



## 5mm Infrared LED

MODEL NO : IR333/S5

### ■ Features :

- High radiant intensity
- Peak wavelength  $\lambda_p=940\text{nm}$
- View angle  $40^\circ$
- High reliability
- 2.54mm Lead spacing

### ■ Description :

- EVERLIGHT's Infrared Emitting Diode (IR333/S5) 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

| PART NO. | CHIP     | LENS COLOR |
|----------|----------|------------|
|          | MATERIAL |            |
| IR       | GaAlAs   | Blue       |





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### ■ Absolute Maximum Ratings at T<sub>A</sub> = 25°C

| Parameter   | Symbol          | Rating    | Unit | Notice                                 |
|---|-----------------|-----------|------|--|
| Continuous Forward Current                                  | I <sub>F</sub>  | 50        | mA   |  |
| Peak Forward Current<br>Pulse width=100 μs, Duty cycle=1%   | I <sub>FP</sub> | 1.0       | A    |  |
| Reverse Voltage   | V <sub>R</sub>  | 5         | V    |  |
| Operating Temperature                                       | Topr            | -40 ~ +85 | °C   |  |
| Storage Temperature   | Tstg            | -40 ~ +85 | °C   |  |
| Soldering Temperature                                       | Tsol            | 260       | °C   | 4mm from mold body less than 5 seconds |
| Power Dissipation at(or below)<br>25°C Free Air Temperature | Pd              | 100       | mW   |  |

### ■ Electronic Optical Characteristics :

| Parameter          | Symbol         | Min. | Typ. | Max. | Unit  | Condition  |
|--------------------|----------------|------|------|------|-------|--|
| Radiant Intensity  | Ee             | 4.0  | 8.9  | ---- | mW/sr | I <sub>F</sub> =20mA                                     |
|                    |                | ---- | 40   | ---- |       | I <sub>F</sub> =100mA, tp=100 μs, t <sub>p</sub> /T=0.01 |
|                    |                | ---- | 400  | ---- |       | I <sub>F</sub> =1A, tp=100 μs, t <sub>p</sub> /T=0.01    |
| Peak Wavelength    | λ <sub>P</sub> | ---- | 940  | ---- | nm    | I <sub>F</sub> =20mA                                     |
| Spectral Bandwidth | Δλ             | ---- | 45   | ---- | nm    | I <sub>F</sub> =20mA                                     |
| Forward Voltage    | V <sub>F</sub> | ---- | 1.2  | 1.5  | V     | I <sub>F</sub> =20mA                                     |
|                    |                | ---- | 1.4  | 1.85 |       | I <sub>F</sub> =100mA, tp=100 μs, t <sub>p</sub> /T=0.01 |
|                    |                | ---- | 2.6  | 4.0  |       | I <sub>F</sub> =1A, tp=100 μs, t <sub>p</sub> /T=0.01    |
| Reverse Current    | I <sub>R</sub> | ---- | ---- | 10   | μA    | V <sub>R</sub> =5V                                       |
| View Angle         | 2θ1/2          | ---- | 40   | ---- | deg   | I <sub>F</sub> =20mA                                     |



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### ■ Typical Electrical/Optical/Characteristics Curves

