

Features

Fast response time

High photo sensitivity

Pb free

The product itself will remain within RoHS compliant version.



Application

Infrared applied system

Camera

Printer

Optoelectronic switch

Description

ST-7L2P is a high speed and high sensitive NPN silicon phototransistor molded in a standard $\phi 3$ mm package. Due to its water clear epoxy the device is sensitive to visible and near infrared radiation.

ABSOLUTE MAXIMUM RATINGS AT TA =25°C

Parameter	Symbol	Rating	Units
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	°C
Storage Temperature	T _{stg}	-40 ~ +85°C	°C
Lead Soldering Temperature *1	T _{sol}	260	°C
Power Dissipation at(or below)25°C Free Air Temperature	P _c	75	mW

Notes: *1:Soldering time≤5 seconds.

ELECTRICAL OPTICAL CHARACTERISTICS AT TA=25°C

Parameter	Symbol	Condition	Min.	Typ.	Max.	Units
Rang Of Spectral Bandwidth	$\lambda_{0.5}$	---	400	---	1100	nm
Wavelength Of Peak Sensitivity	λ_p	---	---	940	---	nm
Collector – Emitter Breakdown Voltage	BV_{CEO}	$I_C=100\mu A E_e=0$ mW/cm^2	30	---	---	V
Emitter-Collector Breakdown Voltage	BV_{ECO}	$I_E=100\mu A E_e=0$ mW/cm^2	5	---	---	V
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=2mA E_e=1m$ W/cm^2	---	---	0.4	V
Rise Time	t_r	$V_{CE}=5V$	---	15	---	μS
Fall Time	t_f	$I_C=1mA R_L=10$ 00Ω	---	15	---	
Collector Dark Current	I_{CEO}	$E_e=0mW/cm^2$ $V_{CE}=20V$	---	---	100	nA
On State Collector Current	$I_{C(on)}$	$E_e=1mW/cm^2$ $V_{CE}=5V$	0.7	2.0	---	mA

