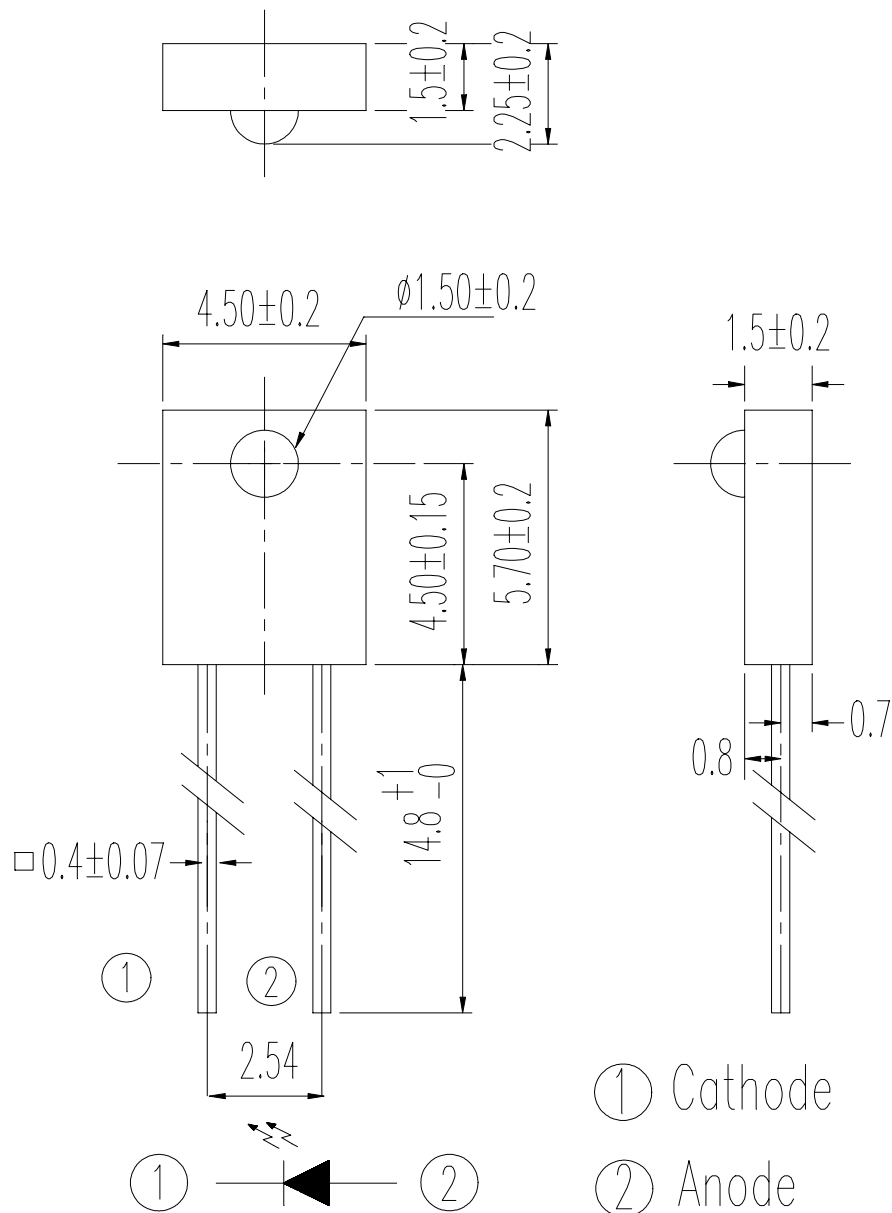




EVERLIGHT ELECTRONICS CO., LTD.

Device Number: DIR-090-106 REV: 1.2
MODEL NO: IR908-7C ECN: Page: 1/8

Package Dimensions:



Office: NO 25, Lane. 76, Chung Yang Rd., Sec.3, Tucheng, Taipei 236, Taiwan, R.O.C.

