



DEVICE NUMBER : DPT-028-028 REV : 1.3
ECN : _____ PAGE : 1/7

1.3mm Axial Flat Top Phototransistor

MODEL NO : PT28-21C

■ Features :

- Fast response time
- High photo sensitivity

■ Description :

- PT28-21C is a phototransistor in miniature SMD package which is molded in a water clear plastic with flat top view lens. The device is spectrally matched to infrared emitting diode.

■ Applications :

- Optoelectronic switch
- VCRs ,Video camera
- Floppy disk drive
- Infrared applied system

PART NO.	CHIP	LENS COLOR
	MATERIAL	
PT	Silicon	Water clear

**1.3mm Axial Flat Top Phototransistor**MODEL NO : PT28-21C**■ Absolute Maximum Ratings at T_A = 25°C**

Parameter	Symbol	Rating	Unit	Notice
Collector-Emitter Voltage	V _{CEO}	30	V	
Emitter-Collector- Voltage	V _{ECO}	5	V	
Collector Current	I _C	20	mA	
Operating Temperature	T _{opr}	-25 ~ +85	°C	
Storage Temperature	T _{stg}	-40 ~ +85	°C	
Soldering Temperature	T _{sol}	260	°C	
Power Dissipation at(or below) 25°C Free Air Temperature	P _c	75	mW	

■ Electronic Optical Characteristics :

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Collector-Emitter Breakdown Voltage	BV _{CEO}	30	----	----	V	I _C =100 μA Ee=0mW/cm ²
Emitter-Collector Breakdown Voltage	BV _{ECO}	5	----	----	V	I _E =100 μA Ee=0mW/cm ²
Collector-Emitter Saturation Voltage	V _{CE(sat)}	----	----	0.4	V	I _C =2mA Ee=1mW/cm ²
Rise Time	t _r	----	15	----	μS	V _{CE} =5V I _C =1mA R _L =1000Ω
Fall Time	t _f	----	15	----		
Collector Dark Current	I _{CEO}	----	----	100	nA	V _{CE} =20V Ee=0mW/cm ²
On State Collector Current	I _{C(on)}	0.1	0.3	----	mA	V _{CE} =5V Ee=1mW/cm ²
Wavelength of Peak Sensitivity	λ _p	----	980	----	nm	----
Rang of Spectral Bandwidth	λ _{0.5}	----	400---1200	----	nm	----



