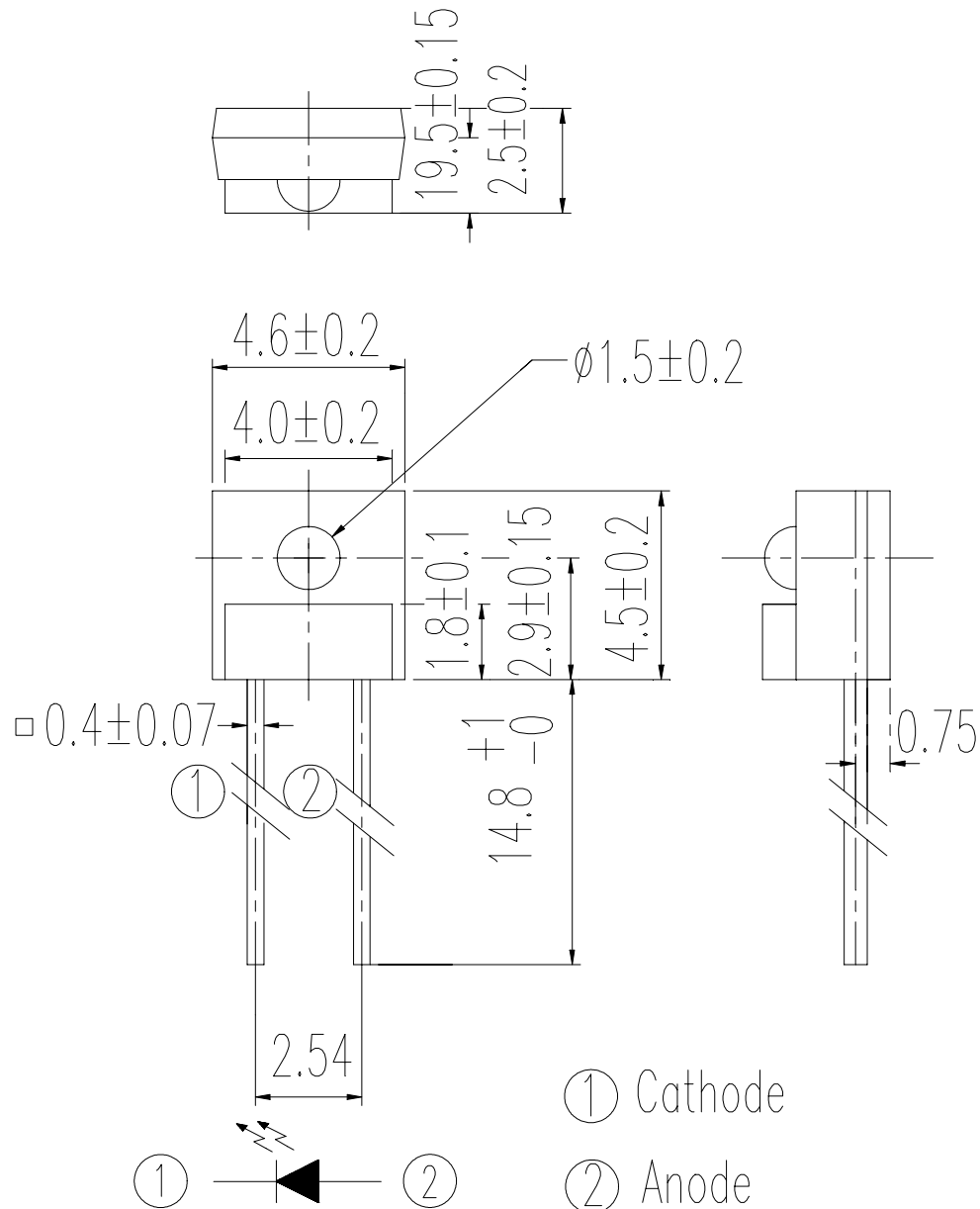




Device Number: DIR-092-107 REV: 1.2
MODEL NO: IR928-6C ECN: _____ Page: 1/8

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



Device Number: DIR-092-107 REV: 1.2
MODEL NO: IR928-6C 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 **IR928-6C** is a GaAs(GaAlAs) infrared emitting diode. The miniature side-facing device has a chip that emits radiation from the side of the clear package.