Typical Electro-Optical Characteristics Curves

Fig.1 Collector Power Dissipation vs. Ambient Temperature

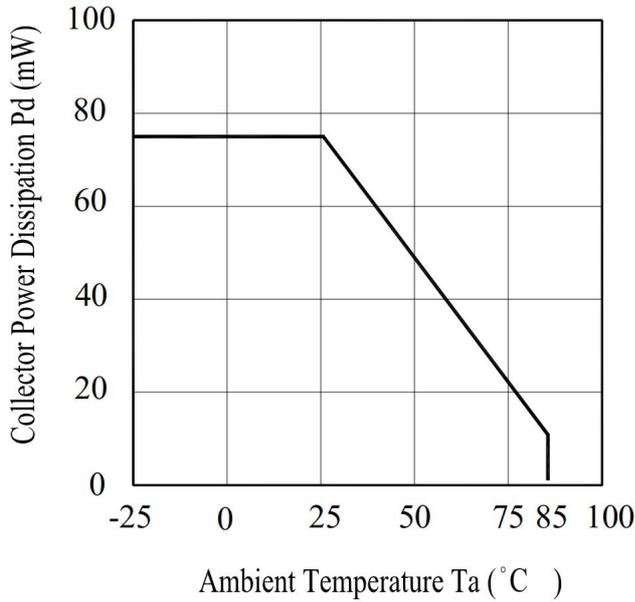


Fig.2 Spectral Sensitivity

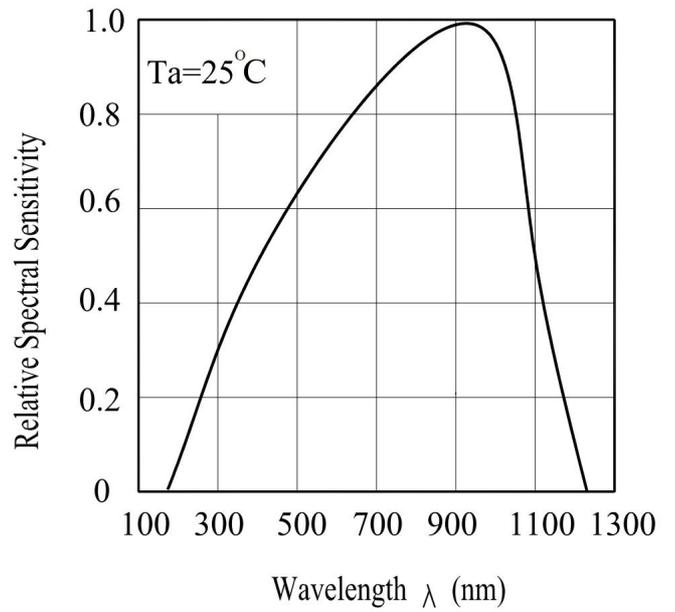


Fig.3 Relative Collector Current vs. Ambient Temperature

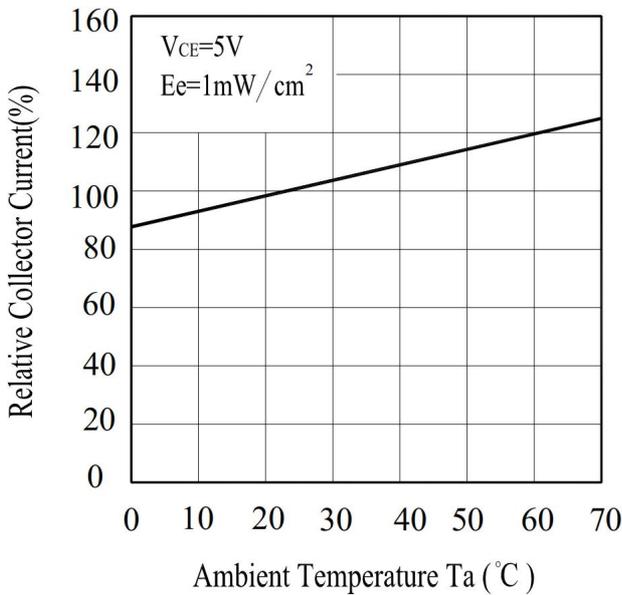
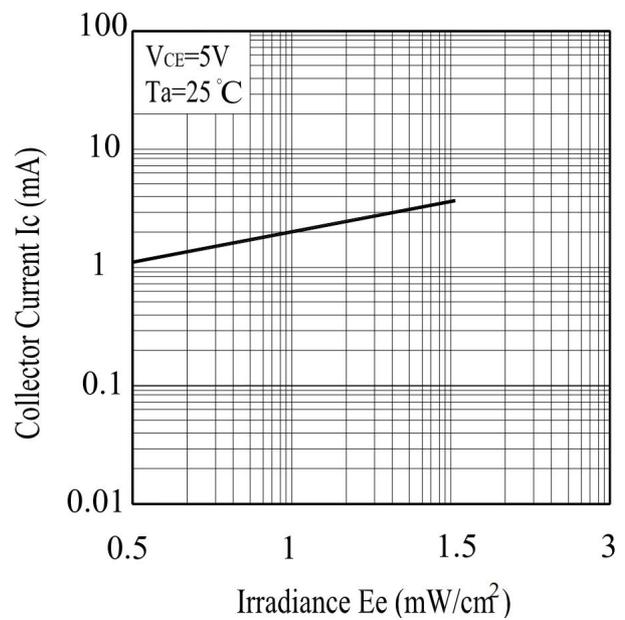


Fig.4 Collector Current vs. Irradiance



Typical Electro-Optical Characteristics Curves

Fig.5 Collector Dark Current vs.

