

Features

Fast response time

High photo sensitivity

Pb free

The product itself will remain within RoHS compliant version.

Application

Infrared applied system

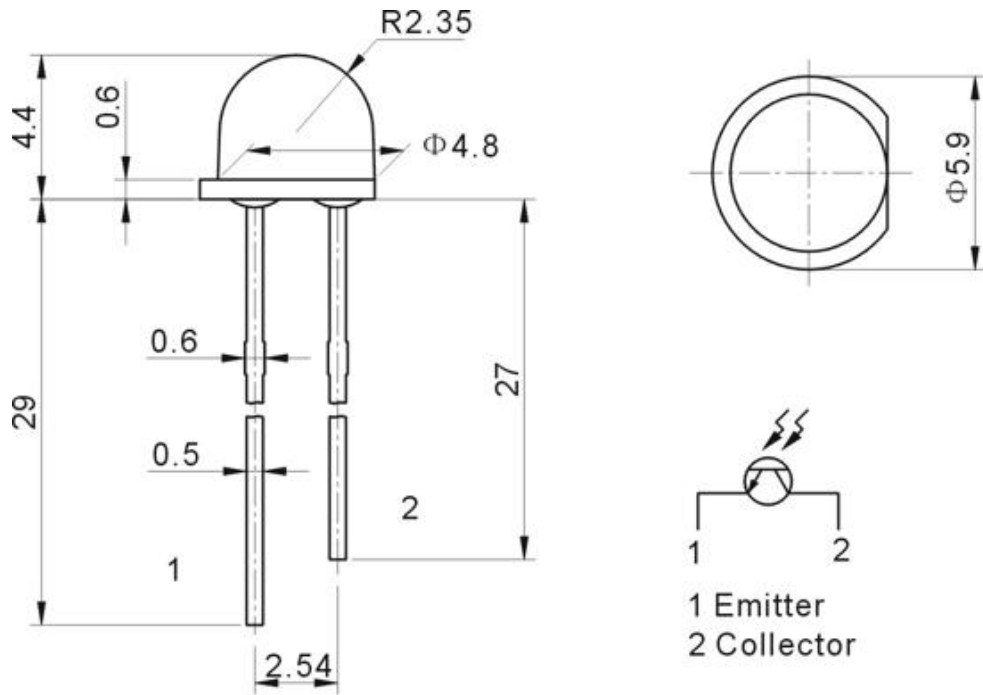
Camera

Printer

Optoelectronic switch

Description

ST-7L5P-SH is a high speed and high sensitive NPN silicon phototransistor molded in a standard $\phi 5$ mm package. Due to its water clear epoxy the device is sensitive to visible and near infrared radiation.

PACKAGE DIMENSIONS**NOTES:**

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

ABSOLUTE MAXIMUM RATINGS AT TA =25°C

Parameter	Symbol	Rating	Unit
Power Dissipation at (or below) 25°C Free Air Temperature	Pc	75	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

Notes: *1:Soldering time \leq 5 seconds.

ELECTRICAL OPTICAL CHARACTERISTICS AT TA=25°C

Parameter		Symbol	Min.	Typ.	Max.	Unit	Test Condition
Collector Dark Current		I_{CEO}			100	nA	$I_e=0\text{mW/cm}^2 V_{CE}=20\text{V}$
On State Collector Current		$I_{C(on)}$	0.5	2.5			$I_e=1\text{mW/cm}^2 V_{CE}=5\text{V}$
Emitter-Collector Breakdown Voltage		BV_{CEO}	30			V	$I_C=100\mu\text{A } I_e=0\text{mW/cm}^2$
Collector - Emitter Breakdown Voltage		BV_{ECO}	5			V	$I_C=100\mu\text{A } I_e=0\text{mW/cm}^2$
Collector-Emitter Saturation Voltage		$V_{CE(sat)}$			0.4	V	$I_C=2\text{mA } I_e=1\text{mW/cm}^2$
Current gain		h_{FE}	800		1800	μA	$V_{CE}=5\text{V } I_c=2\text{mW/cm}^2$
Wavelength of Peak Sensitivity		λ_p		940		nm	
Range of Spectral Bandwidth		$\lambda_{0.5}$	450		1200	nm	
Response Time	Rise Time	t_r		15		μS	$V_{CE}=5\text{V } I_c=1\text{mA } R_L=1000\Omega$
	Fall Time	t_f		15		μS	
Collector-Capacitance		C_{CB}	5.4	6.4	7.4	PF	$f=1\text{MHz } V_{CB}=3\text{V}$