Fig. 1 Forward Current vs. Ambient Temperature

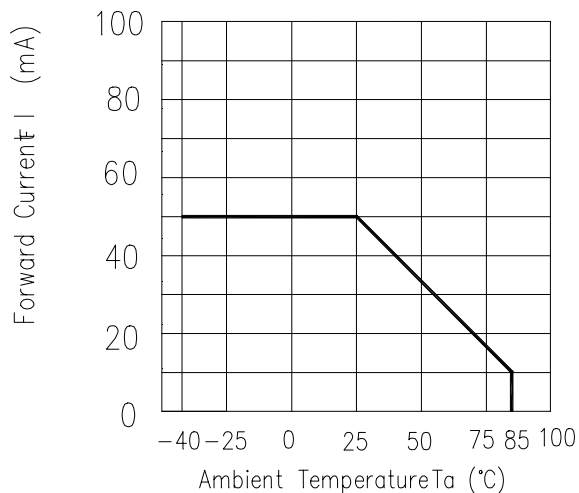


Fig. 2 Spectral Distribution

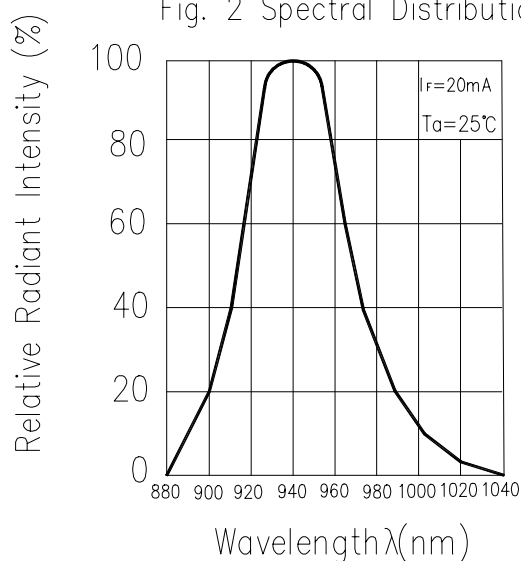


Fig. 3 Peak Emission Wavelength  $\lambda_p$  vs. Ambient Temperature

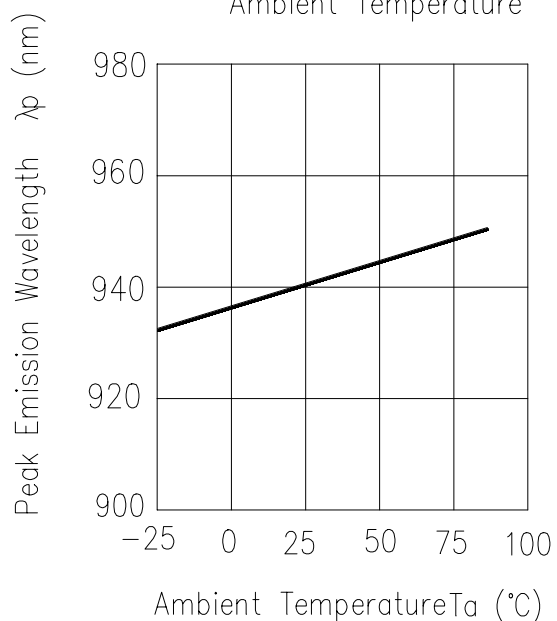
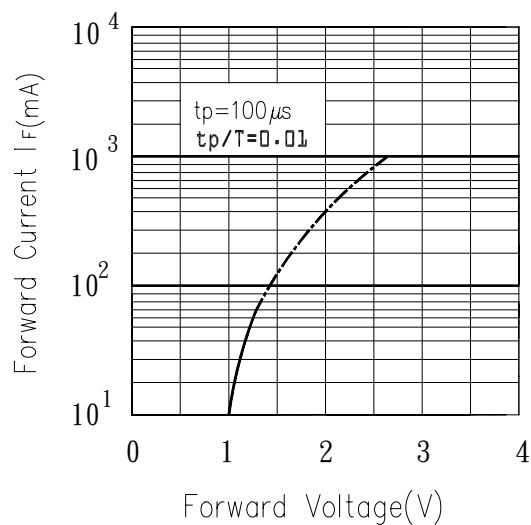


Fig. 4 Forward Current vs. Forward Voltage



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Fig. 5 Relative Intensity vs. Forward Current

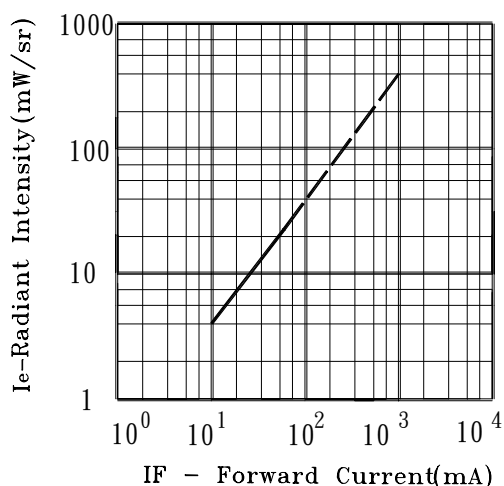


Fig. 6 Relative Radiant Intensity vs. Angular Displacement

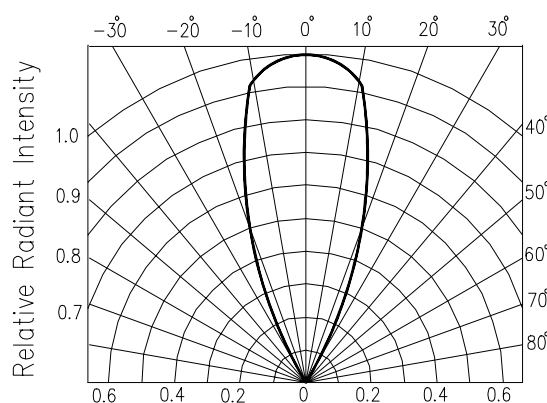


Fig. 7 Relative Intensity vs. Ambient Temperature (°C)

