

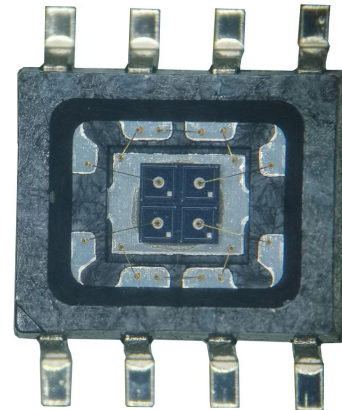
Technical Data Sheet

Four Quadrant Photo Transistor

PT6025Q

■ Descriptions

PT6025Q is a high speed and high sensitive NPN silicon four photo transistor molded in a plastic package. Due to its water clear epoxy the device is sensitive to visible and infrared radiation.



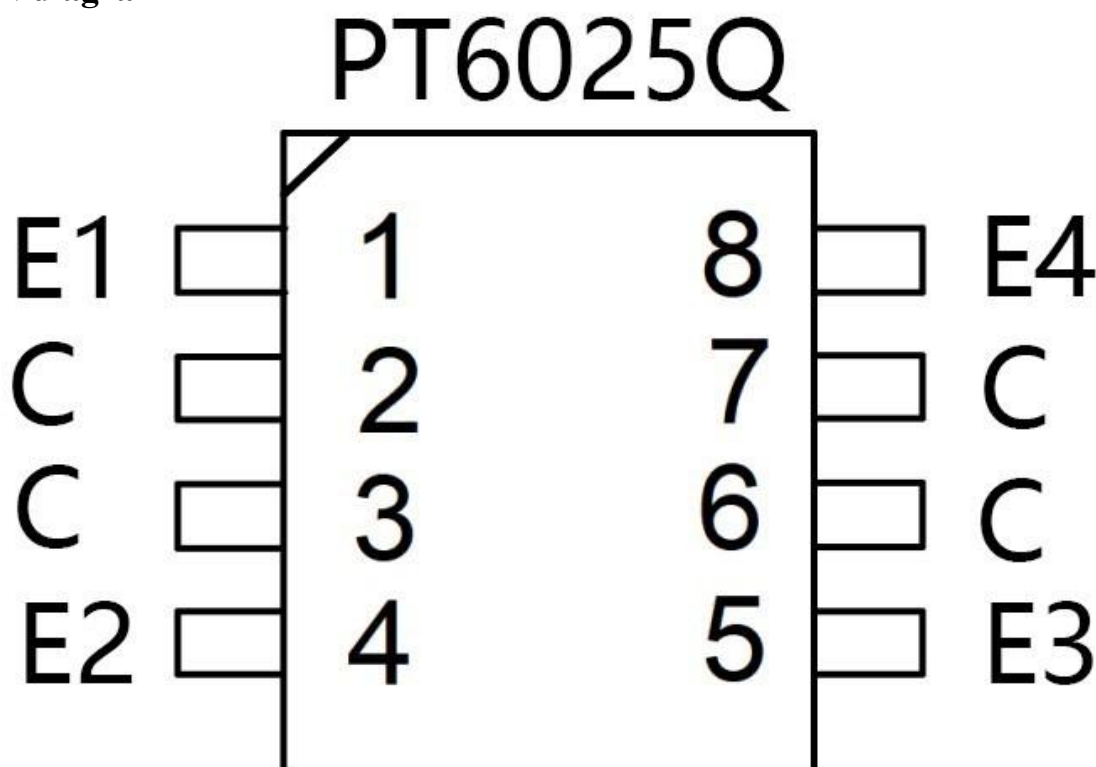
■ Features

- Four quadrant element format
- Fast response time
- High photo sensitivity
- Pb Free
- The product itself will remain within RoHS compliant version.

