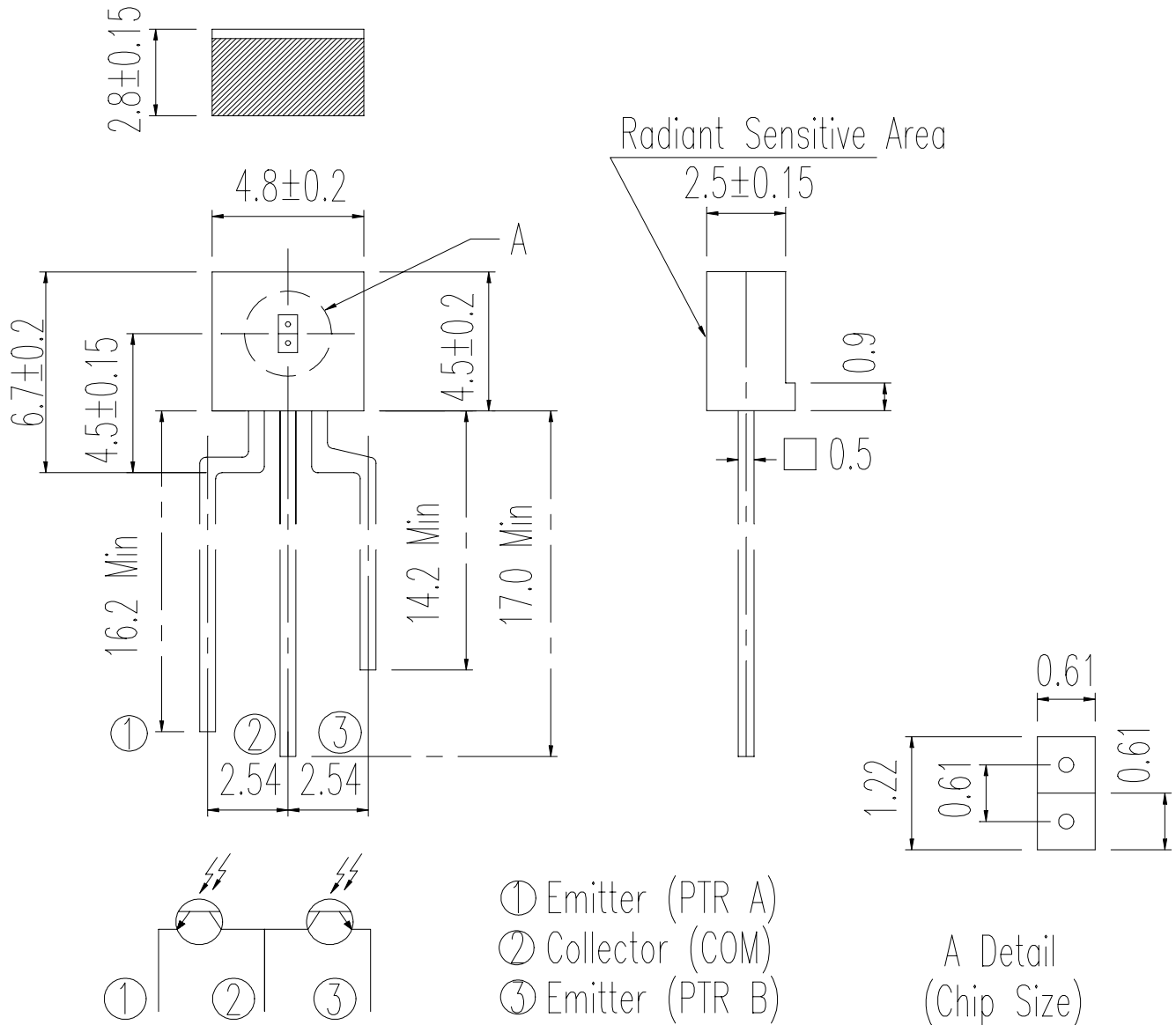




EVERLIGHT ELECTRONICS CO., LTD.

