



EVERLIGHT ELECTRONICS CO., LTD.

Device Number: DIR-028-145

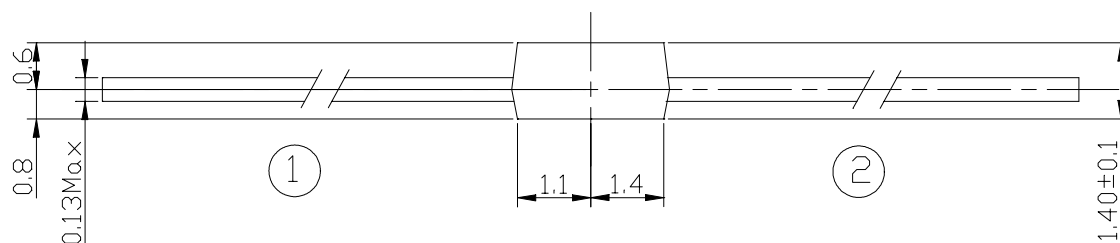
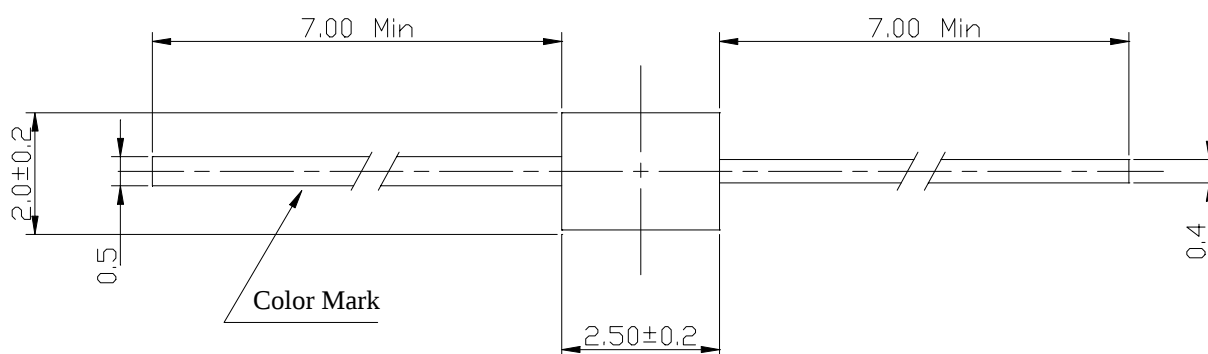
REV: 1.0

MODEL NO: IR28-21C

ECN:

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Package Dimensions:



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<http://www.everlight.com>



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©Notes :

- 1.All dimensions are in millimeter.
- 2.General Tolerance: $\pm 0.25\text{mm}$
- 3.Lead spacing is measured where the lead emerge from the package .
- 4.Lens color : Water clear.
- 5.Above specification may be changed without notice. EVERLIGHT will reserve authority on material change for above specification.
- 6.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.
- 7.When using this product , please observe the absolute maximum ratings and the instructions for use 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.

Description

IR28-21C is an Infrared Emitting Diode in miniature top view flat SMD package and it is molded in a water clear plastic. The device is spectrally matched with silicon photodiode and phototransistor.

Features

- Small double-end package
- Low forward voltage
- View angle 160°
- Peak wavelength $\lambda_p=940\text{nm}$

Applications

- Infrared source in tactile keyboard
- IR diode in low space application



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Absolute Maximum Ratings

(Ta=25°C)

Parameter	Symbol	Rating	Unit
Continuous Forward Current	I _F	30	mA
Peak Forward Current Pulse width=100 μ s , Duty cycle=1%	I _{FP}	1.0	A
Reverse Voltage	V _R	5	V
Operating Temperature Range	Topr	-25 to+85	°C
Storage Temperature Range	Tstg	-40 to+85	°C
Lead Soldering Temperature (1/16 inch from body for 5 sec.)	Tsol	260	°C
Power Dissipation at (or below) 25°C Free Air Temperature	Pd	40	mW

Electro Optical Characteristics

(Ta=25°C)

Parameter	Symbol	Min	Typ	Max	Unit	Condition
Radiant Intensity	Ee	0.3	0.6		mW/sr	I _F =20mA
			4.0			I _F =100mA, t _p =100 μ s, t _p /T=0.01
			30			I _F =1A, t _p =100 μ s, t _p /T=0.01
Peak Wavelength	λ_p		940		nm	I _F =20mA
Spectral Bandwidth	$\Delta\lambda$		45		nm	I _F =20mA
Forward Voltage	V _F		1.2	1.5	V	I _F =20mA
			1.4	1.85		I _F =100mA, t _p =100 μ s, t _p /T=0.01
			2.6	4.0		I _F =1A, t _p =100 μ s, t _p /T=0.01
Reverse Current	I _R			10	μ A	V _R =5V
View Angle	2 θ 1/2		160		deg	I _F =20mA



