

Technical Data Sheet

Features

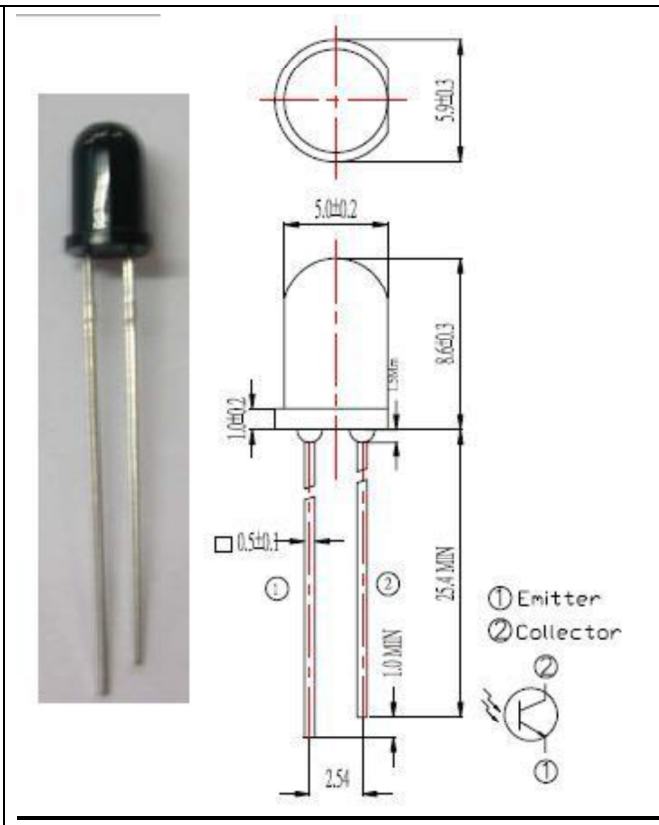
- Fast response time
- High photo sensitivity
- Pb free
- This product itself will remain within RoHS compliant version.

Descriptions

- YG1006 is a high speed and high sensitive NPN silicon phototransistor in a standard 5mm package.

Due to its black epoxy the device is sensitive to infrared radiation.

Package Dimensions



Note : 1. All dimensions are in millimeters

2. Tolerances unless dimensions $\pm 0.25\text{mm}$

Absolute Maximum Ratings ($T_a=25^\circ\text{C}$)

Parameter	Symbol	rating	units
Collector-Emitter Voltage	V_{CE0}	30	V
Emitter-Collector-Voltage	V_{EC0}	5	V
Collector Current	I_c	20	mA
Operating Temperature	T_{opr}	$-25\sim+85^\circ\text{C}$	$^\circ\text{C}$
Storage Temperature	T_{stg}	$-40+85^\circ\text{C}$	$^\circ\text{C}$
Lead Soldering Temperature	T_{sol}	260	$^\circ\text{C}$
Power Dissipation at (or below) 25°C FreeAir Temperature	P_c	75	mW

Electro-Optical Characteristics ($T_a=25^\circ\text{C}$)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Units
Collector-Emitter Breakdown Voltage	BV_{CEO}	$I_c=100\mu A$ $E_e=0mW/C\ m^2$	30	---	---	V
Emitter-Collector Saturation Voltage	BV_{ECO}	$I_E=100\mu A$ $E_e=0mW/C\ m^2$	5	---	---	V
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_c=2mA$ $E_e=1mW/C\ m^2$	---	---	0.4	V
Rise Time	t_f	$V_{CE}=5V$ $I_c=1mA$	---	15	---	μS
Fall Time	t_f	$R_L=1000\Omega$	---	15	---	
Collector Dark Current	I_{CEO}	$E_e=0mW/C\ m^2$ $V_{CE}=20V$	---	---	100	nA
On State Collector Current	$I_c(on)$	$E_e=1mW/C\ m^2$ $V_{CE}=5V$	1.77	---	7.07	mA
Wavelength of Peak Sensitivity	λ_P	---	---	940	---	nm
Rang of Spectral Bandwidth	$\lambda_{0.5}$	---	---	760-1100	---	nm

Rankings

Parameter	Symbol	Min	Max	Unit	Test Condition
J	$I_c(on)$	1.77	3.61	mA	$V_{CE}=5V$ $E_e=1mW/C\ m^2$
K		2.67	5.07		
L		4.18	7.07		