Device Number: DPT-552-067 REV: 1.1
MODEL NO: PT5529B/L2 ECN: Page: 1/8

Package Dimensions:



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

FAX: 886-2-2267-6189

http: //www.everlight.com



Device Number: DPT-552-067 REV: 1.1
MODEL NO: PT5529B/L2 ECN: Page: 2/8

◎Notes :

- 1.All dimensions are in millimeter.
- 2.Lead spacing is measured where the lead emerge from the package .
- 3.Above specification may be changed without notice. EVERLIGHT will reserve authority on material change for above specification.
- 4.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.
- 5.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 **PT5529B/L2** is a high speed and high sensitivity dual phototransistor;molded in a flat side view plastic package .

The device is spectrally matched with IR emitters.

Features

- Wide angle of half sensitivity $\theta = \pm 65^\circ$
- High sensitivity
- Fast response time

Applications

- Mouse
- Optoelectronic Switch
- Photo Interrupter



EVERLIGHT ELECTRONICS CO., LTD.

Device Number: DPT-552-067 REV: 1.1
MODEL NO: PT5529B/L2 ECN: Page: 3/8

Absolute Maximum Ratings

(Ta=25°C)

ITEM	SYMBOL	RATING	UNIT
Collector Power Dissipation	Pc	100	mW
Collector-Emitter Voltage	V _{CEO}	30	V
Emitter-Collector Voltage	V _{ECO}	5	V
Collector Current	Ic	20	mA
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

Electro-Optical Characteristics

(Ta=25°C)

Parameter		Symbol	Min	Typ	Max	Unit	Condition
Collector Dark Current		I _{CEO}	-	-	100	nA	V _{CE} =20V, Ee=0mW/cm ²
C-E Saturation Voltage		V _{CE(Sat)}	-	-	0.4	V	Ic=0.5mA, Ee=10mW/cm ²
Light Current		I _{C(ON)}	200	-	1400	μA	V _{CE} =5V, Ee=1mW/cm ²
Wavelength of Peak Sensitivity		λ _p	-	860	-	nm	---
Range of Spectral Bandwidth		λ _{0.5}	-	840...1200	-	nm	---
Response Time	Rise Time	t _r	-	15	-	μSec	V _{CE} =5V Ic=1mA R _L =1000Ω
	Fall Time	t _f	-	15	-	μSec	
Half sensitivity angle		Δθ	-	± 65	-	Deg	---
Collector-Base Capacitance		C _{CB}	5.4	6.4	7.4	pF	f=1MHz, V _{CB} =3V