■ Applications

- Infrared applied system
- Laser alignment system
- Displacement monitoring

■ PIN diagram

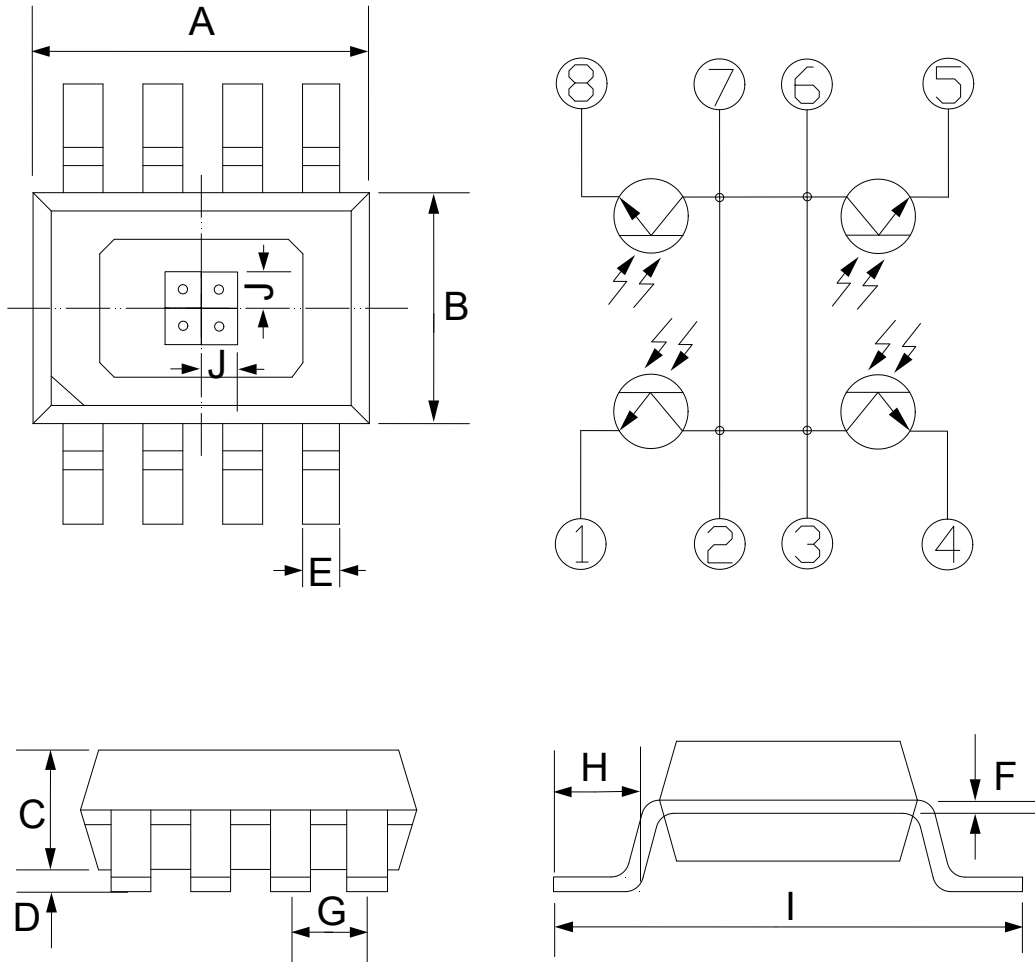


■ PIN Descriptions

No.	Name	Descriptions
1	E1	Emitter 1
2	C	Common collector
3	C	Common Collector
4	E2	Emitter 2
5	E3	Emitter 3
6	C	Common Collector
7	C	Common Collector
8	E4	Emitter 4

Note: The collectors of the four phototransistors are connected together

Package Dimensions (8-PIN SOP 150mil)



SYMBOLS	MIN	TYP.	MAX	MIN	TYP.	MAX
	Dimensions (inches)			Dimensions (mm)		
A	--	0.193	--	--	4.90	--
B	--	0.157	--	--	4.00	--
C	--	0.055	0.065	--	1.40	1.65
D	0.004	0.008	0.012	0.10	0.20	0.30
E	0.012	0.016	0.020	0.30	0.40	0.50
F	0.004	0.008	0.012	0.10	0.20	0.30
G	--	0.050	--	--	1.27	--
H	0.016	--	0.050	0.40	--	1.27
I	--	0.236	--	--	6.00	--
J	--	0.024	--	--	0.61	--

■ Absolute Maximum Ratings (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
Lead Soldering Temperature	T_{sol}	260	°C
Operating Temperature	T_{opr}	-20~+85	°C
Storage Temperature	T_{stg}	-40~+85	°C