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Typical Electrical / Optical /Characteristics Curves

Fig. 1 Forward Current vs. Ambient Temperature

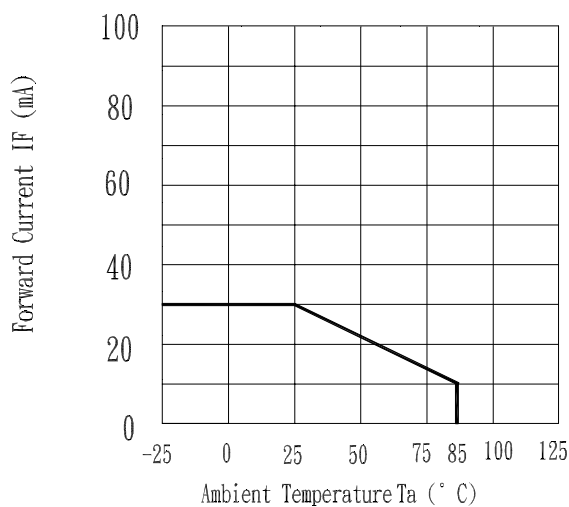


Fig. 2 Spectral Distribution

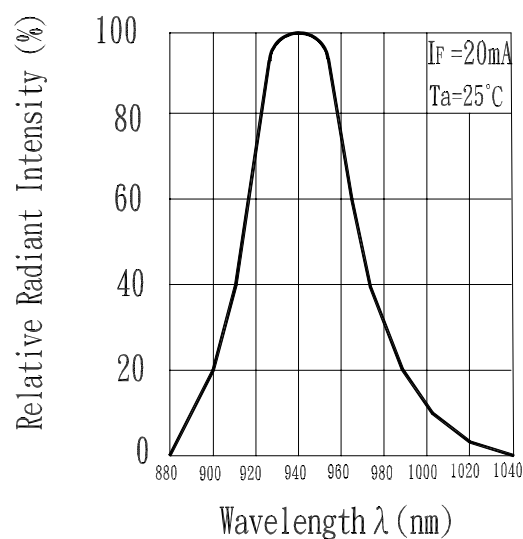


Fig. 3 Peak Emission Wavelength vs. Ambient Temperature

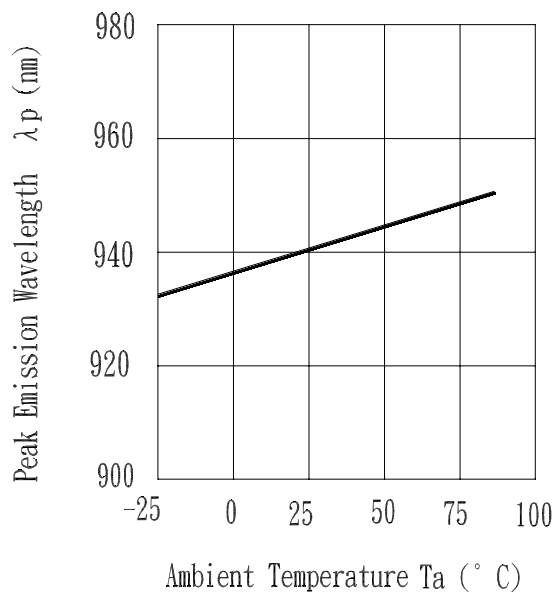
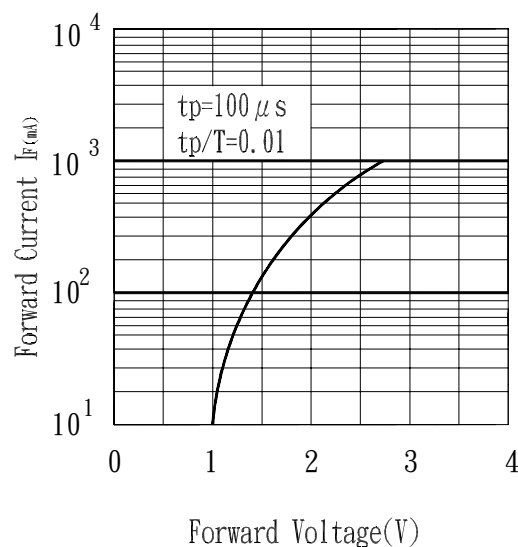


Fig. 4 Forward Current vs. Forward Voltage





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Typical Electrical / Optical /Characteristics Curves