Device Number: DPT-552-067 REV: 1.1
MODEL NO: PT5529B/L2 ECN: Page: 4/8

Typical Characteristics

Fig.1 Collector Power Dissipation vs. Ambient Temperature

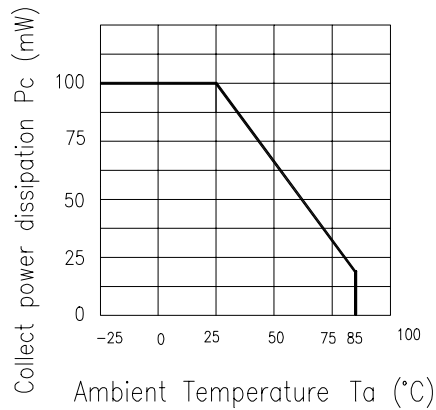


Fig.2 Collector Dark Current vs. Ambient Temperature

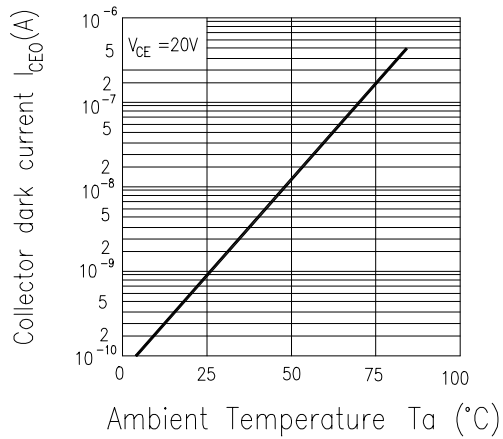


Fig. 3 Relative Collector Current vs. Ambient Temperature

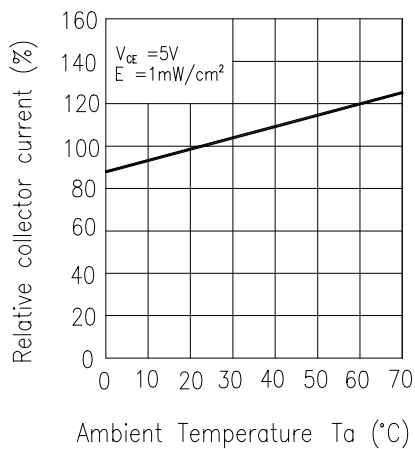


Fig.4 Collector Current vs. Irradiance

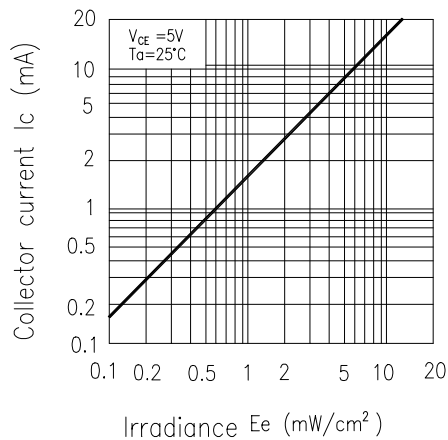


Fig.5 Spectral Sensitivity

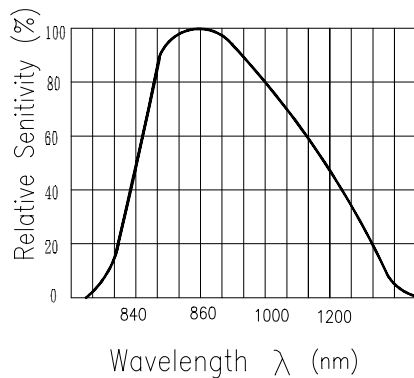
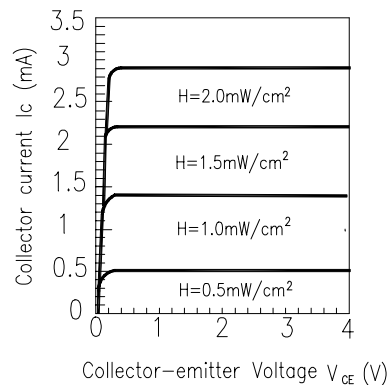


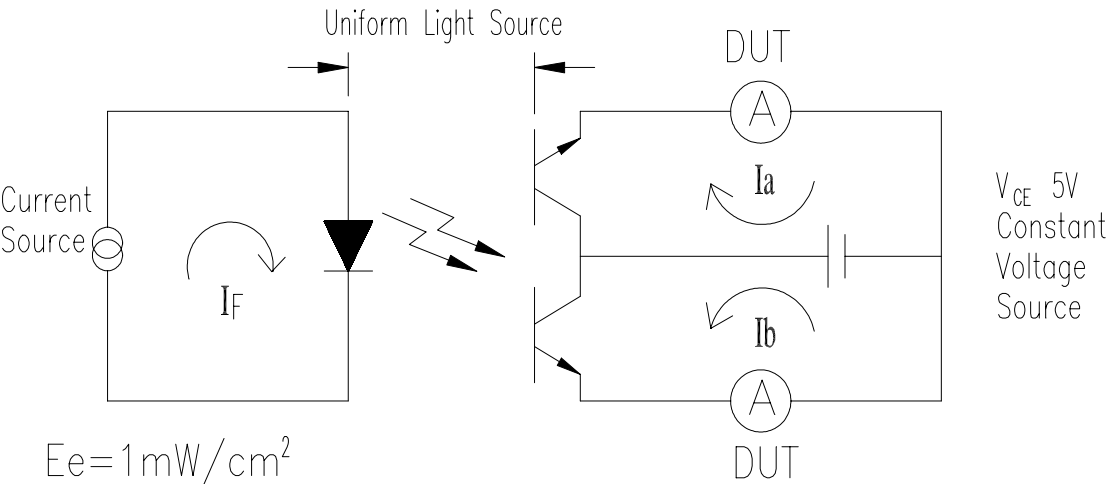
Fig.6 Collector Current vs. Collector-emitter Voltage