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

■ Electro-Optical Characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Units	Condition
Range of Spectral Bandwidth	$\lambda_{0.5}$	400	--	1100	nm	
Wavelength of Peak Sensitivity	λ_p	--	940	--	nm	
Collector – Emitter Breakdown Voltage	BV_{CEO}	30	--	--	V	$I_c=100\mu A$, $I_b=0$
Emitter-Collector Breakdown Voltage	BV_{ECO}	6	--	--	V	$I_c=100\mu A$, $I_b=0$
Collector Dark Current	I_{CEO}	--	--	100	nA	$V_{CE}=20V$, $H=0mw/cm^2$
Collector-Emitter Saturation Voltage	$V_{CE(S)}$	-	--	0.3	V	$I_c=5mA$, $I_B=1mA$
On State Collector Current	$I_{C(on)}$	0.7	1.5	--	mA	$E_e=1mW/cm^2$, $V_{CE}=5V$
DC Current Amplification Factor	H_{FE}	1000	--	1500		$V_{CE}=5V$, $I_C=2mA$
Rise/Fall Time	t_r/t_f	--	15/15		μS	$V_{CE}=5V$, $I_C=1mA$ $R_L=1000\Omega$

■ Typical Electro-Optical Characteristics Curves

Fig.1 Collector Power Dissipation vs. Ambient Temperature

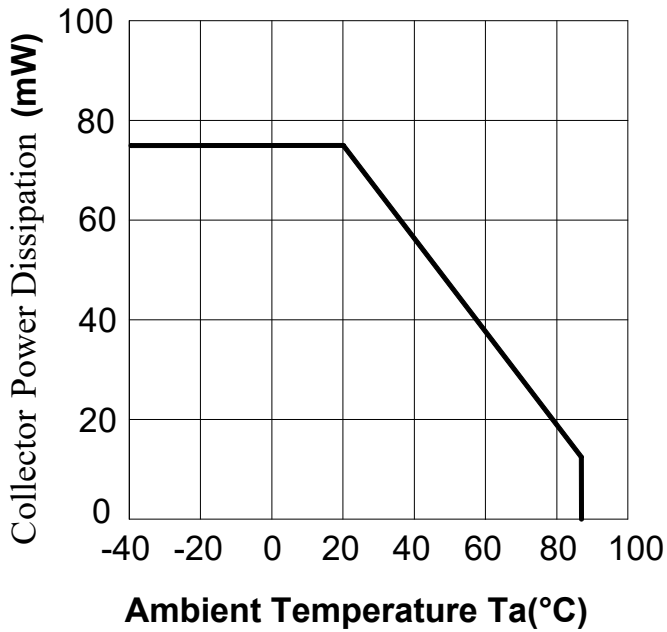


Fig.2 Spectral Sensitivity

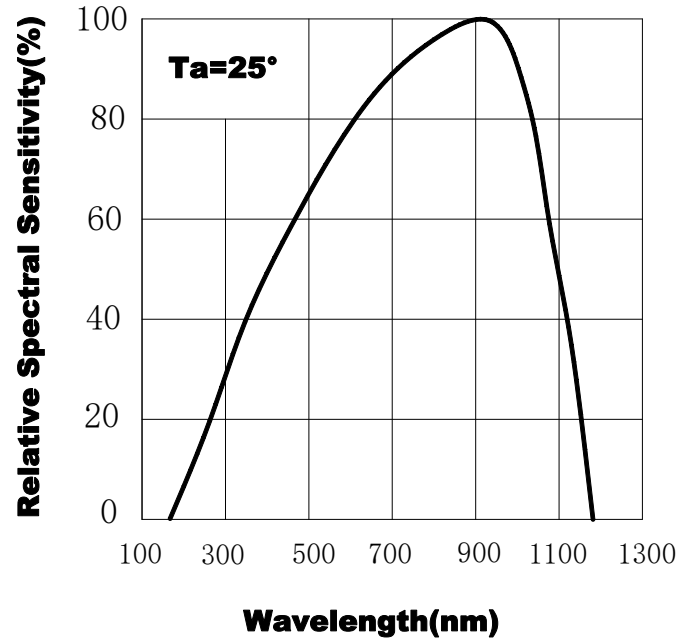


Fig.3 Relative Collector Current vs. Ambient Temperature

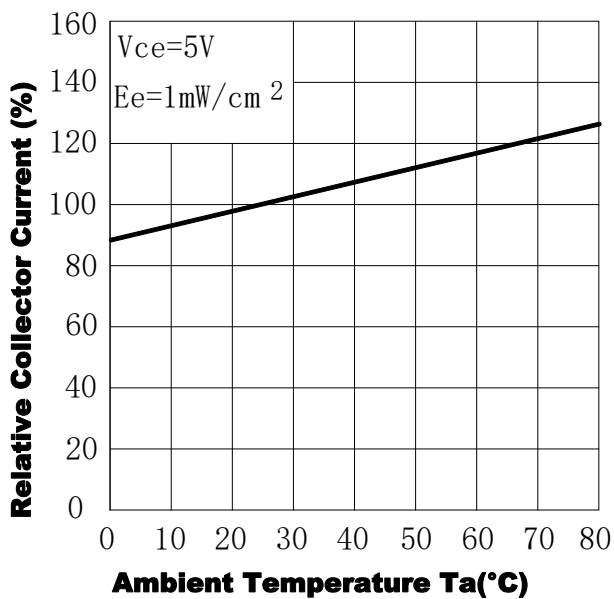


Fig.4 Collector Current vs. Irradiance

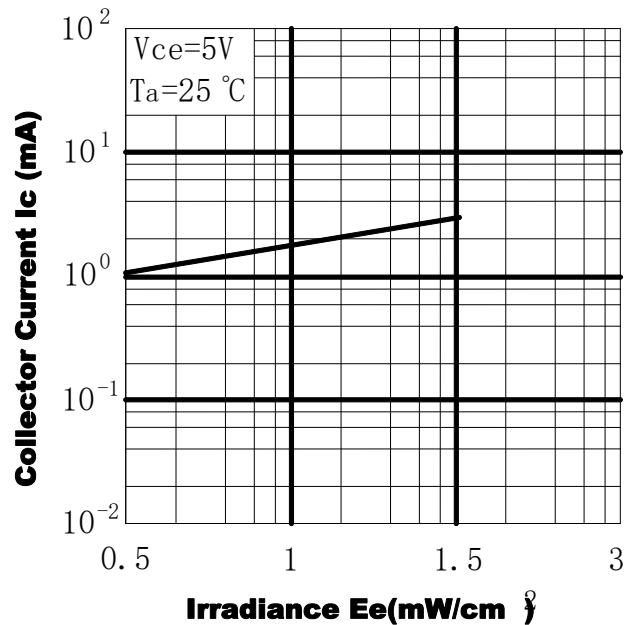


Fig.5 Collector Dark Current vs.
Ambient Temperature

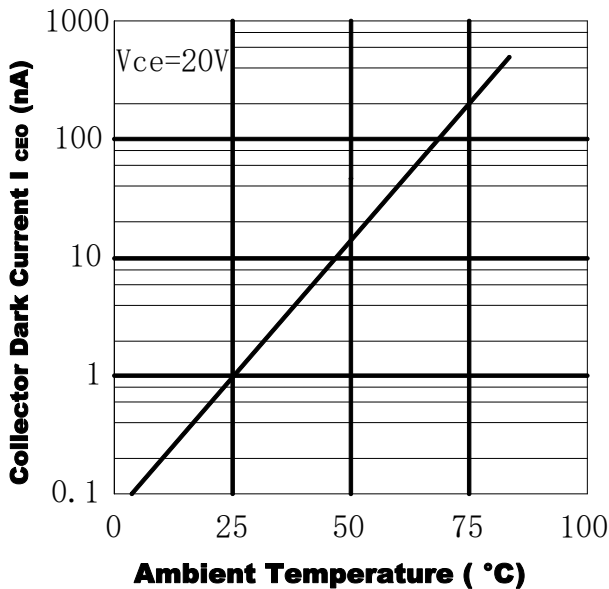
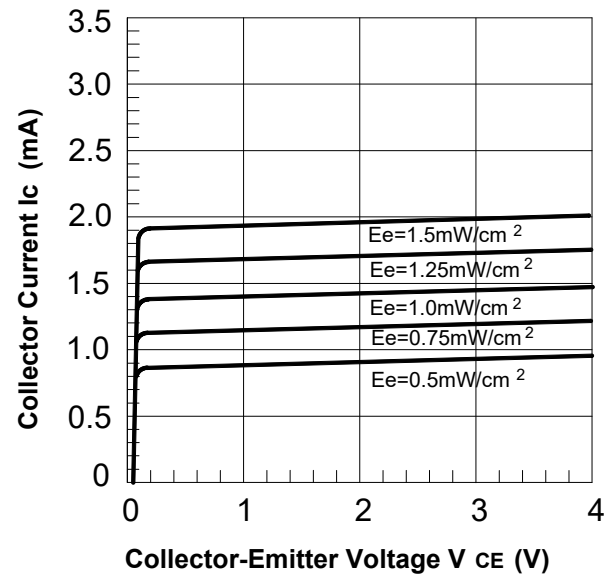


