



EVERLIGHT ELECTRONICS CO., LTD.

# DATA SHEET

MODEL NO : PT67-21B/C2/L41/TR8

DATE : JUL,03,2000

DEPARTMENT : R&D 2

REVISION : 1.0

## RECEIVED

<input checked="" type="checkbox"/> MASS PRODUCTION			
<input type="checkbox"/> PRELIMINARY			
<input type="checkbox"/> CUSTOMER DESIGN			
DEVICE NUMBER : DTT-067-028			
PAGE : 7			
CUSTOMER	DESIGNER	CHECKER	APPROVER

REV	DESCRIPTION	RELEASE DATE

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<http://www.everlight.com>



## Top Phototransistor

MODEL NO : PT67-21B/C2/L41/TR8

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### ■ Features :

- Fast response time
- High photo sensitivity
- Small junction capacitance
- High reliability

### ■ Description :

- PT67-21B/C2/L41/TR8 is a high speed silicon NPN epitaxial planar phototransistor in a compact surface-mountable package. It's compatible with automatic placement equipment and can withstand IR reflow,vapor phase reflow,and wave solder processes.

### ■ Applications :

- Miniature switch
- Counters and sorter
- Interrupter
- Tape and card reader
- Encoder
- Position sensor

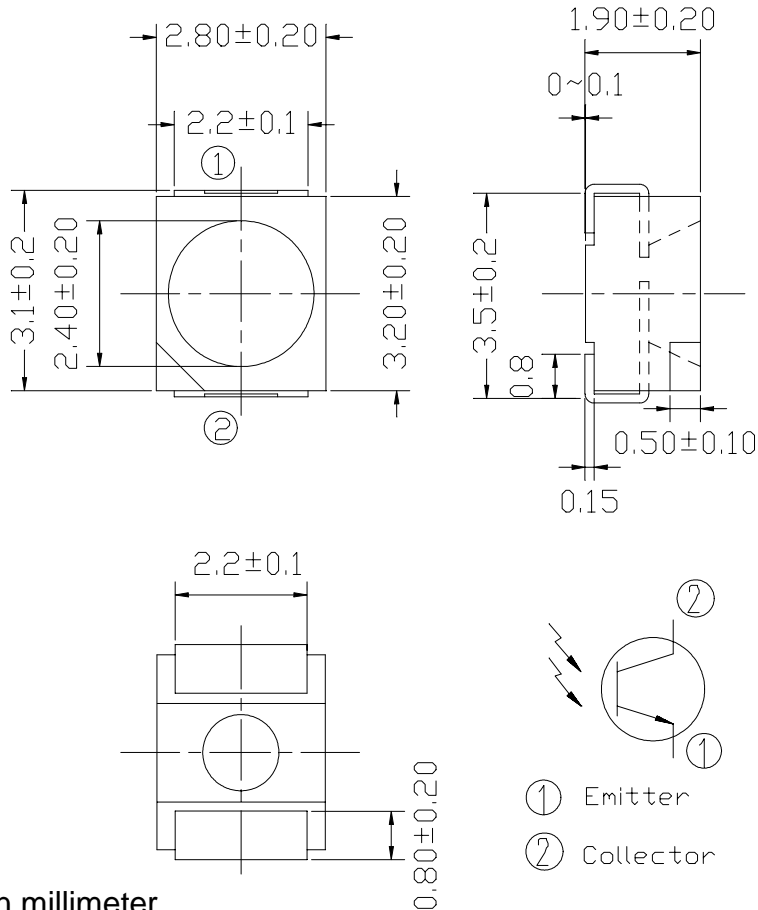
PART NO.	CHIP	LENS COLOR
	MATERIAL	
PT	Silicon	Black

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## Top Phototransistor

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### ■ Package Dimensions :



### ■ Notes :

1. All dimensions are in millimeter.
2. General Tolerance:  $\pm 0.1$ mm
3. Lens color : Black transparent.
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.



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### ■ Absolute Maximum Ratings at $T_A = 25^\circ\text{C}$

Parameter	Symbol	Rating	Unit	Notice
Collector-Emitter Voltage	$V_{CEO}$	60	V	
Emitter-Collector-Voltage	$V_{ECO}$	5	V	
Collector Current	$I_C$	50	mA	
Operating Temperature	$T_{opr}$	-25 ~ +85	$^\circ\text{C}$	
Storage Temperature	$T_{stg}$	-40 ~ +85	$^\circ\text{C}$	
Lead Soldering Temperature	$T_{sol}$	260	$^\circ\text{C}$	
Power Dissipation at(or below) 25 $^\circ\text{C}$ Free Air Temperature	$P_c$	100	mW	