Features

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

Applications

- Mouse
- Optoelectronic switch
- Photo interrupter



Device Number: DIR-092-107 REV: 1.2
 MODEL NO: IR928-6C 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	Topr	-25~+85	°C
Storage Temperature	Tstg	-40~+85	°C
Soldering Temperature (1/16 inch from body for 5 seconds)	Tsol	260	°C

(*1) $t_w=100 \mu\text{SEC.}$, $T=10 \text{ m SEC.}$

Electro-Optical Characteristics

(Ta=25°C)

Parameter	Symbol	Min	Typ	Max	Unit	Condition
Collector Current	$I_{C(ON)}$	280	---	1000	μA	$I_F=4\text{mA}, V_{CE}=3.5\text{V}$
		300	---	1300	μA	
Peak Wavelength	λ_p	---	940	---	nm	$I_F=20\text{mA}$
Spectral Bandwidth	$\Delta\lambda$	---	50	---	nm	$I_F=20\text{mA}$
View Angle	$2\theta_{1/2}$	---	40	---	Deg	$I_F=20\text{mA}$
Forward Voltage	V_F	---	1.2	1.6	V	$I_F=20\text{mA}$
Reverse Current	I_R	---	---	10	μA	$V_R=5\text{V}$



Device Number: DIR-092-107 REV: 1.2
MODEL NO: IR928-6C ECN: _____ Page: 4/8

Typical Characteristics

Fig. 1 Forward Current vs. Ambient Temperature

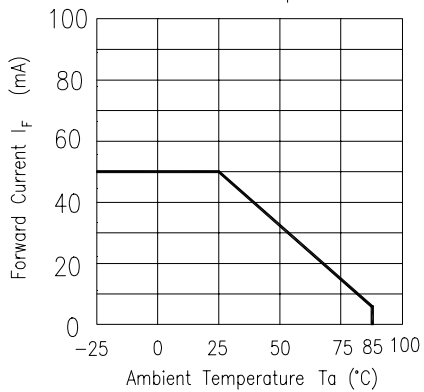