Test Method

The Light current testing method for PTR:



Ranks

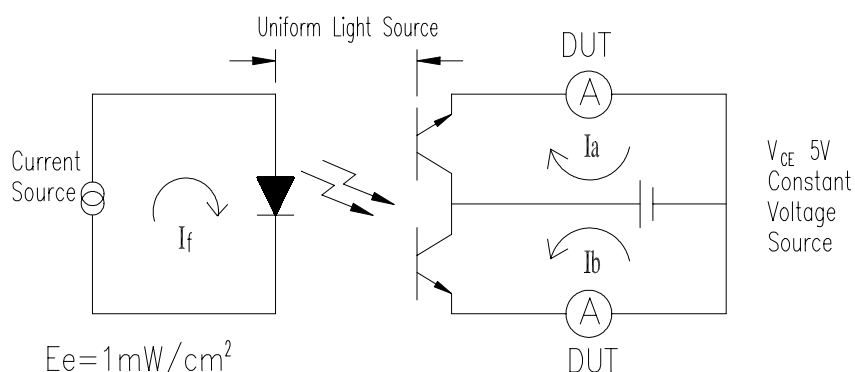
Color Code	Ranks	Symbol	Min	Typ	Max	Unit	Test Condition
Red	N1	$I_{C(ON)}$	210	---	350	μA	$E_e = 1 \text{ mW/cm}^2$ $V_{CE} = 5V$
Blue	N2	$I_{C(ON)}$	280	---	430	μA	$E_e = 1 \text{ mW/cm}^2$ $V_{CE} = 5V$
Yellow	N3	$I_{C(ON)}$	350	---	510	μA	$E_e = 1 \text{ mW/cm}^2$ $V_{CE} = 5V$
Silver	N4	$I_{C(ON)}$	420	---	590	μA	$E_e = 1 \text{ mW/cm}^2$ $V_{CE} = 5V$
Green	N5	$I_{C(ON)}$	490	---	670	μA	$E_e = 1 \text{ mW/cm}^2$ $V_{CE} = 5V$
Purple	N6	$I_{C(ON)}$	560	---	750	μA	$E_e = 1 \text{ mW/cm}^2$ $V_{CE} = 5V$
White	N7	$I_{C(ON)}$	630	---	830	μA	$E_e = 1 \text{ mW/cm}^2$ $V_{CE} = 5V$
Brown	N8	$I_{C(ON)}$	700	---	910	μA	$E_e = 1 \text{ mW/cm}^2$ $V_{CE} = 5V$
Light Current Ratio of 2 Photo Transistors		R	0.8	---	1.2	---	I_a / I_b

* $I_{C(ON)} = (I_a + I_b) / 2$

Device Number: DPT-552-067 REV: 1.1
MODEL NO: PT5529B/L2 ECN: Page: 6/8

Test Method

The Light current testing method for PTR:



Ranks

Color Code	Ranks	Symbol	Min	Typ	Max	Unit	Test Condition
Red	A1	$I_{C(ON)}$	200	---	350	μA	$E_e=1mw/cm^2$ $V_{CE}=5V$
Blue	A2	$I_{C(ON)}$	300	---	470	μA	$E_e=1mw/cm^2$ $V_{CE}=5V$
Yellow	A3	$I_{C(ON)}$	400	---	580	μA	$E_e=1mw/cm^2$ $V_{CE}=5V$
Silver	A4	$I_{C(ON)}$	500	---	700	μA	$E_e=1mw/cm^2$ $V_{CE}=5V$
Green	A5	$I_{C(ON)}$	600	---	820	μA	$E_e=1mw/cm^2$ $V_{CE}=5V$
Purple	A6	$I_{C(ON)}$	700	---	935	μA	$E_e=1mw/cm^2$ $V_{CE}=5V$
White	A7	$I_{C(ON)}$	800	---	1050	μA	$E_e=1mw/cm^2$ $V_{CE}=5V$
Brown	A8	$I_{C(ON)}$	900	---	1170	μA	$E_e=1mw/cm^2$ $V_{CE}=5V$
Orange	A9	$I_{C(ON)}$	1000	---	1280	μA	$E_e=1mw/cm^2$ $V_{CE}=5V$
Gold	A10	$I_{C(ON)}$	1100	---	1400	μA	$E_e=1mw/cm^2$ $V_{CE}=5V$
Light Current Ratio of 2 Photo Transistors		R	0.8	---	1.2		I_a / I_b

