Infrared LED

SANYO

SPI-335-34

Ultraminiature photoreflector (single-transistor type)

Features

- Infrared LED plus Phototransistor (single)
- DIP type
- Compact type : 3.4 (L) ✕ 2.7 (W) ✕ 1.5 (H) mm
- Visible light cut type
- Lead length : (L=3.5mm)

Absolute Maximum Ratings at Ta=25°C, 65%RH

Parameter		Symbol	Rating	Unit
Input LED	Forward Current	I_F	50	mA
	Reverse Voltage	V_R	5	V
	Power Dissipation	P_D	70	mW
Output Phototransistor	Collector-Emitter Voltage	V_{CEO}	20	V
	Emitter-Collector Voltage	V_{ECO}	5	V
	Collector Curren	I_C	20	mA
	Power Dissipation	P_C	70	mW
Operating Temperature		Topr	–20 to +80	°C
Storage Temperature		Tstg	–40 to +100	°C
Soldering Temperature *1		Tsol	260	°C

*1 Soldering conditions : time : max. 3sec; clearance : min. 1mm from lower case edge.

Electro-Optical Characteristics at Ta=25°C, 65%RH

Parameter		Symbol	Condition	Min.	Typ.	Max.	Unit
Input	Forward Voltage	V_F	I_F=10mA	1.0	1.2	1.6	V
	Reverse Current	I_R	V_R=5V	–	–	10	µA
Output	Dark Current	I_{CEO}	I_F=0mA, V_{CE}=10V	–	10	200	nA
Coupled	Collector Output Current	I_C	I_F=4mA,V_{CE}=5V*1	33	–	180	µA
	Leakage Current	I_{LEAK}	I_F=10mA,V_{CE}=5V*2	–	–	1	µA
	Collector Emitter Saturation Voltage	V_{CE}(sat)	I_F=10mA, I_C=50µA	–	–	0.5	V
	Rise Time	tr	V_{CC}=5V, R_L=100Ω I_C=1mA	–	5	–	µs
	Fall Time	tf		–	5	–	µs

*1 Location of reflector is show in Fig. 1.

*2 No reflector

*3 Table of Classification of Collector Output

Class	E	F	G	H
Ic (µA)	180 to 110	140 to 80	100 to 50	65 to 33
Marking color	Orange	Green	White	Silver

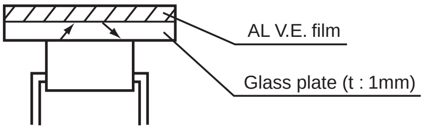

Fig. 1 Location of Reflector

SANYO Electric Co.,Ltd. Semiconductor Company
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

Package dimensions and Pin connection

As stated in the sttached paper. (No.6029 5/6)

Rank marking of collector output

The bottom of the package is colored following the table of classification of collector output.

Lot marking

Color division shall be done as shown in the drawing. (Fig. 2)

Year of even number : Front side
Year of odd number : Back side

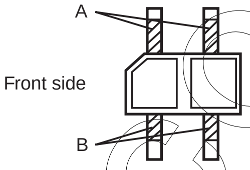

Fig. 2

Color	Black	Blue	Red	Green	Orange	Brown
Part ‘A’	January	February	March	April	May	June
Part ‘B’	July	August	September	October	November	December

Soldering conditions

(1) Temperature : Max. 260°C
(2) Time : Max. 3sec
(3) Clearance : Min. 1mm from the case edge. (Fig. 3)

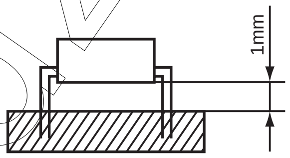

Fig. 3

⚠ PRECAUTIONS

(1) Bending a lead should avoid. However, when bending is necessary, take care the next items.
  ① Bending a lead must be done before soldering.
  ② Bending a lead must be done in the states of fixing leads and no stress for the regin part. Because it is possible that stress for the regin part cause troubles such as gold wire breaking and so on.
  ③ A lead must be bend at intervals of 2mm from the case edge.
  ④ Do not bend the same position of leads more than twice.
(2) The hole pitch of a circuit board must fit to the lead pitch.
(3) Take core the following when soldering.
  ① Do not heat a product under any stress (a twist and so on) to leads.
  ② Do not heat a product in the states of operating force to the regin part.
(4) Use the flux which contain no chlorine, have no corrosion and do not need washing.
(5) Be careful that flux or other chemicals do not attach to the luminous surface and passive surface.