### ■ Electronic Optical Characteristics :

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Collector-Emitter Breakdown Voltage	$BV_{CEO}$	60	----	----	V	$I_C=100\ \mu\text{A}$ $E_e=0\text{mW}/\text{cm}^2$
Emitter-Collector Breakdown Voltage	$BV_{ECO}$	5	----	----	V	$I_E=100\ \mu\text{A}$ $E_e=0\text{mW}/\text{cm}^2$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	----	----	0.4	V	$I_C=2\text{mA}$ $E_e=1\text{mW}/\text{cm}^2$
Rise Time	$t_r$	----	15	----	$\mu\text{S}$	$V_{CE}=5\text{V}$ $I_C=1\text{mA}$ $R_L=1000\ \Omega$
Fall Time	$t_f$	----	15	----		
Collector Dark Current	$I_{CEO}$	----	----	100	nA	$E_e=0\text{mW}/\text{cm}^2$ $V_{CE}=20\text{V}$
On State Collector Current	$I_{C(on)}$	0.5	1.0	----	mA	$E_e=1\text{mW}/\text{cm}^2$ $V_{CE}=5\text{V}$
Wavelength of Peak Sensitivity	$\lambda_p$	----	980	----	nm	----
Rang of Spectrial Bandwith	$\lambda_{0.5}$	----	700--- 1200	----	nm	----



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### ■ Typical Electrical/Optical/Characteristics Curves :



## Top Phototransistor

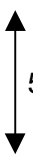
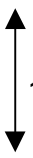
MODEL NO : PT67-21B/C2/L41/TR8

### ■ 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/ Cycles	Sample Size	Failure Judgement Criteria	Ac/Re
1	REFLOW	TEMP : 240°C ± 5 °C 5 secs	6 Mins	22 pcs	$I_{C(on)} \leq L \times 0.8$  L:Lower specification limit	0/1
2	Temperature Cycle	H : +85°C      30 mins  L : -55°C      30 mins	50 cycles	22 pcs		0/1
3	Thermal Shock	H : +100°C    5 mins  L : -10°C      5 mins	50 cycles	22 pcs		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	$V_{CE}=5V$	1000 hrs	22 pcs		0/1
7	High Temperature / High Humidity	85°C / 85% R.H.	1000 hrs	22 pcs		0/1

## Top Phototransistor

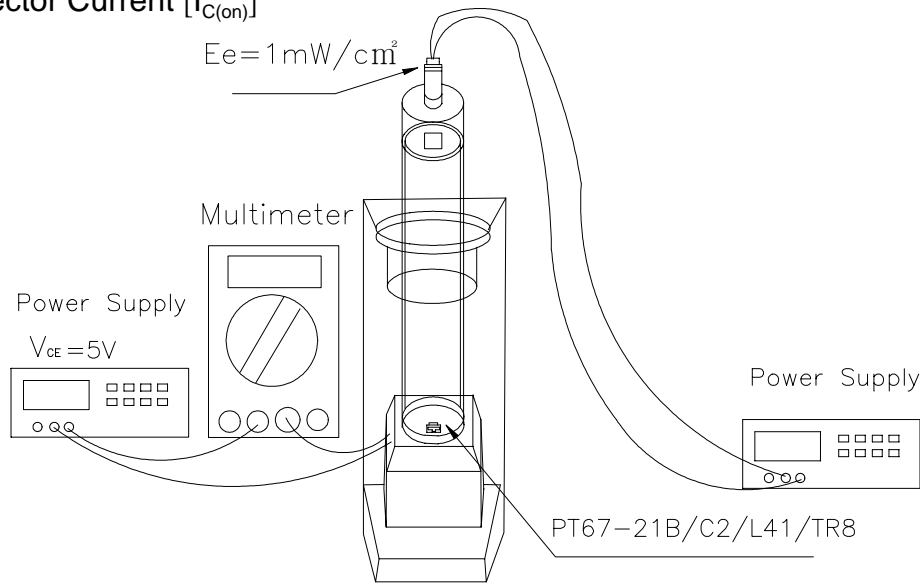
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### ■ Test Method For Reverse Light Current