Fig. 5 Relative Intensity vs.
Forward Current

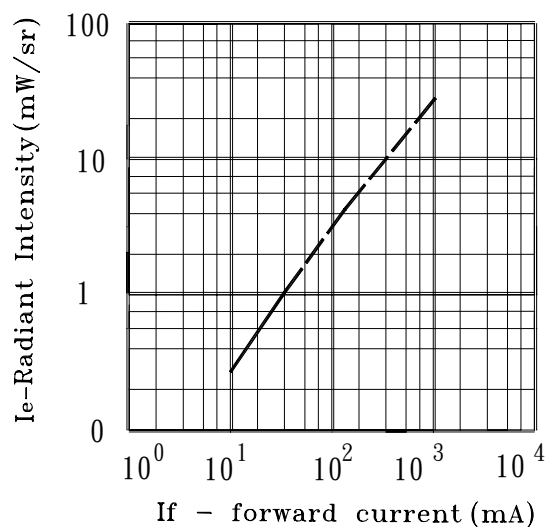


Fig. 6 Relative Radiant Intensity vs.
Angular Displacement

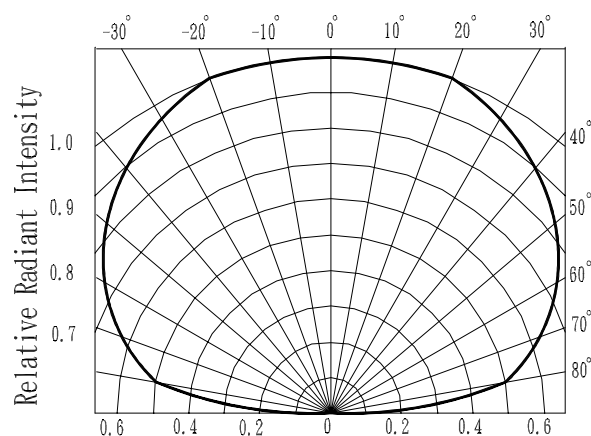


Fig. 7 Relative Intensity vs.
Ambient Temperature (°C)

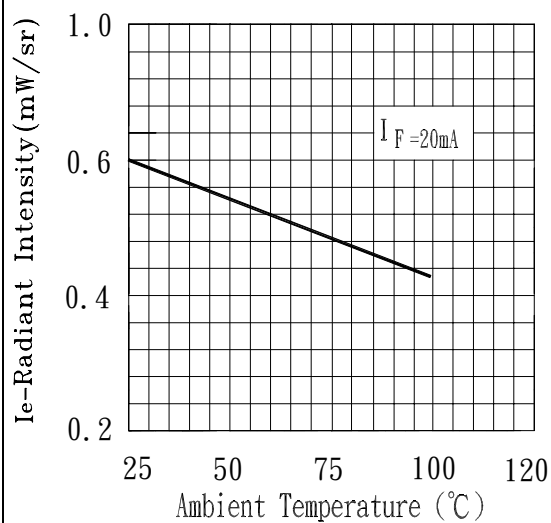
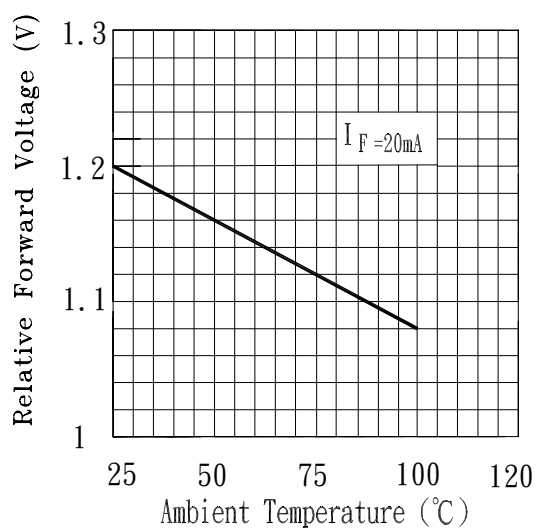


Fig. 8 Forward Current vs.
Ambient Temperature (°C)