Typical Electro-Optical Characteristics Curves

Fig.1 Collector Power Dissipation vs. Ambient Temperature

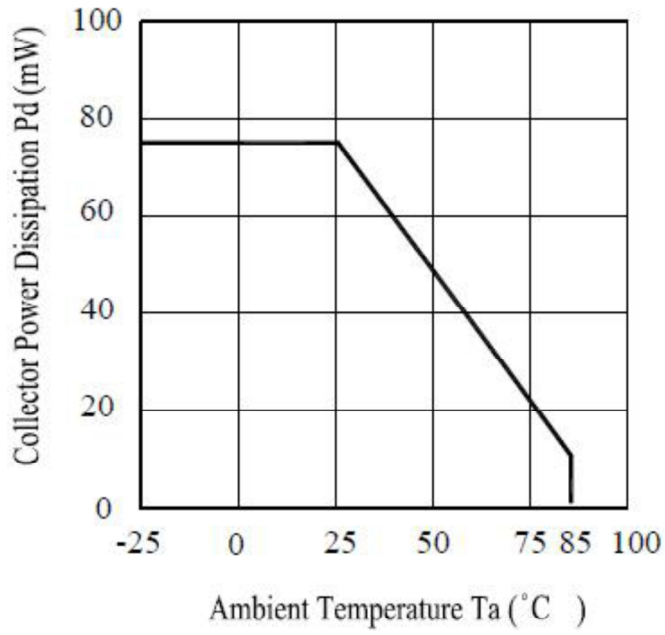


Fig.2 Spectral Sensitivity

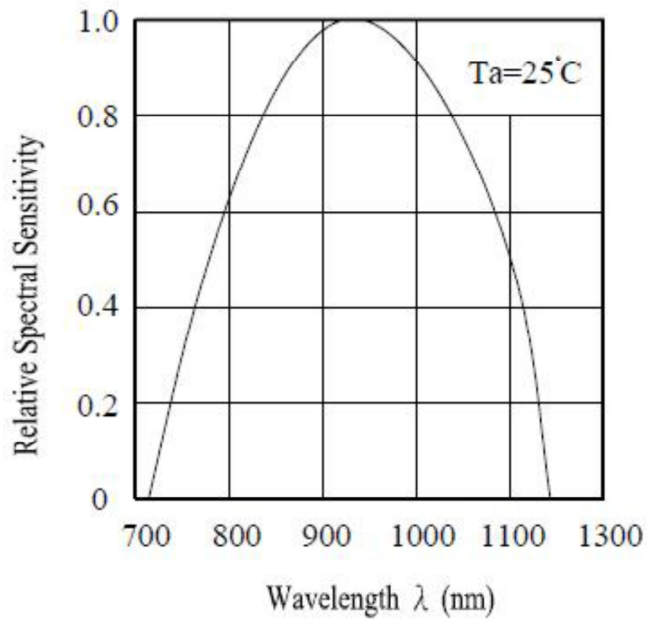


Fig.3 Relative Collector Current vs. Ambient Temperature

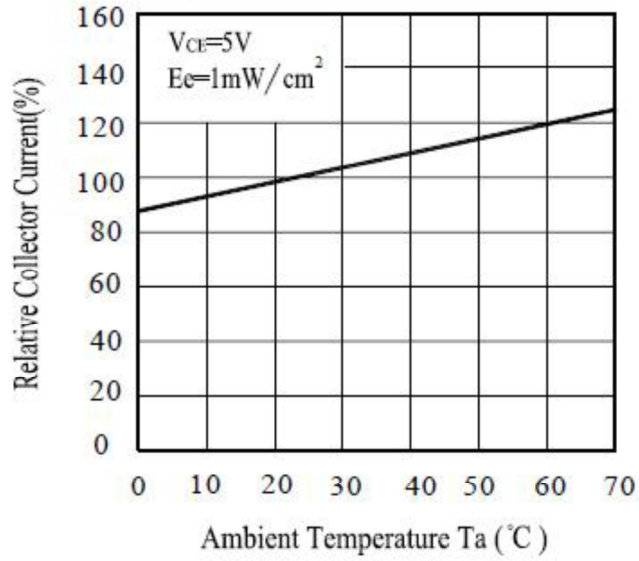
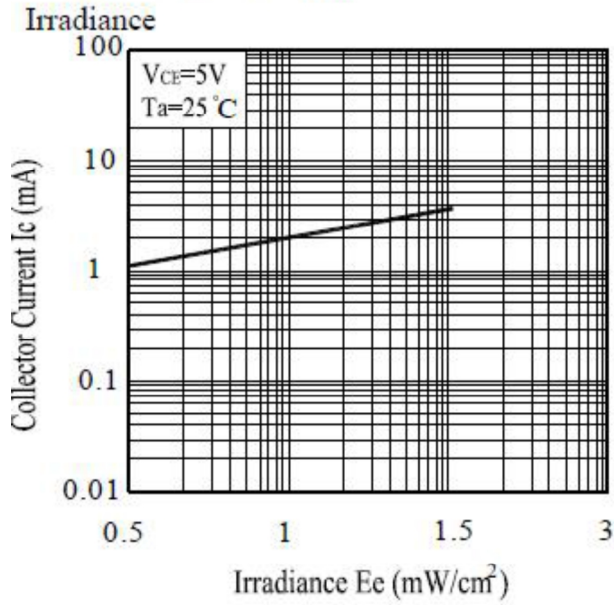