TEL: 886-2-2267-2000, 2267-9936 (22 Lines)

FAX: 886-2-2267-6189

http: [//www.everlight.com](http://www.everlight.com)



Device Number: DIR-090-106 REV: 1.2
MODEL NO: IR908-7C ECN: Page: 2/8

©Notes :

- 1.All dimensions are in millimeter.
- 2.General tolerance : $\pm 0.1\text{mm}$
- 3.Lead spacing is measured where the lead emerge from the package.
- 4.Above specification may be changed without notice. EVERLIGHT will reserve authority on material change for above specification.
- 5.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.
- 6.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

The **IR908-7C** is a GaAs(GaAlAs) infrared emitting diode. The miniature side-facing device has a chip that emits radiation from the side of the water clear package.

Features

- Low forward voltage
- Peak wavelength $\lambda_p=940\text{nm}$
- High reliability

Applications

- Mouse
- Optoelectronic switch
- Photo interrupter



Device Number: DIR-090-106 REV: 1.2
MODEL NO: IR908-7C ECN: Page: 3/8

Absolute Maximum Ratings

(Ta=25°C)

Item	Symbol	Rating	Unit
Power Dissipation	P _D	75	mW
Reverse Voltage	V _R	5	V
Forward Current	I _F	50	mA
Peak Forward Current(*1)	I _{FP}	1	A
Operating Temperature	T _{opr}	-25~+85	°C
Storage Temperature	T _{stg}	-40~+85	°C
Soldering Temperature (1/16 inch from body for 5 seconds)	T _{sol}	260	°C

(*1) tw=100 μ SEC., T=10 m SEC.

Electro-Optical Characteristics

(Ta=25°C)

Parameter	Symbol	Min	Typ	Max	Unit	Condition
Collector Current	I _{C(ON)}	140	---	980	μ A	I _F =4mA, V _{CE} =3.5V
		200	---	1030	μ A	
Peak Wavelength	λ _p	---	940	---	nm	I _F =20mA
Spectral Bandwidth	Δλ	---	50	---	nm	I _F =20mA
View Angle	2θ 1/2	---	60	---	Deg	I _F =20mA
Forward Voltage	V _F	---	1.2	1.6	V	I _F =20mA
Reverse Current	I _R	---	---	10	μ A	V _R =5V