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Reliability

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

Confidence level : 90%

LTPD : 10%

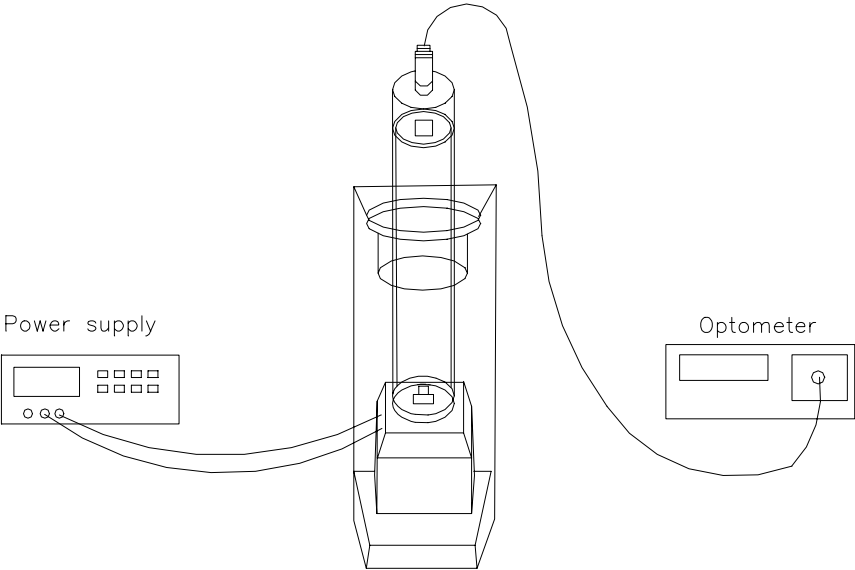
Test Items	Test Conditions	Failure Judgement Criteria	Samples(n)
			Defective(c)
Operation life	$I_F=20\text{mA}$, $T_a : 25^{\circ}\text{C}$ 1000hrs	$I_R \geq U \times 2$ $E_e \leq L \times 0.8$ $V_F \geq U \times 1.2$ U : Upper specification limit L : Lower specification limit	n =22 , c=0
Temperature cycle	1 cycle -55°C to $+85^{\circ}\text{C}$ to $+25^{\circ}\text{C}$ (30min) (5min) (30min) 50 cycle test		n =22 , c=0
Thermal shock	-10°C to $+100^{\circ}\text{C}$ (5min) (10sec) (5min) 50cycle test		n =22 , c=0
High temperature storage	Temp : $+100^{\circ}\text{C}$ 1000hrs		n =22 , c=0
Low temperature storage	Temp : -55°C 1000hrs		n =22 , c=0
High temperature High humidity	$T_a : 85^{\circ}\text{C}$ RH : 85% 1000hrs		n =22 , c=0
Solderability	Temp : $230 \pm 5^{\circ}\text{C}$ 5sec	More than 90% of Lead to be covered by soldering	n =22 , c=0



Test Method For Power

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

Test Item : Radiant Intensity (mW/sr)



Supplements

1.Parts

(1) Chip

Type	Material	Peak Wavelength
IR	GaAlAs	940nm

(2) Material

Type	Lead Frame	Wire	Package
Material	CAC92-H	Gold	Epoxy



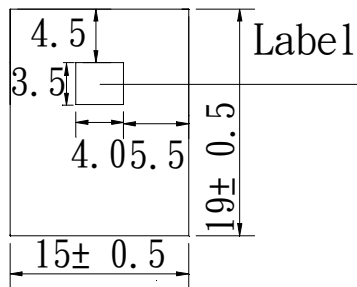
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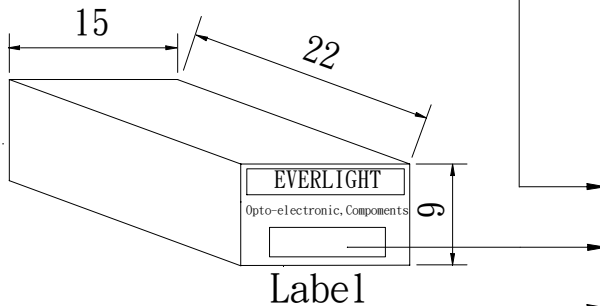
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Packing Specifications

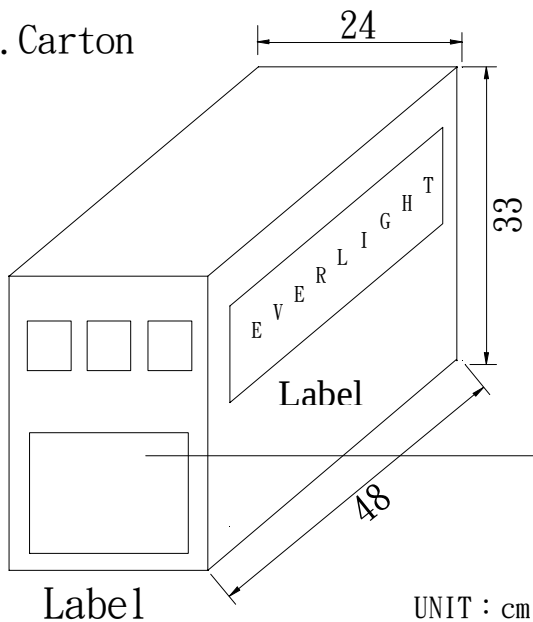
1. Bag



2. Box



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

Packing Quantity Specification

1.1K Pcs/1bag , 20Bags/1Box

2.10Boxes/1Carton