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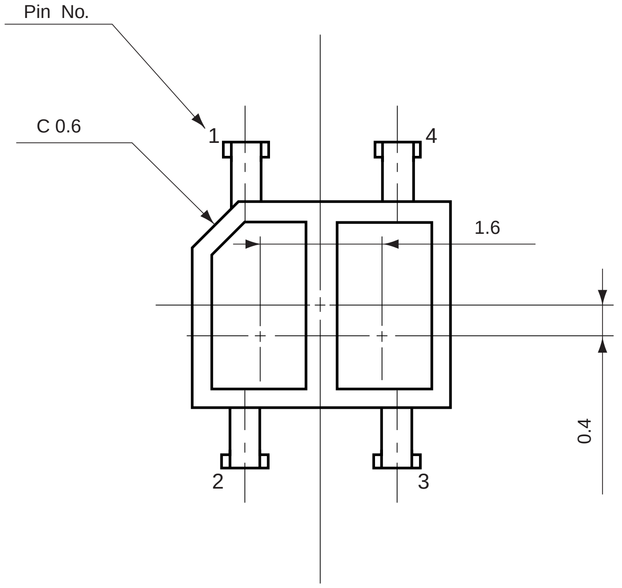
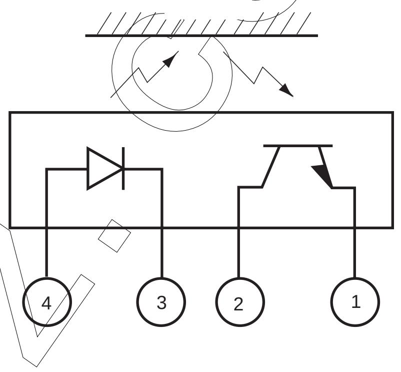
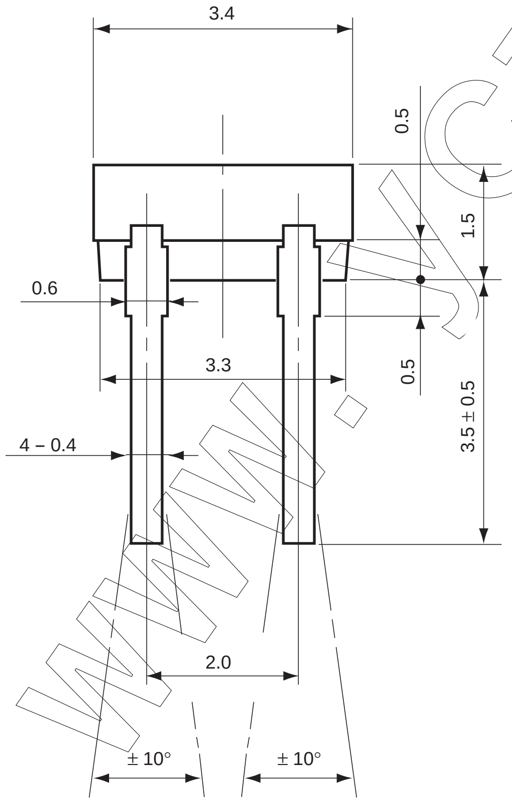
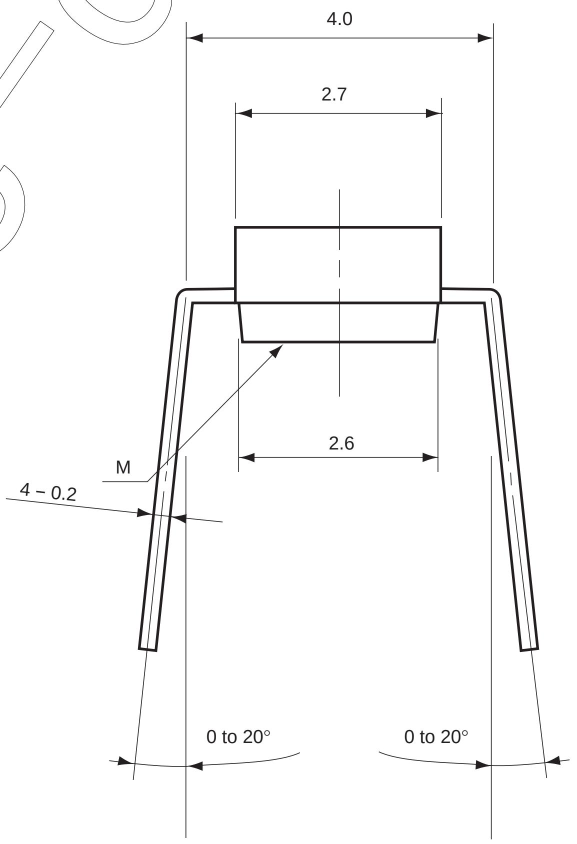