Device Number: DIR-090-106 REV: 1.2
MODEL NO: IR908-7C ECN: Page: 4/8

Typical Characteristics

Fig. 1 Forward Current vs. Ambient Temperature

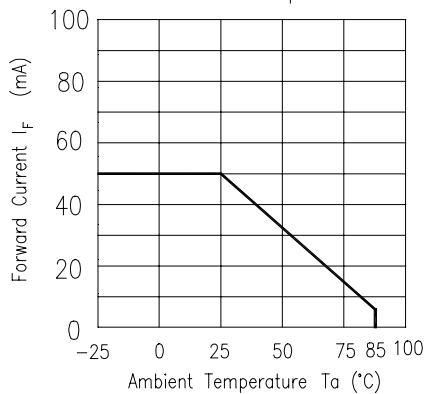


Fig. 2 Spectral Distribution

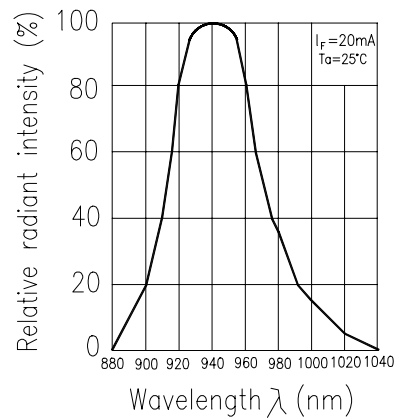


Fig. 3 Peak Emission Wavelength vs. Ambient Temperature

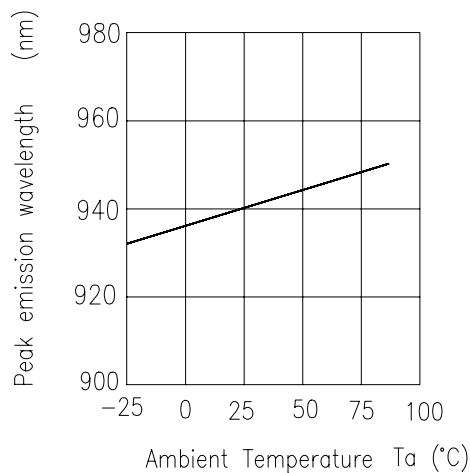


Fig. 4 Forward Current vs. Forward Voltage

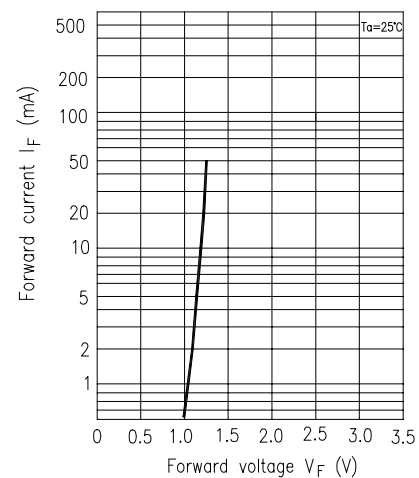


Fig. 5 Forward Voltage vs. Ambient Temperature

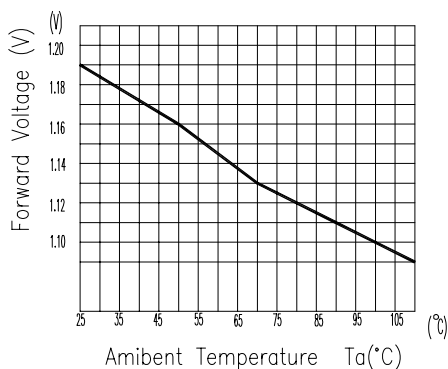
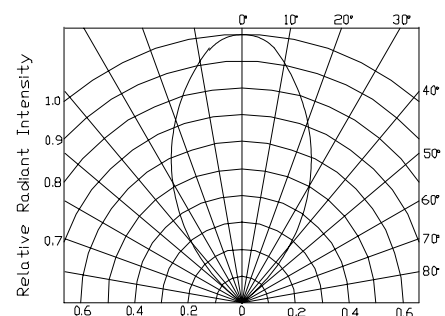
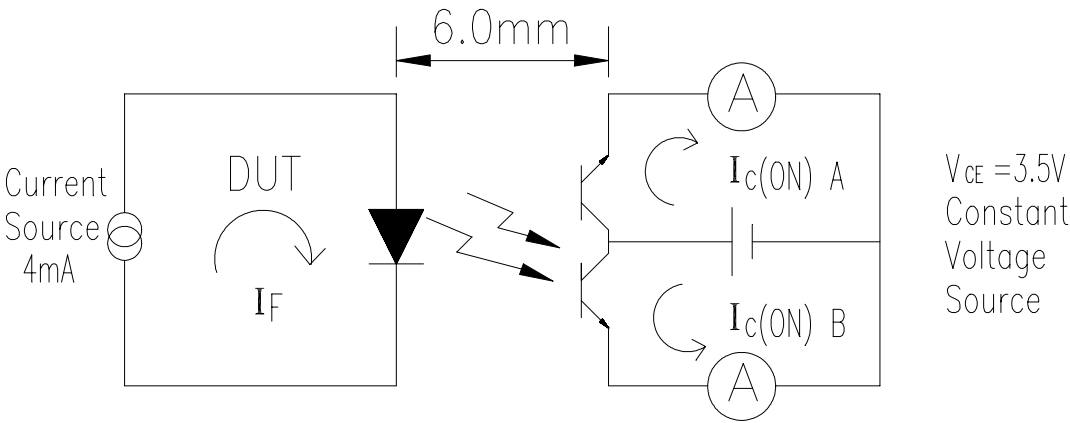