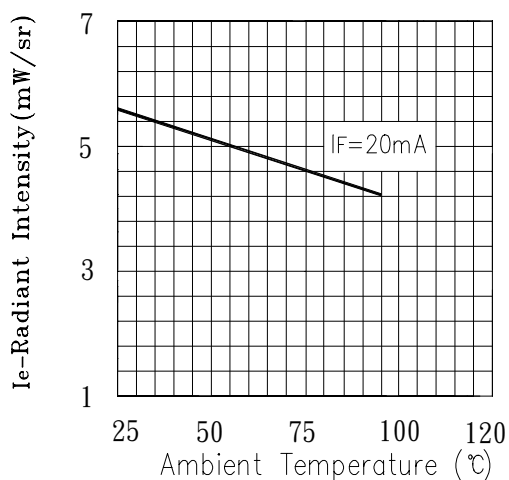
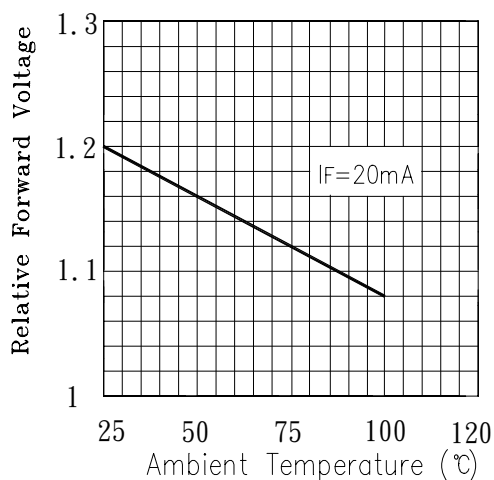


Fig. 8 Forward Current vs. Ambient Temperature (°C)





# EVERLIGHT ELECTRONICS CO., LTD.

DEVICE NUMBER : DIR-033-055      REV : 1.1  
 ECN : \_\_\_\_\_      PAGE : 6/8

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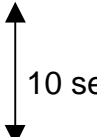
MODEL NO : IR333/S5

### ■ 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>Cycle | Sample Size | Failure Judgement Criteria  | Ac/Re |
|-----|----------------------------------|--|----------------------|-------------|---|-------|
| 1   | Solder Heat                      | TEMP : 260°C ± 5 °C  | 5 sec                | 22 PCs      |   | 0/1   |
| 2   | Temperature Cycle                | H : +85°C    30 min<br><br>L : -55°C    30 min | 50 cycle             | 22 PCs      | $I_R \geq U \times 2$<br>$E_e \leq L \times 0.8$<br>$V_F \geq U \times 1.2$ | 0/1   |
| 3   | Thermal Shock                    | H : +100°C    5 min<br><br>L : -10°C    5 min | 50 cycle             | 22 PCs      | U :Upper specification limit<br>L :Lower specification limit                | 0/1   |
| 4   | High Temperature Storage         | TEMP. : +100°C   | 1000 hrs             | 22 PCs      |   | 0/1   |
| 5   | Low Temperature Storage          | TEMP. : -55°C  | 1000 hrs             | 22 PCs      |   | 0/1   |
| 6   | DC Operating Life                | $I_F=20\text{mA}$  | 1000 hrs             | 22 PCs      |   | 0/1   |
| 7   | High Temperature / High Humidity | 85°C / 85% R.H.  | 1000 hrs             | 22 PCs      |   | 0/1   |