Pin Connection
1. Ph. Tr Emitter
2. Ph. Tr Collector
3. LED Cathode
4. LED Anode







❋ M : Color marking of Ic class

Tolerance : ± 0.2
Unit : mm

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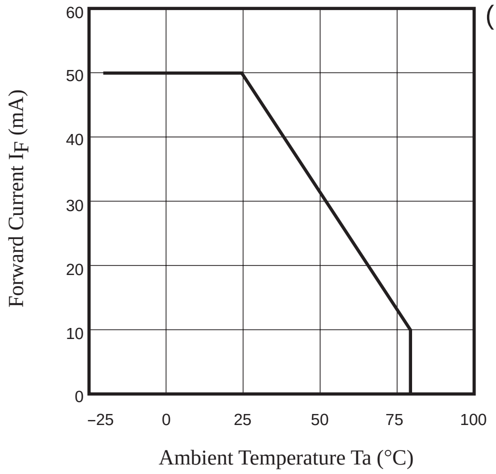
Typical Characteristics

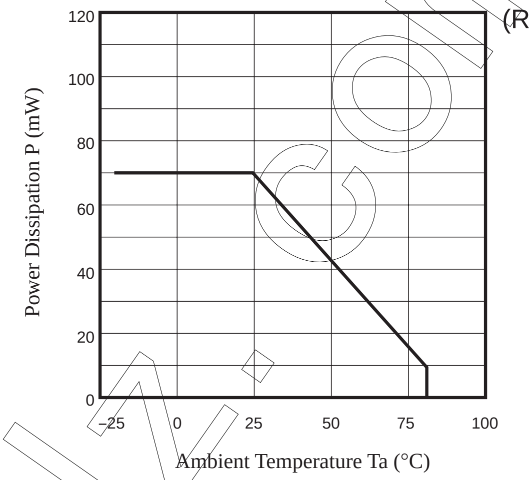
CAUTION

These numerical value show the electrical and optical characteristics of this product, and not assure this contents.

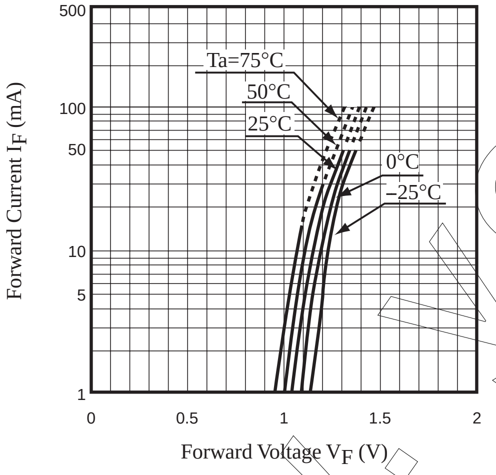
Forward Current vs. Ambient Temperature (Rating)