Fig.6 Collector Current vs.
Collector-Emitter Voltage



■ Packing Quantity Specification

2000 pcs /reel

■ Notes

1. Above specification may be changed without notice. SHUGUAN will reserve authority on material change for above specification.
2. Before using this product, be sure to test it. The use and storage conditions must not exceed the limit parameters specified in this manual. The company will not be responsible for any damage to the product caused by the use of the product beyond the limit parameters.
3. Stored at a temperature not higher than 30° C and humidity not higher than 60%RH, the product shelf life is 6 months. Keeping the product in an airtight container with a desiccant can extend the shelf life of the product to some extent. Poor storage conditions can cause corrosion of product leads or changes in product performance.
4. After opening, the product must be used within 168 hours (recommended working environment temperature not higher than 30 °C, humidity not higher than 60%). If it is not used up, the remaining material must be stored in an environment where the temperature is not higher than 30° C and the humidity is not higher than 10%.
5. For products that have not been soldered, if the hygroscopic agent or packaging fails, or the product does not meet the above valid storage conditions, baking can play a certain performance recovery effect. Baking conditions: 60±5°C, duration 96H.
6. Static electricity and surges will cause changes in product characteristics, such as forward

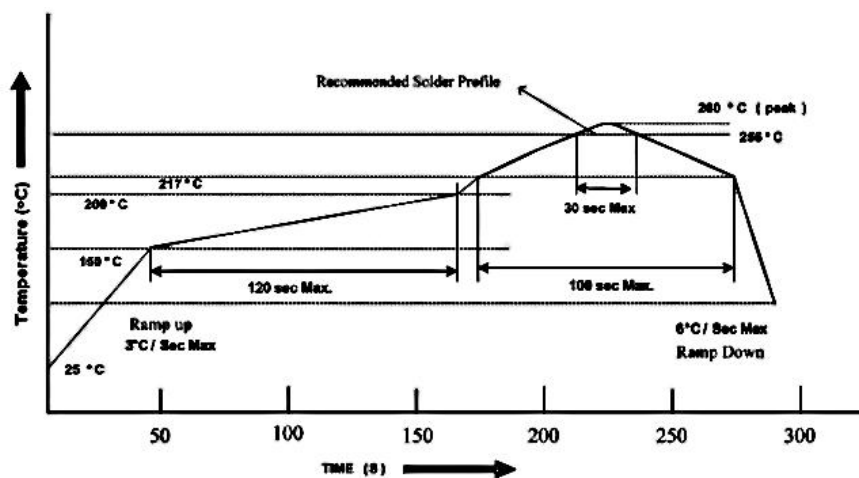
voltage reduction, etc. If the situation is serious, it will even damage the product, so effective anti-static measures must be taken during use. All related equipment and machines should be properly grounded, and other measures against static electricity and surges must be taken. The use of anti-static wristbands, anti-static mats, anti-static work clothes, work shoes, gloves, and anti-static containers are all effective measures to prevent static electricity and surges.

7. Welding should pay special attention to:

(1) Manual soldering: the tip temperature of the soldering iron (up to 25W) should not exceed 350° C; the soldering iron must be grounded, and the static electricity should not exceed the range; the soldering time should not exceed 3 seconds.

(2) Reflow soldering

. Pb-free solder temperature profile



. Reflow soldering should not be done more than two times.

. When soldering, do not put stress on the phototransistor during heating

. After soldering, do not wrap the circuit board.