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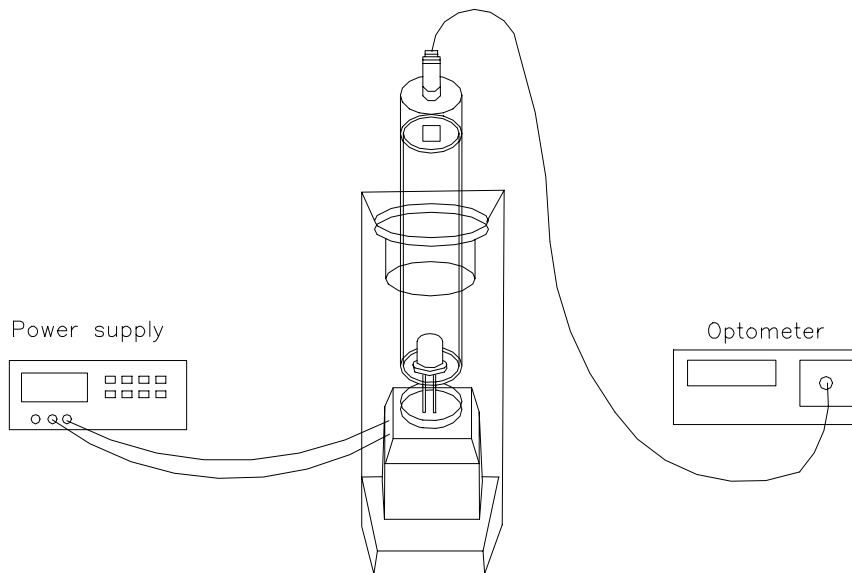
MODEL NO : IR333/S5

### ■ Test Method For Power :

Condition :  $I_F=20$  mA

Test Item : Radiant Intensity

Unit : mW/sr



### ■ To Distinguish Intensity:

Condition:  $I_F=20$ mA

| Bin Number | K    | L    | M    | N    |
|------------|------|------|------|------|
| Min        | 4.00 | 5.60 | 7.80 | 11.0 |
| Max        | 6.40 | 8.90 | 12.5 | 17.6 |

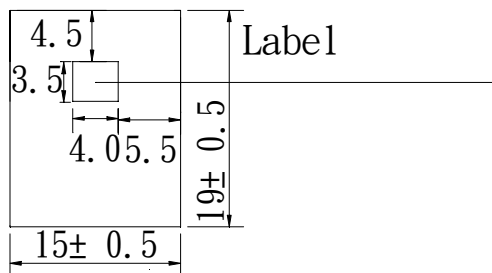


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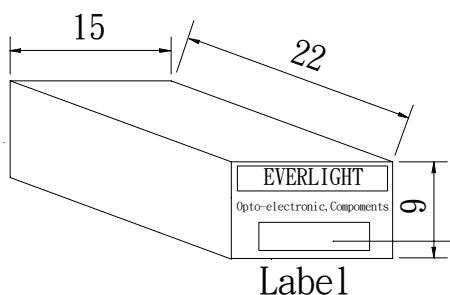
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### ■ Packing Specifications

1. Bag



2. Box



EVERLIGHT

CPN:

P/N:



IR333/S5

QTY:

CAT:



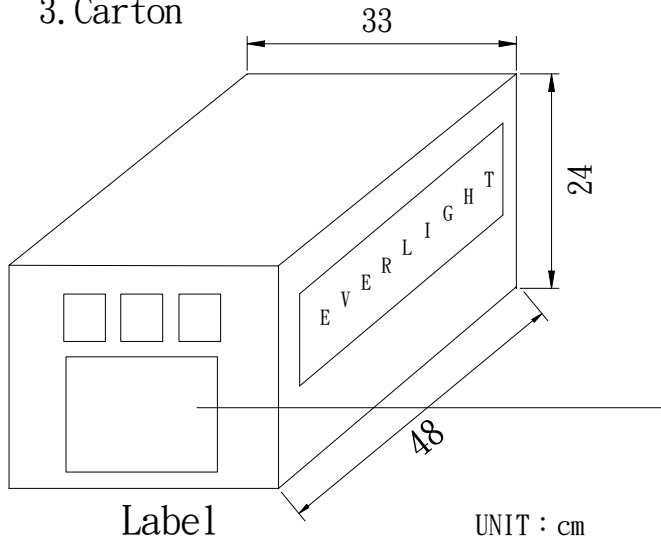
HUE:

REF:

LOT NO:

MADE IN TAIWAN

3. Carton



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

UNIT : cm

### ■ Packing Quantity Specification

1. 500 Pcs/1Bag , 6 Bags/1Box

2. 10 Boxes/1Carton