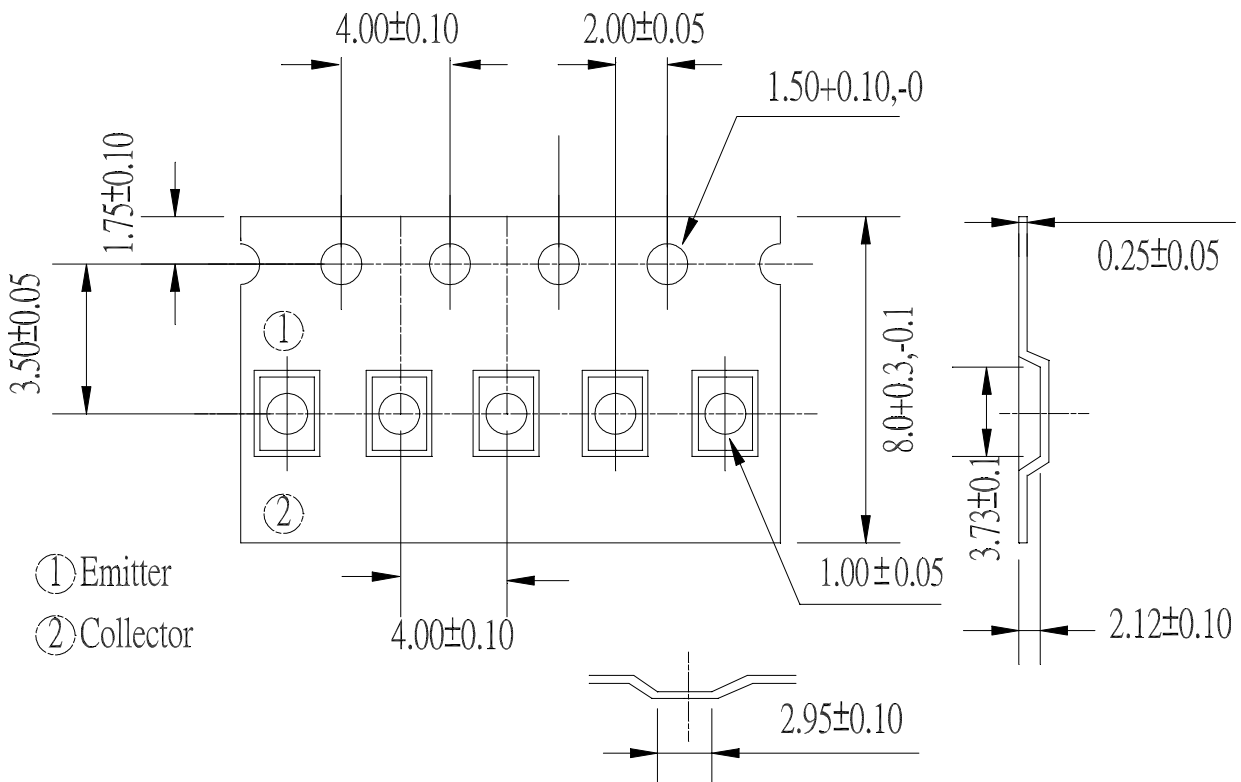
Condition:  $E_e=1\text{mW}/\text{cm}^2, V_{CE}=5\text{V}$

Test Item: Collector Current [ $I_{C(on)}$ ]

(Unit: mA)



### ■ Package Dimensions:





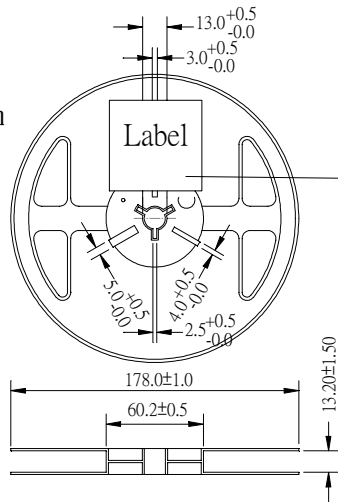
## Top Phototransistor

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### ■ Packing Specifications

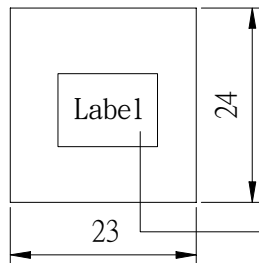
1. Scroll

Unit:mm



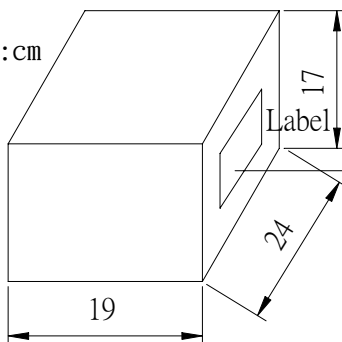
2. Bag

Unit:cm



3. Carton

Unit:cm



EVERLIGHT

CPN:

P/N:



PT67-21B/C2/L41/TR8

QTY:



LOT NO:

CAT:

HUE:

REF:

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

1.2000 Pcs/1Volume , 1Volume/1Bag

2.10Bags/1Carton