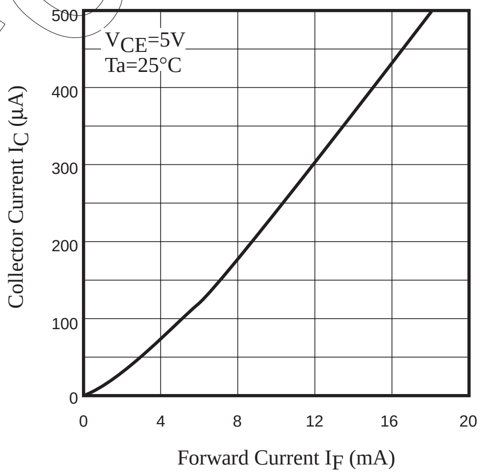
Power Dissipation vs. Ambient Temperature (Rating)



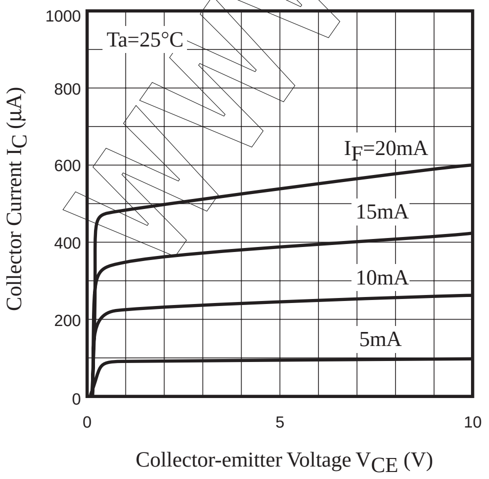
Forward Current vs. Forward Voltage



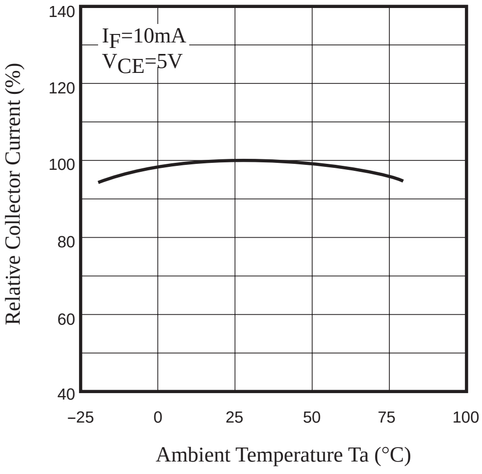
Collector vs. Forward Current



Collector Current vs. Collector-emitter Voltage



Relative Collector Current vs. Ambient Temperature



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Typical Characteristics

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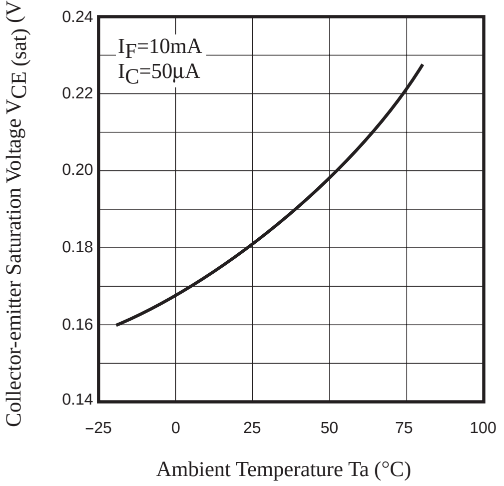
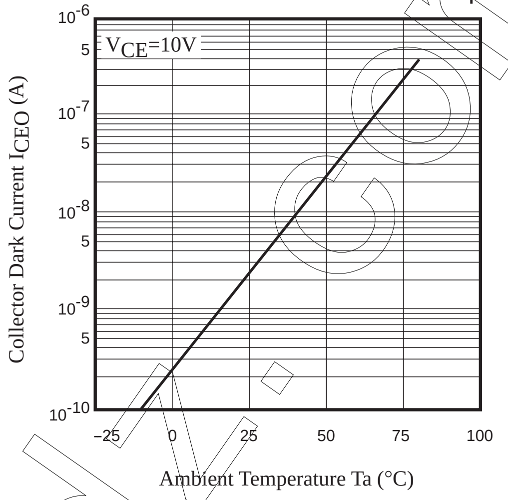
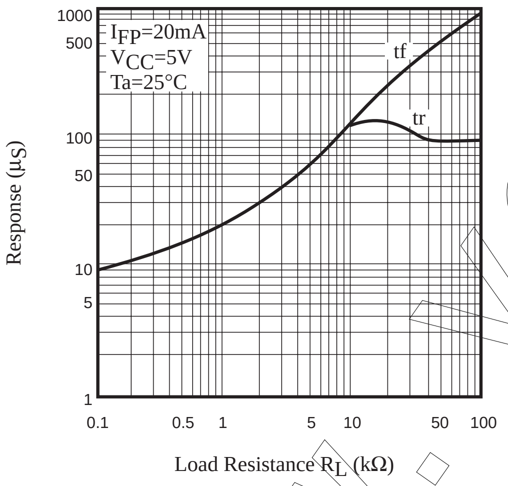