Typical Electrical-Optical Characteristics Curves

Fig.1 Collector Power Dissipation vs. Ambient Temperature

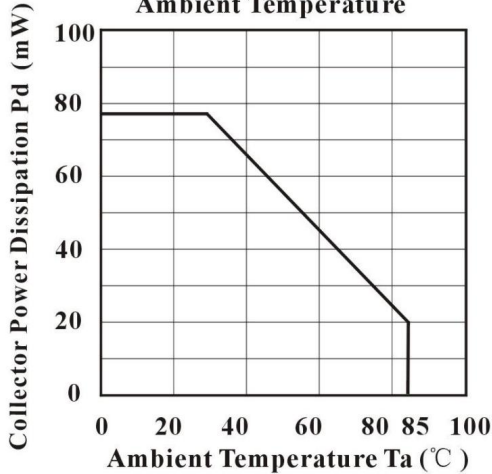


Fig.2 Spectral Sensitivity

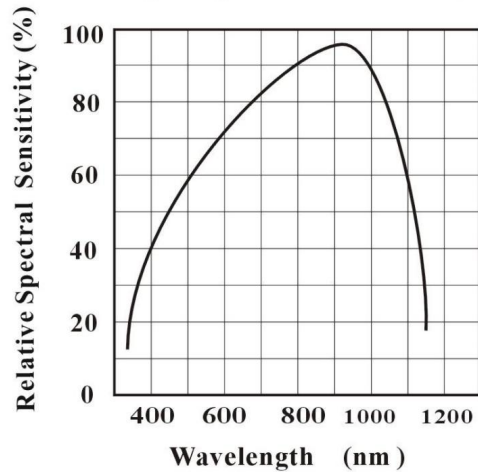


Fig.3 Normalized Collector Current Vs. Ambient Temperature

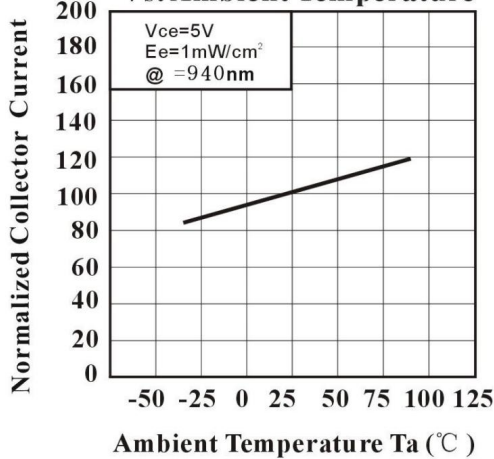


Fig.4 Relative Collector Current Vs. Irradiance

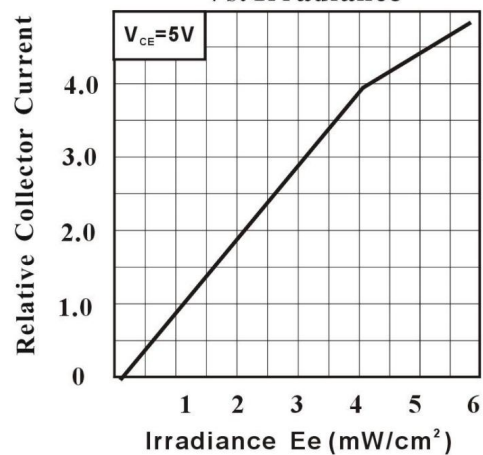


Fig.5 Collector Dark Current Vs. Ambient Temperature

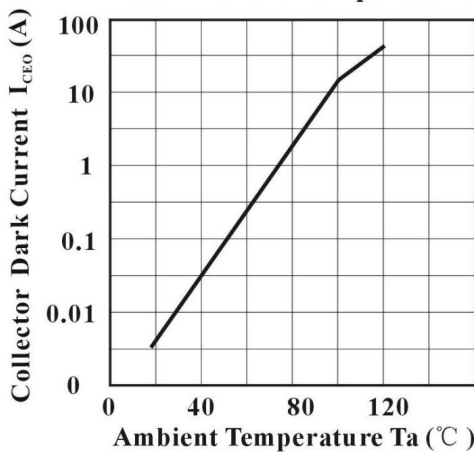
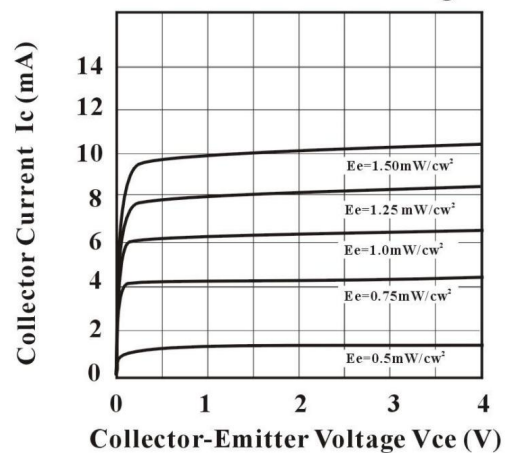


Fig.6 Collector Current vs. Collector-Emitter Voltage



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

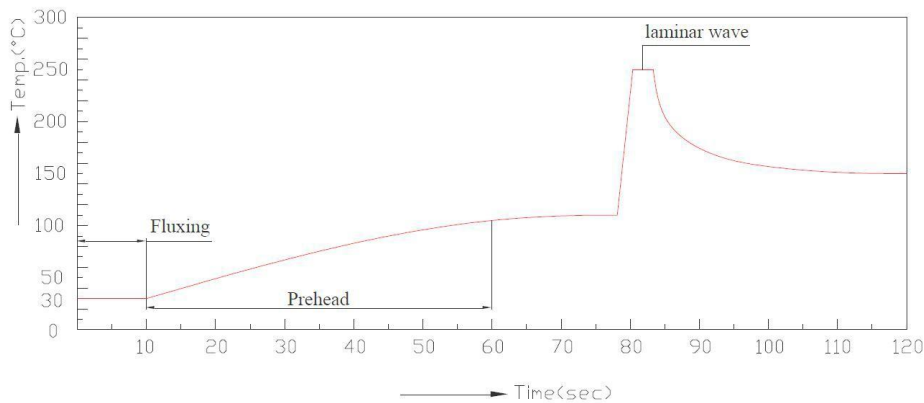
- 4.Avoiding applying any stress to the lead frame while the Phototransistors are at high temperature particularly when soldering.
- 5.Dip and hand soldering should not be done more than one time
- 6.After soldering the Phototransistors, the epoxy bulb should be protected from mechanical shock or vibration 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.

Legal Disclaimer Notice

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

SIVAGO SEMICONDUCTOR CO.,LTD its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively,“SIVAGO”), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

SIVAGO makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, SIVAGO disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special,consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on SIVAGO’s knowledge of typical requirements that are often placed on SIVAGO products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer’s responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application.Parameters provided in datasheets and / or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer’s technical experts. Product specifications do not expand or otherwise modify SIVAGO’s terms and conditions of purchase,including but not limited to the warranty expressed therein.

Except as expressly indicated in writing, SIVAGO products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the SIVAGO product could result in personal injury or death.Customers using or selling SIVAGO products not expressly indicated for use in such applications do so at their own risk.Please contact authorized SIVAGO personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of SIVAGO. Product names and markings noted herein may be trademarks of their respective owners.