Fig. 6 Relative Radiant Intensity vs. Angular Displacement



Test Method

The intensity testing method of Infrared emitting diode:



Standard PTR

$$I_C(ON) = \frac{I_C(ON) A + I_C(ON) B}{2}$$

$$\text{Ratio} = I_C(ON) A / I_C(ON) B \approx 1.0$$

E Ranks

Color Code	Parameter	Symbol	Min	Max	Unit	Test Condition
Red	E1	$I_C(ON)$	140	260	μA	$I_F=4mA, V_{CE}=3.5V$
Blue	E2	$I_C(ON)$	210	350	μA	$I_F=4mA, V_{CE}=3.5V$
Yellow	E3	$I_C(ON)$	280	440	μA	$I_F=4mA, V_{CE}=3.5V$
Silver	E4	$I_C(ON)$	350	530	μA	$I_F=4mA, V_{CE}=3.5V$
Green	E5	$I_C(ON)$	420	620	μA	$I_F=4mA, V_{CE}=3.5V$
Purple	E6	$I_C(ON)$	490	710	μA	$I_F=4mA, V_{CE}=3.5V$
White	E7	$I_C(ON)$	560	800	μA	$I_F=4mA, V_{CE}=3.5V$
Brown	E8	$I_C(ON)$	630	890	μA	$I_F=4mA, V_{CE}=3.5V$
Orange	E9	$I_C(ON)$	700	980	μA	$I_F=4mA, V_{CE}=3.5V$
Collector Current Ratio of 2 Photo Transistors		R	0.8	---	1.2	$I_C(ON)A / I_C(ON)B$

* $I_C(ON) = [I_C(ON)A + I_C(ON)B] / 2$

**M Ranks**

Color Code	Parameter	Symbol	Min	Max	Unit	Test Condition
Red	M1	$I_C(ON)$	200	390	μA	$I_F=4mA, V_{CE}=3.5V$
Blue	M2	$I_C(ON)$	270	470	μA	$I_F=4mA, V_{CE}=3.5V$
Yellow	M3	$I_C(ON)$	340	550	μA	$I_F=4mA, V_{CE}=3.5V$
Silver	M4	$I_C(ON)$	410	630	μA	$I_F=4mA, V_{CE}=3.5V$
Green	M5	$I_C(ON)$	480	710	μA	$I_F=4mA, V_{CE}=3.5V$
Purple	M6	$I_C(ON)$	550	790	μA	$I_F=4mA, V_{CE}=3.5V$
White	M7	$I_C(ON)$	620	870	μA	$I_F=4mA, V_{CE}=3.5V$
Brown	M8	$I_C(ON)$	690	950	μA	$I_F=4mA, V_{CE}=3.5V$
Orange	M9	$I_C(ON)$	760	1030	μA	$I_F=4mA, V_{CE}=3.5V$
Collector Current Ratio of 2 Photo Transistors		R	0.8	---	1.2	$I_C(ON)A / I_C(ON)B$

* $I_C(ON)=[I_C(ON)A+I_C(ON)B]/2$

*For the intensity test method, the output intensity is measured indirectly by measuring the emitter current of a “standard phototransistor”. The parts are 6mm apart (lead center to lead center), the test condition is $I_F=4mA, V_{CE}=3.5V$. The calibration standard for PTR sensitivity is $532 \mu A$ when irradiated with a $0.555mW/cm^2$ light source. When exposed to the uniform light, Collector Current Ratio of 2 Photo transistors must be 1.0 almost. Maximum and minimum values must include all variations due to mechanical electrical sorting and measurement error.