Fig. 2 Spectral Distribution

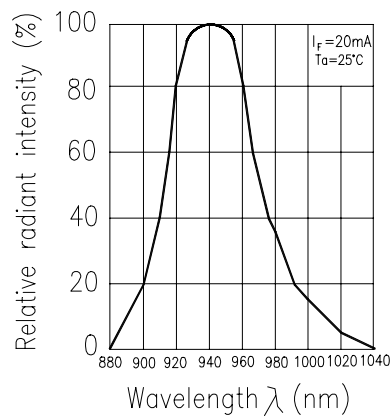


Fig. 3 Peak Emission Wavelength vs. Ambient Temperature

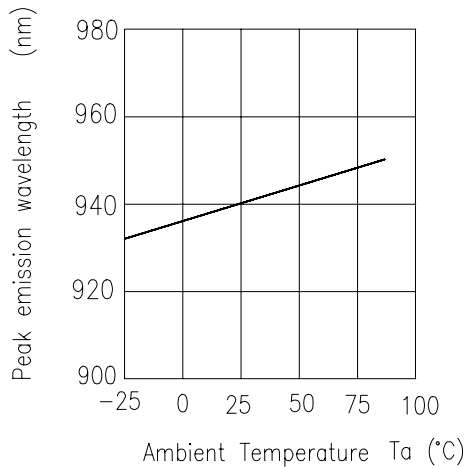


Fig. 4 Forward Current vs. Forward Voltage

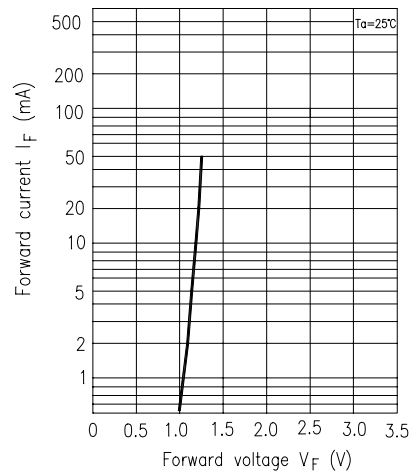


Fig. 5 Forward Voltage vs. Ambient Temperature

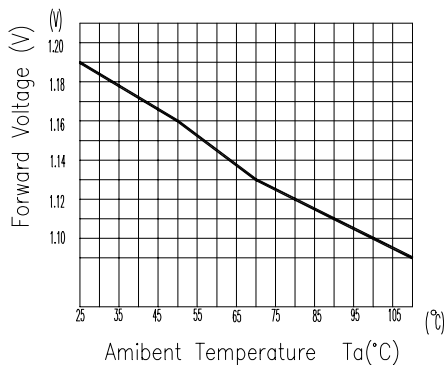
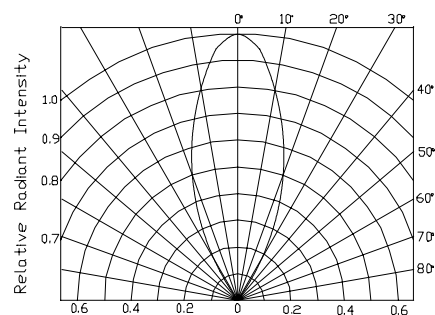
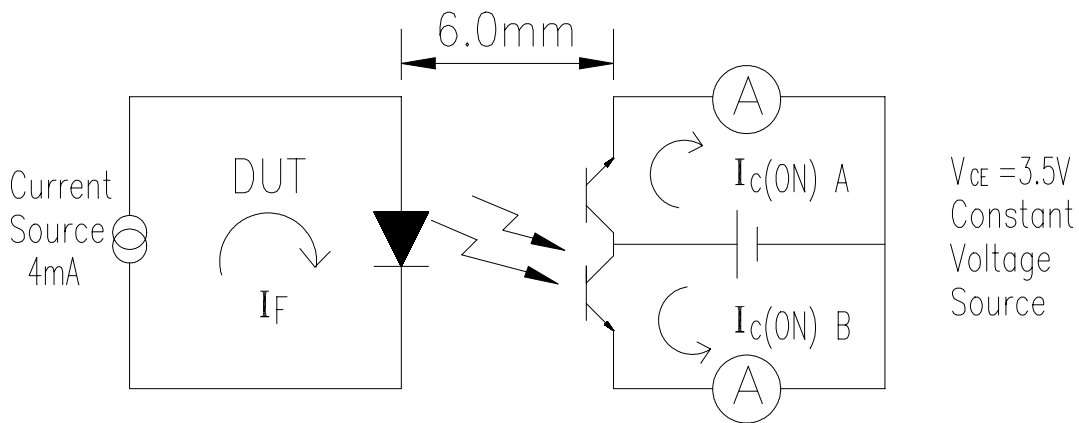


Fig. 6 Relative Radiant Intensity vs. Angular Displacement



Test Method

The intensity testing method of Infrared emitting diode:



Standard PTR

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

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

Ranks

Color Code	Parameter	Symbol	Min	Max	Unit	Test Condition
Blue	7-2	$I_C(ON)$	300	450	μA	$I_F=4mA, V_{CE}=3.5V$
Yellow	7-1	$I_C(ON)$	340	520	μA	$I_F=4mA, V_{CE}=3.5V$
Silver	6-2	$I_C(ON)$	490	750	μA	$I_F=4mA, V_{CE}=3.5V$
Green	6-1	$I_C(ON)$	650	1300	μA	$I_F=4mA, V_{CE}=3.5V$
Collector Current Ratio of 2 Photo Transistors		R	0.8	1.2	---	$I_C(ON)A / I_C(ON)B$

