

Features

- Side view detection type
- Plastic mold with resin lens
- Narrow directivity angle
- Visible light cut-off resin
- Lead free and RoHS directive component



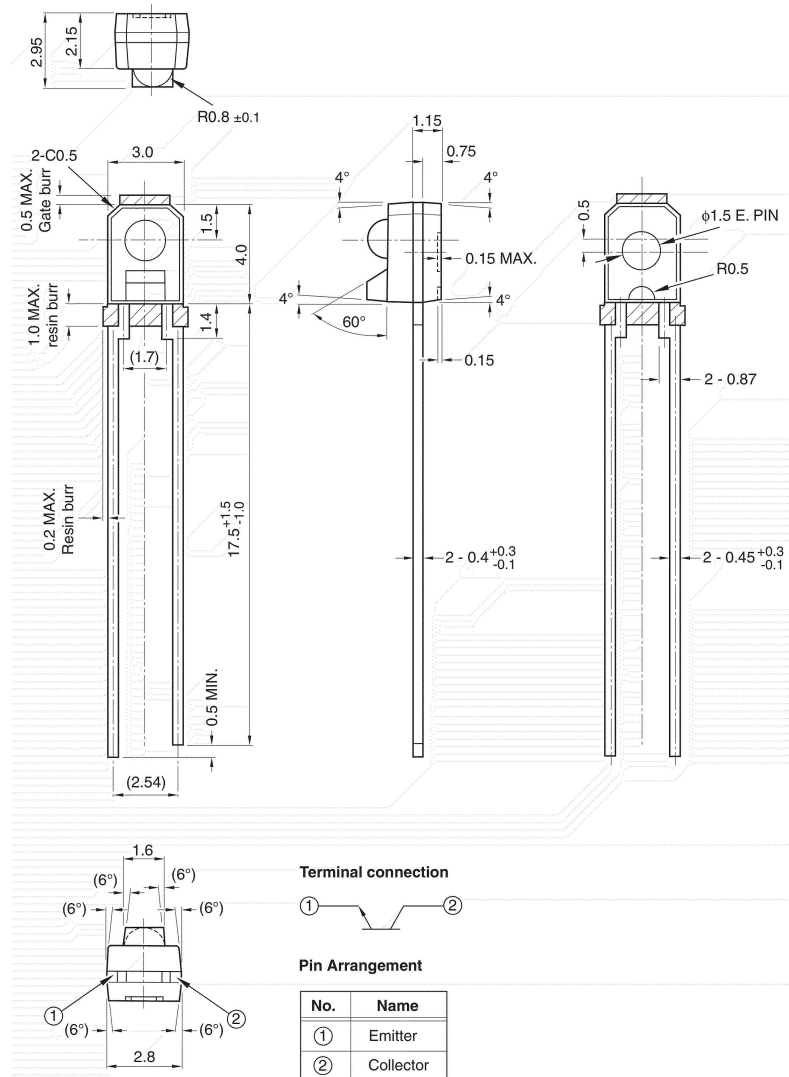
Application

- Optoelectronic switch
- VCR, Video Camera
- Floppy disk drive
- Infrared applied system

Description

PT480F is a phototransistor in miniature package which is molded in a plastic with spherical top view lens. The device is spectrally matched to infrared emitting diode.

PACKAGE DIMENSIONS



NOTES:

1. All dimensions are in millimeters (inches).
2. Tolerance is ±0.25mm(.010") unless otherwise noted.
3. Lead spacing is measured where the leads emerge from the package.

Absolute Maximum Ratings

(Ta = 25°C)

Parameter	Symbol	Rating	Unit
Collector-emitter voltage	V_{CEO}	35	V
Emitter-collector voltage	V_{ECO}	6	V
Collector current	I_C	20	mA
Collector power dissipation	P_C	75	mW
Operating temperature	T_{opr}	-25 to +85	°C
Storage temperature	T_{stg}	-40 to +85	°C
Soldering temperature *1	T_{sol}	260	°C

*1 5 s (MAX.) positioned 1.4 mm from resin edge. See Figure 4.

Electro-optical Characteristics

(Ta = 25°C)

Parameter	Symbol	Conditions *1	MIN.	TYP.	MAX.	Unit
Collector current	I_C	$E_e = 1 \text{ mW/cm}^2, V_{CE} = 5 \text{ V}$	0.25	0.8	3.0	mA
Dark current	I_{CEO}	$E_e = 0, V_{CE} = 20 \text{ V}$	–	1.0	100	nA
Collector-emitter saturation voltage	$V_{CE(sat)}$	$E_e = 10 \text{ mW/cm}^2, I_C = 0.5 \text{ mA}$	–	0.1	0.4	V
Collector-emitter breakdown voltage	BV_{CEO}	$I_C = 0.1 \text{ mA}, E_e = 0$	35	–	–	V
Emitter-collector breakdown voltage	BV_{ECO}	$I_E = 0.01 \text{ mA}, E_e = 0$	6	–	–	V
Peak sensitivity wavelength	λ_p	–	–	860	–	nm
Response time (Rise)	t_r	$V_{CE} = 2 \text{ V}, I_C = 2 \text{ mA}, RL = 100 \Omega$	–	3.0	–	μs
Response time (Fall)	t_f		–	3.5	–	μs

*1 E_e : Irradiance by CIE standard light source A (tungsten lamp)