Supplement

1.Parts (1) Chip

Type	Material	Peak Wavelength
IR	GaAs or GaAlAs	940nm

(2) Material

Type	Lead frame	Wire	Package
Material	SPCC	Gold	Epoxy



Device Number: DIR-090-106 REV: 1.2
MODEL NO: IR908-7C ECN: Page: 7/8

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)
			Defect (c)
Operating life test	$V_{CE}=5V$, $I_F=20mA$ $T_a : 25^{\circ}C$ 1000hrs	$I_{C(on)} \leq L \times 0.8$ $V_F \leq U \times 1.2$ $I_R \leq U \times 2$ L : Lower specification limit U : Upper specification limit	$n = 22$, $c=0$
Temperature cycle	1cycle $-55^{\circ}C$ to $+25^{\circ}C$ to $+85^{\circ}C$ (30min) (5min) (30min) 50 cycle test		$n = 22$, $c=0$
Thermal shock	$-55^{\circ}C$ to $+85^{\circ}C$ (5min) (10 sec) (5min) 50cycle test		$n = 22$, $c=0$
High temperature storage	Temp : $+100^{\circ}C$ 1000hrs		$n = 22$, $c=0$
Low temperature storage	Temp : $-55^{\circ}C$ 1000hrs		$n = 22$, $c=0$
High temperature High humidity	$T_a : 85^{\circ}C$ RH : 85% 1000hrs		$n = 22$, $c=0$
Solder heat	Temp : $260 \pm 5^{\circ}C$ 10 sec	More than 90% of lead to be covered by soldering	$n = 22$, $c=0$
Solderability	Temp : $230 \pm 5^{\circ}C$ 3 sec 4mm from the bottom of the package.		$n = 22$, $c=0$

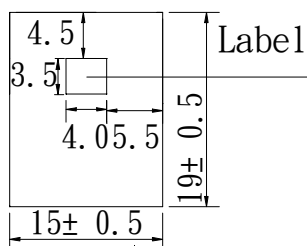


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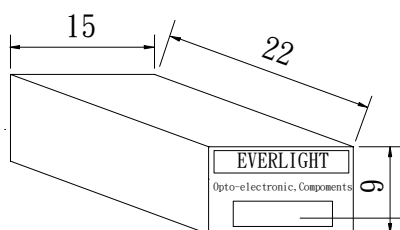
Device Number: DIR-090-106 REV: 1.2
MODEL NO: IR908-7C ECN: Page: 8/8

Packing Specifications

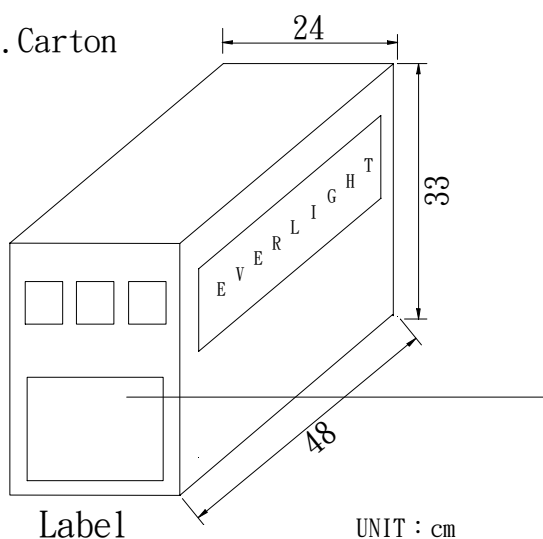
1. Bag



2. Box



3. Carton



UNIT : cm

EVERLIGHT

CPN:

P/N: 3409081003



IR908-7C

QTY: 1000



CAT:

HUE:

REF:

LOT NO:

MADE IN TAIWAN

CPN: Customer's product number

P/N: Product number

QTY: Packing quantity

CAT: Ranks

HUE: Peak wavelength

REF: Reference

LOT NO: Lot number

MADE IN TAIWAN: Production place

Packing Quantity Specification

1.1000Pcs/1bag , 6bags/1box

2.10boxes/1Carton