Fig.4 Collector Current vs. Irradiance



Typical Electro-Optical Characteristics

Fig.5 Collector Dark Current vs. Ambient Temperature

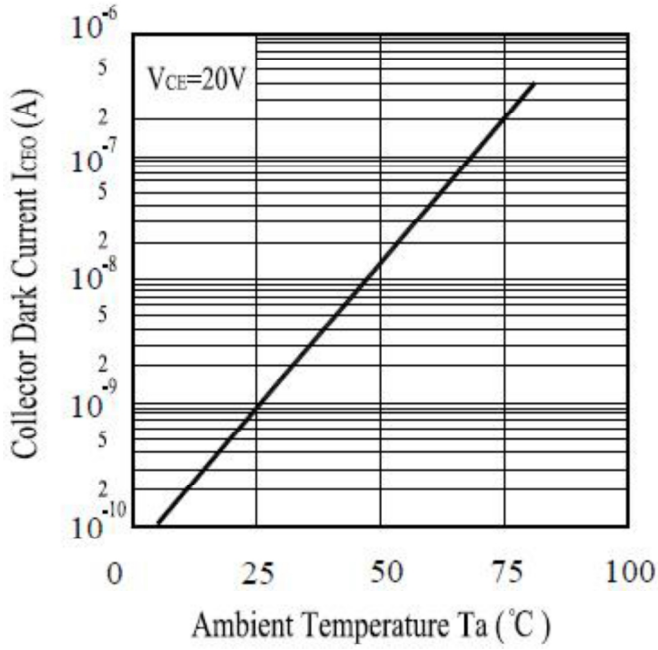
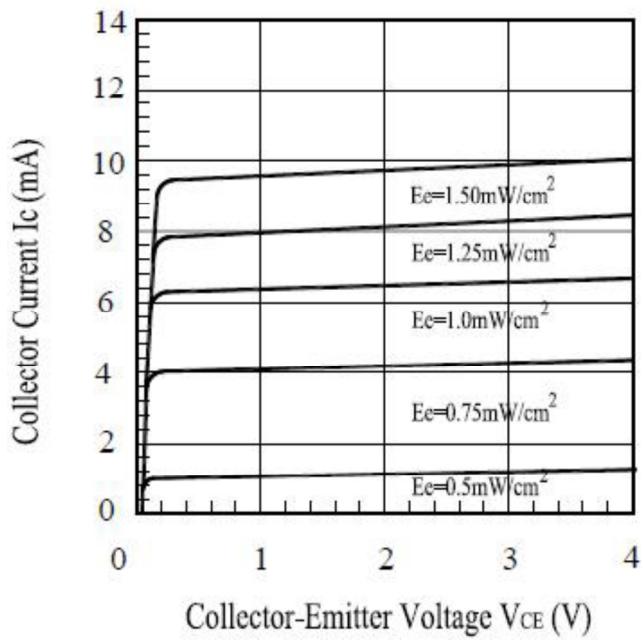


Fig.6 Collector Current vs. Collector-Emitter Voltage



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	10secs	22pcs		0/1
2	Temperature Cycle	H : +100°C ↕ 5mins ↕ L : -40°C	15mins 300Cycles 15mins	22pcs	$I_{C(O\infty)} \leq L \times 0.8$	0/1
3	Thermal Shock	H : +100°C ↕ 5mins ↕ 10secs ↕ L : -10°C	5mins 300Cycles 5mins	22pcs	L : the initial test value	0/1
4	High Temperature Storage	TEMP. : +100°C	1000hrs	22pcs		0/1
5	Low Temperature Storage	TEMP. : -40°C	1000hrs	22pcs		0/1
6	DC Operating Life	V _{CE} =5V	1000hrs	22pcs		0/1
7	High Temperature/ High Humidity	85°C / 85% R.H	1000hrs	22pcs		0/1