Fig. 1 Collector Power Dissipation vs. Ambient Temperature

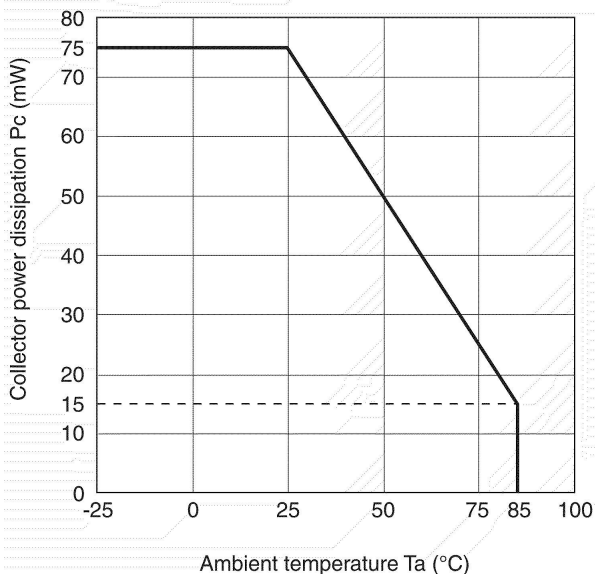
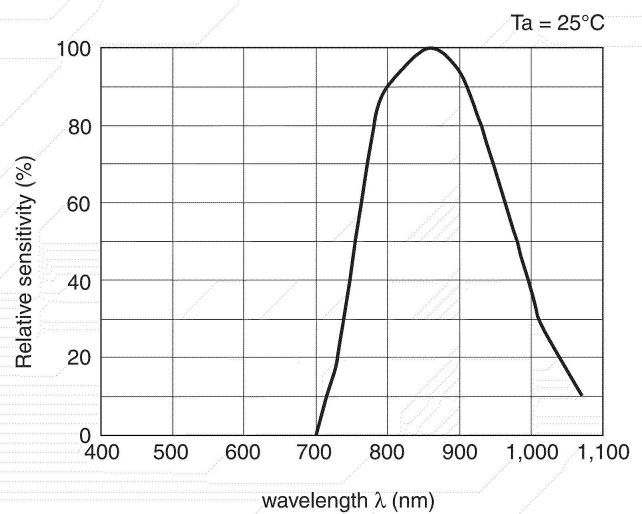


Fig. 2 Spectral Sensitivity



Packing Quantity Specification

1. 1000Pcs/1Bag, 20 Bag/1Box
2. 4Boxes/1Carton

Label Form Specification

製品名 PRODUCT	
コードNo. CODE No.	
数量 Q'TY	
ロットNo. LOT No.	
備考 REMARKS	
SIVAGO [®] SEMICONDUCTOR	

- PRODUCT: Part Number
- CODE NO.: Product Serial Number
- QTY: Packing Quantity
- LOT No: Lot Number
- REMARKS:Remarks

Notes**Lead Forming**

1. During lead frame bending, the lead frame should be bent at a distance more than 3mm from bottom of the epoxy.

Note: Must fix lead frame and do not touch epoxy before bending to avoid Phototransistors broken.

2. Lead forming should be done before soldering.

3. Avoid stressing the Phototransistor package during leads forming. The stress to the base may damage the Phototransistor's characteristics or it may break the Phototransistors.

4. Cut the Phototransistor lead frame at room temperature. Cutting the lead frame at high temperatures may cause failure of the Phototransistors.

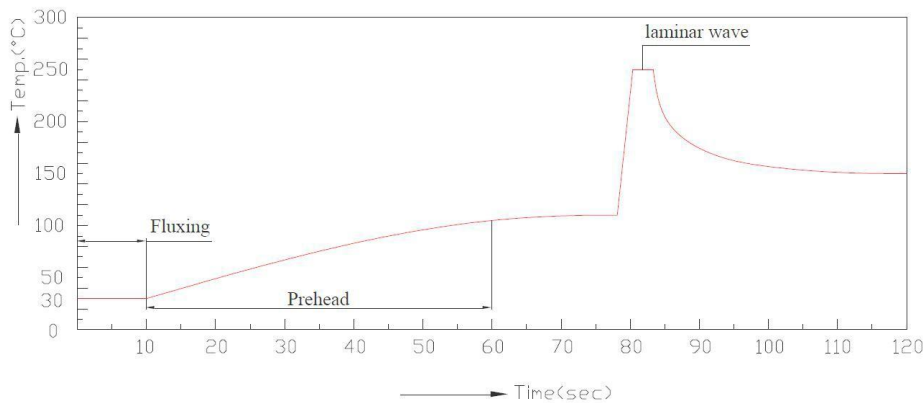
5. When mounting the Phototransistors onto a PCB, the PCB holes must be aligned exactly with the lead position of the Phototransistor. If the Phototransistors are mounted with stress at the leads, it causes deterioration of the epoxy resin and this will degrade the Phototransistors.

Soldering

- Careful attention should be paid during soldering. When soldering, leave more than 3mm from solder joint to epoxy bulb, and soldering beyond the base of the tie bar is recommended.
- Recommended soldering conditions:

Hand Soldering		DIP Soldering	
Temp. at tip of iron	300°C Max. (30W Max.)	Preheat temp.	100°C Max. (60 sec Max.)
Soldering time	3 sec Max.	Bath temp. & time	260 Max., 5 sec Max
Distance	3mm Min.(From solder joint to epoxy bulb)	Distance	3mm Min. (From solder joint to epoxy bulb)

3. Recommended soldering profile



- Avoiding applying any stress to the lead frame while the Phototransistors are at high temperature particularly when soldering.
- Dip and hand soldering should not be done more than one time
- After soldering the Phototransistors, the epoxy bulb should be protected from mechanical shock or vibration until the Phototransistors return to room temperature.
- A rapid-rate process is not recommended for cooling the Phototransistors down from the peak temperature.
- Although the recommended soldering conditions are specified in the above table, dip or hand soldering at the lowest possible temperature is desirable for the Phototransistors.
- Wave soldering parameter must be set and maintain according to recommended temperature and dwell time in the solder wave.

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