Ambient Temperature

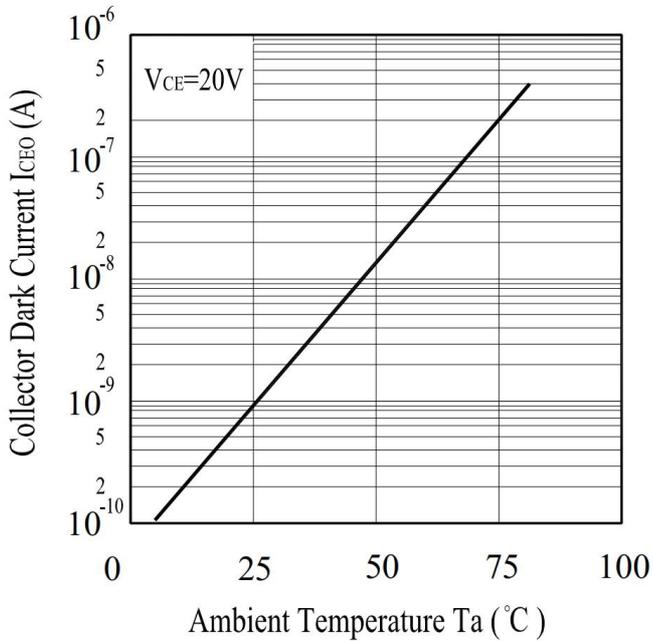
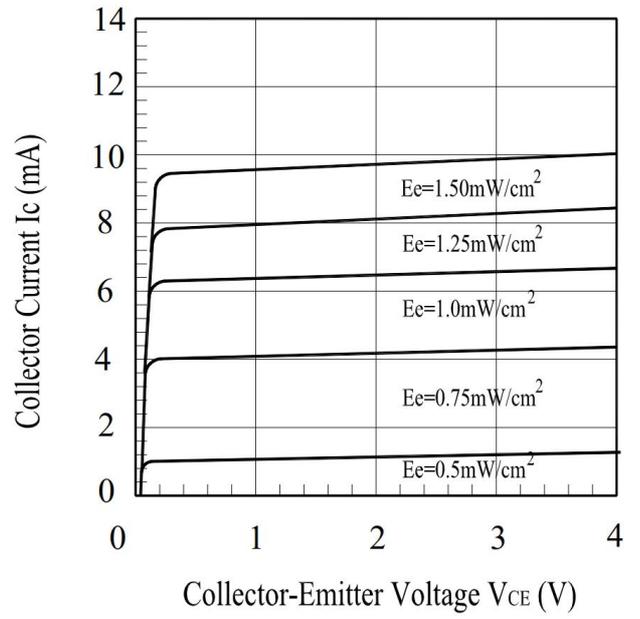


Fig.6 Collector Current vs.

Collector-Emitter Voltage



Packing Quantity Specification

1. 1000Pcs/1Bag,10 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	
	

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

Notes

Lead Forming

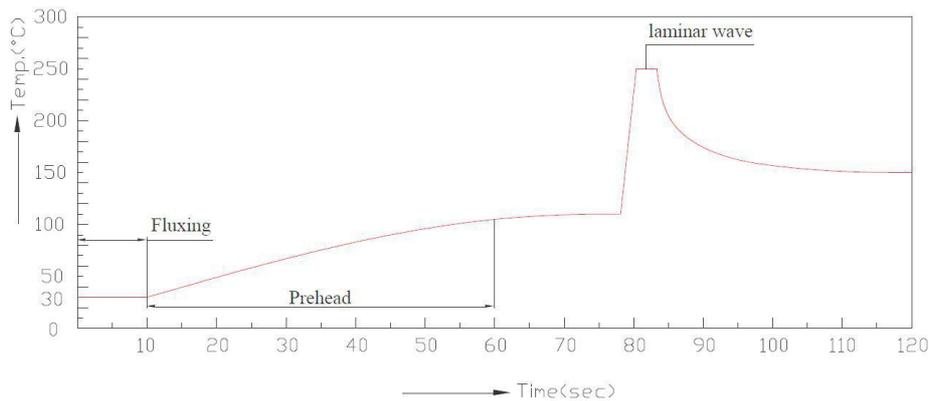
- 4.Avoiding applying any stress to the lead frame while the Phototransistors are at high temperature particularly when soldering.
- 5.Dip and hand soldering should not be done more than one time
- 6.After soldering the Phototransistors, the epoxy bulb should be protected from mechanical shock or vibration until the Phototransistors return to room temperature.
- 7.A rapid-rate process is not recommended for cooling the Phototransistors down from the peak temperature.
- 8.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.
- 9.Wave soldering parameter must be set and maintain according to recommended temperature and dwell time in the solder wave.

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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