1.3mm Axial Flat Top Phototransistor

MODEL NO : PT28-21C

Typical Electrical/Optical/Characteristics Curves

Fig.1 Collector Power Dissipation vs. Ambient Temperature

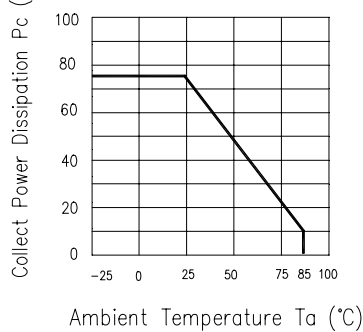


Fig.2 Collector Dark Current vs. Ambient Temperature

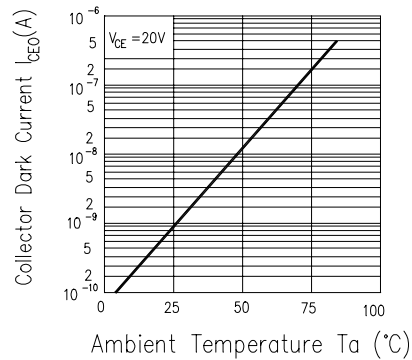


Fig. 3 Relative Collector Current vs. Ambient Temperature

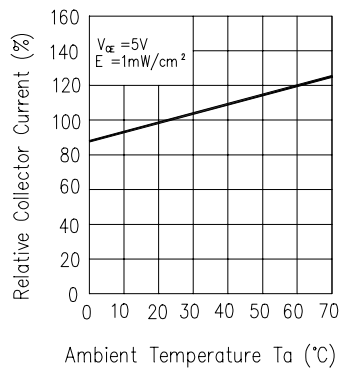


Fig.4 Collector Current vs. Irradiance

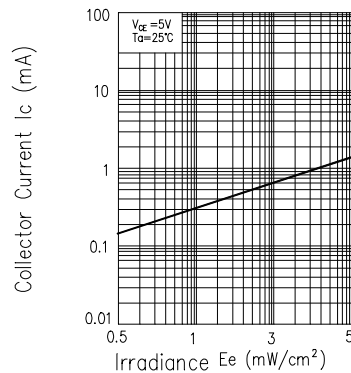


Fig.5 Spectral Sensitivity

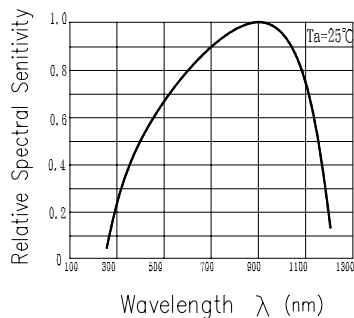
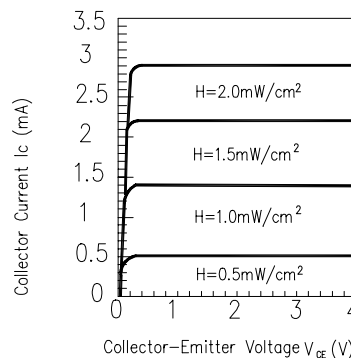


Fig.6 Collector Current vs. Collector-Emitter Voltage





EVERLIGHT ELECTRONICS CO., LTD.

DEVICE NUMBER : DPT-028-028 REV : 1.3
 ECN : _____ PAGE : 5/7

1.3mm Axial Flat Top Phototransistor

MODEL NO : PT28-21C

■ 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 Sizes	Failure Judgement Criteria	Ac/Re
1	Solder Heat	TEMP : 260°C ± 5 °C	5 secs	22 pcs	$I_R \geq U \times 2$ $E_e \leq L \times 0.8$ $V_F \geq U \times 1.0$ U :Upper specification limit L :Lower specification limit	0/1
2	Temperature Cycle	H : +85°C 30 mins ↑ 5 mins ↓ L : -55°C 30 mins	50 cycles	22 pcs		0/1
3	Thermal Shock	H : +100°C 5 mins ↑ 10 secs ↓ 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	$I_F=20\text{mA}$	1000 hrs	22 pcs		0/1
7	High Temperature / High Humidity	85°C / 85% R.H.	1000 hrs	22 pcs		0/1