$$* I_{C(ON)} = (I_a + I_b) / 2$$

Supplement

1.Parts

(1) Chip

Type	Material	Peak Wavelength
Dual-Chip	Silicon	860nm

(2) Material

Type	Lead frame	Wire	Package
Material	SPCC	Gold	Epoxy

**Reliability**

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

Confidence level : 90%

LTPD : 10%

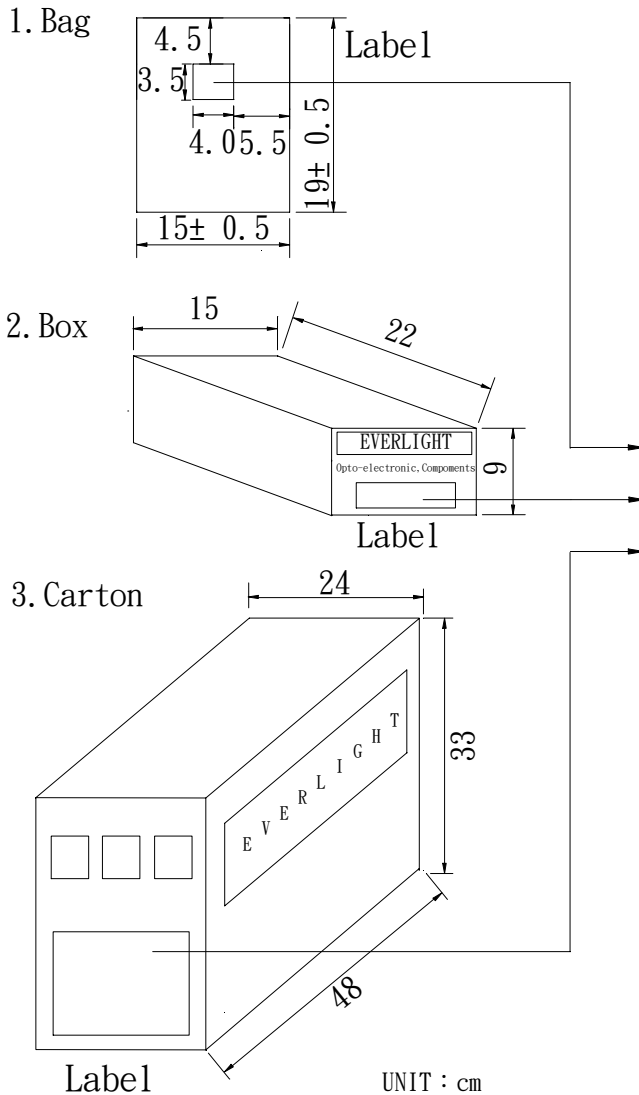
Test Items	Test Conditions	Failure Judgement Criteria	Samples(n)
			Defective(c)
Operating life test	$V_{CE}=5V$ $T_a : 25^{\circ}C$ 1000hrs	$I_C(ON) \leq L \times 0.8$ L : Lower specification limit	n =22 , c=0
Temperature cycle	1cycle $-55^{\circ}C$ to $+25^{\circ}C$ to $+85^{\circ}C$ (30min) (5min) (30min) 50 cycle test		n =22 , c=0
Thermal shock	$-10^{\circ}C$ to $+100^{\circ}C$ (5min) (10sec) (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	More than 90% of Lead to be covered by soldering	n =22 , c=0



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Packing Specifications



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

1.500Pcs/1bag , 10bags/1box
2.10boxes/1Carton