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



Device Number: DIR-092-107 REV: 1.2
MODEL NO: IR928-6C ECN: _____ Page: 6/8

E Ranks

Color Code	Parameter	Symbol	Min	Max	Unit	Test Condition
Red	E1	I _C (ON)	280	420	μ A	I _F =4mA, V _{CE} =3.5V
Blue	E2	I _C (ON)	340	480	μ A	I _F =4mA, V _{CE} =3.5V
Yellow	E3	I _C (ON)	400	540	μ A	I _F =4mA, V _{CE} =3.5V
Silver	E4	I _C (ON)	460	600	μ A	I _F =4mA, V _{CE} =3.5V
Green	E5	I _C (ON)	520	660	μ A	I _F =4mA, V _{CE} =3.5V
Purple	E6	I _C (ON)	580	720	μ A	I _F =4mA, V _{CE} =3.5V
White	E7	I _C (ON)	640	780	μ A	I _F =4mA, V _{CE} =3.5V
Brown	E8	I _C (ON)	700	880	μ A	I _F =4mA, V _{CE} =3.5V
Orange	E9	I _C (ON)	800	1000	μ A	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 μ A when irradiated with a 0.555mW/cm² 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



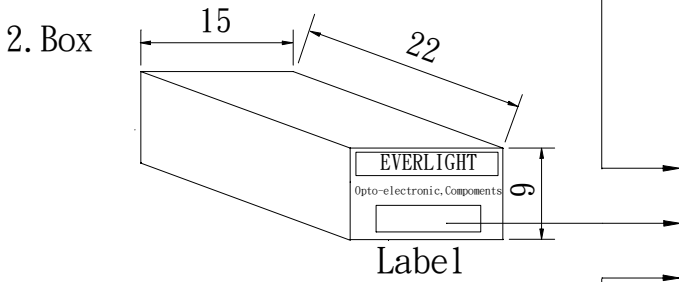
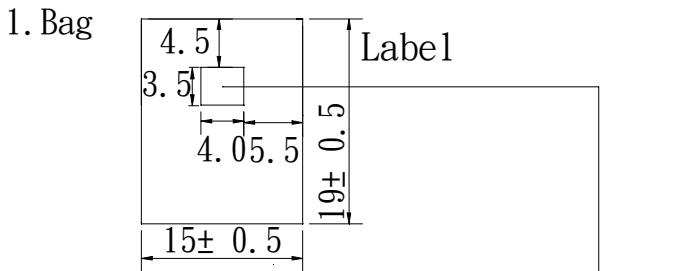
Device Number: DIR-090-107 REV: 1.2
 MODEL NO: IR928-6C ECN: _____ Page: 7/8

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	$I_{c(on)} \leq L \times 0.8$ $V_F \geq U \times 1.2$ $I_R \geq U \times 2$ 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		n =22 , c=0
Solderability	Temp : $230 \pm 5^{\circ}C$ 3 sec 4mm from the bottom of the package.		More than 90% of lead to be covered by soldering



Device Number: DIR-092-107 REV: 1.2
MODEL NO: IR928-6C ECN: _____ Page: 8/8

Packing Specifications



CPN:
P/N: 3409281903



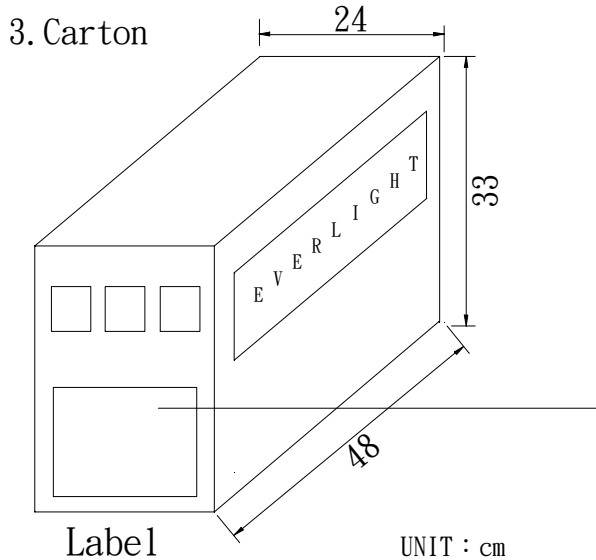
IR928-6C

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