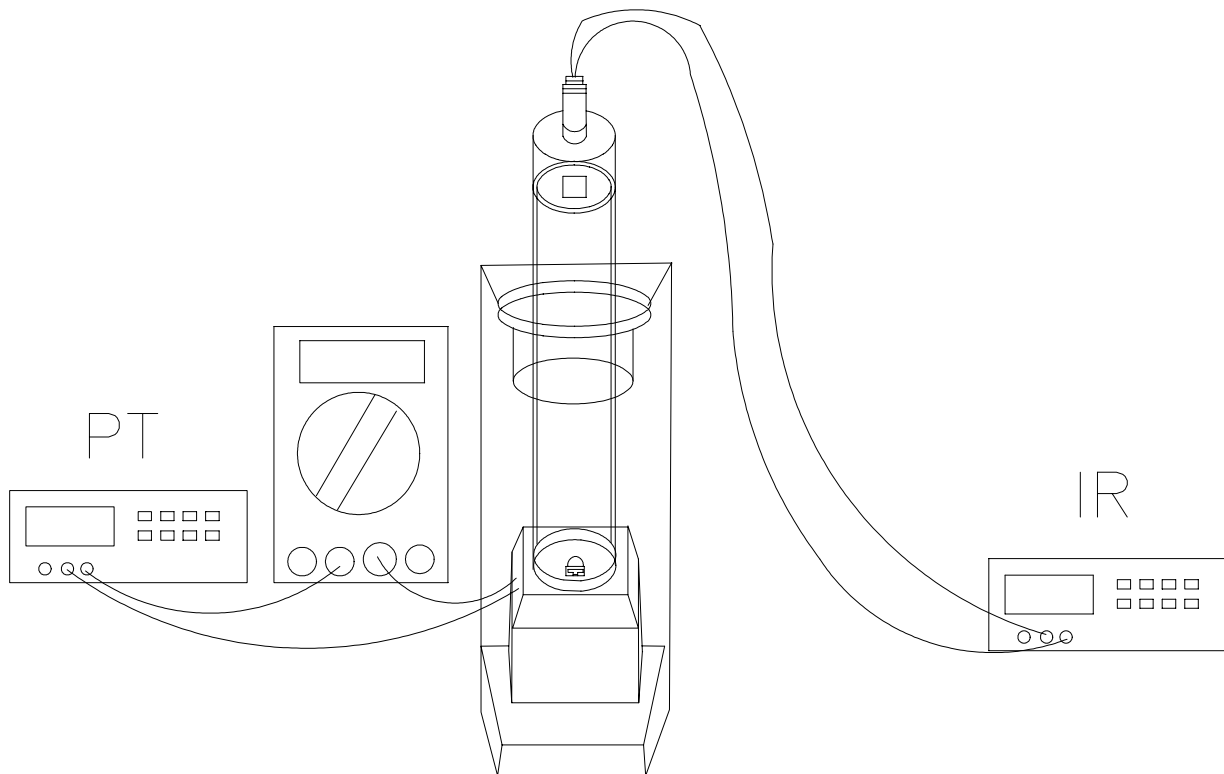
1.3mm Axial Flat Top Phototransistor

MODEL NO : PT28-21C

■ Test Method For On State Collector Current :

Condition : $E_e=1\text{mW}/\text{cm}^2$, $V_{CE}=5\text{V}$ Test Item : Collector Current [$I_{C(on)}$]

Unit : mA



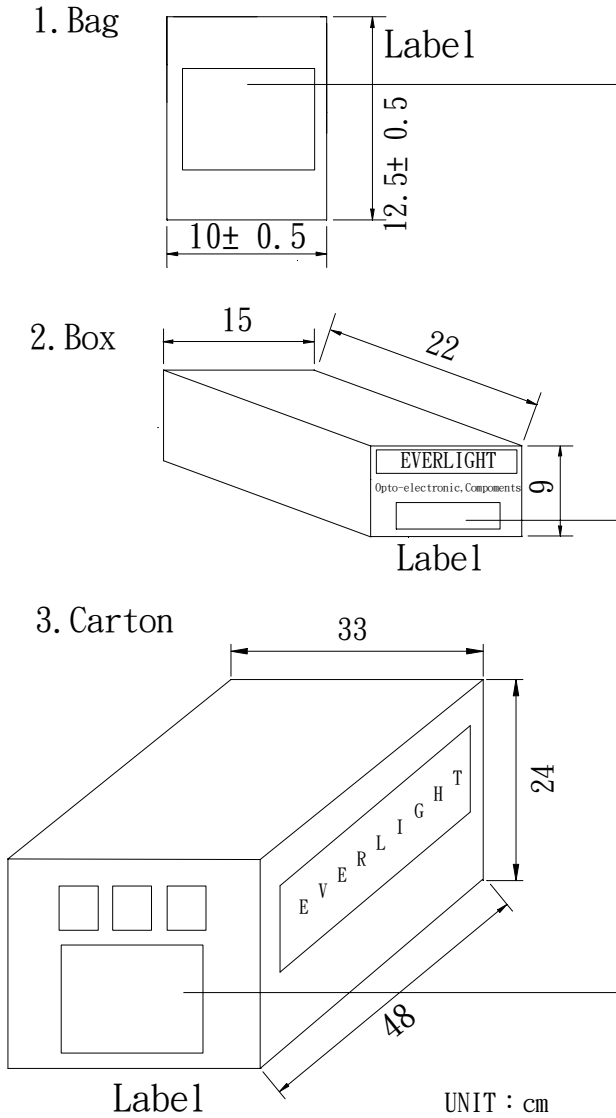


DEVICE NUMBER : DPT-028-028 REV : 1.3
ECN : _____ PAGE : 7/7

1.3mm Axial Flat Top Phototransistor

MODEL NO : PT28-21C

■ Packing Specifications



EVERLIGHT

CPN:
P/N:
PT28-21C

QTY: CAT:
 HUE:
 REF:

LOT NO:

MADE IN TAIWAN

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. 1000 Pcs/1Bag , 20 Bags/1Box
2. 10 Boxes/1Carton

PT28-21C