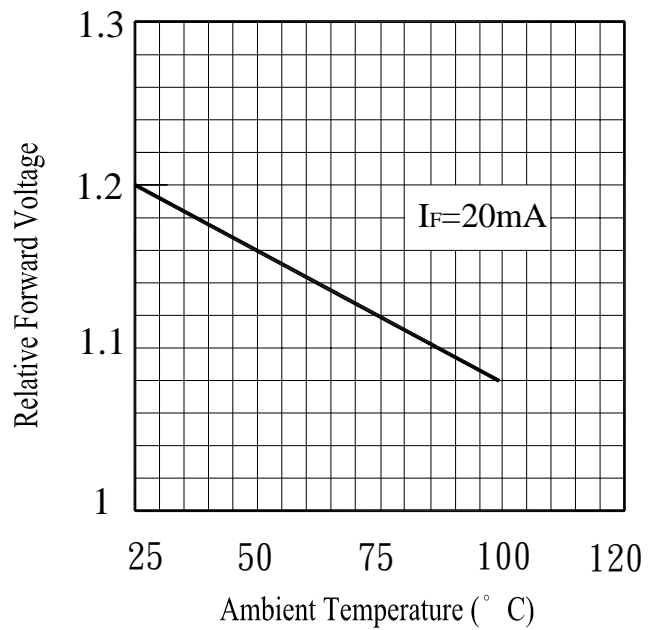


Fig.8 Forward Current vs.

Ambient Temperature(°C)



**Reliability Test Item And Condition**

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

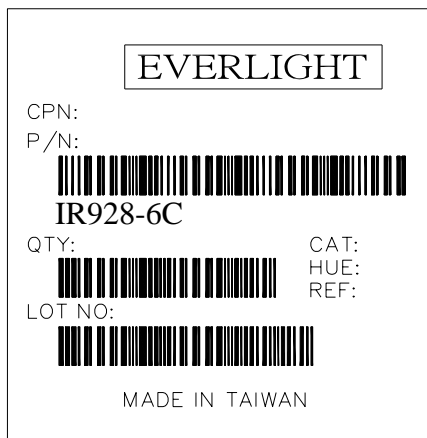
Confidence level : 90%

LTPD : 10%

| NO. | Item                               | Test Conditions   | Test Hours/<br>Cycles | Sample<br>Sizes | Failure<br>Judgement<br>Criteria  | Ac/Re |
|-----|------------------------------------|---|-----------------------|-----------------|---|-------|
| 1   | Solder Heat                        | TEMP. : 260°C±5°C   | 10secs                | 22pcs           | $I_R \geq U \times 2$<br>$E_e \leq L \times 0.8$<br>$V_F \geq U \times 1.2$<br><br>U : Upper<br>Specification<br><br>Limit<br>L : Lower<br>Specification<br>Limit | 0/1   |
| 2   | Temperature Cycle                  | H : +85°C      30mins<br>↑↓                    5mins<br>L : -55°C      30mins | 50Cycles              | 22pcs           |   | 0/1   |
| 3   | Thermal Shock                      | H : +100°C    5mins<br>↑↓                    10secs<br>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/<br>High Humidity | 85°C / 85% R.H  | 1000hrs               | 22pcs           |   | 0/1   |

**Packing Quantity Specification**

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

**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  
MADE IN TAIWAN: Production Place

**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.
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