Collector-emitter Saturation Voltage vs. Ambient Temperature



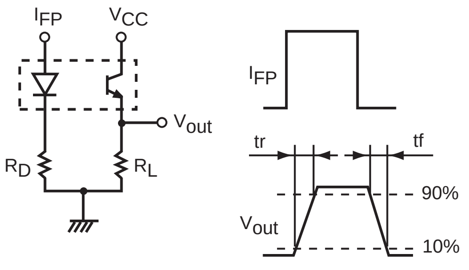
Collector Dark Current vs. Ambient Temperature



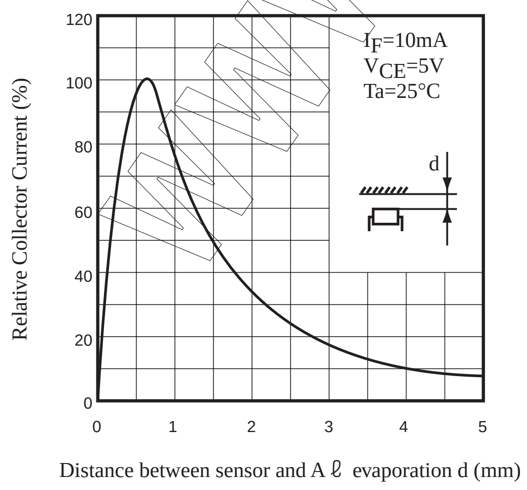
Response Time vs. Load Resistance



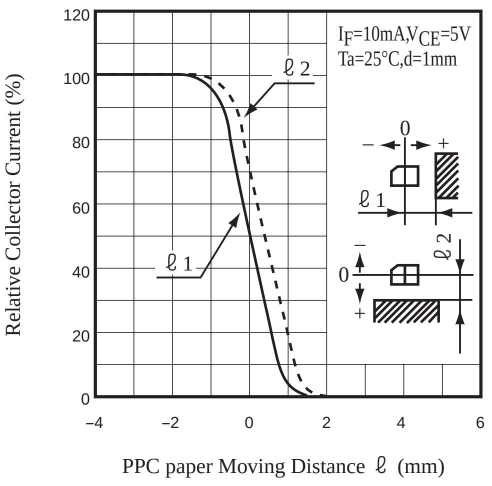
Test Circuit for Response Time



Relative Collector Current vs. Distance



Relative Collector Current vs. PPC paper Moving Distance



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Precautionary instructions in handling gallium arsenic products

Special precautions must be taken in handling this product because it contains, gallium arsenic, which is designated as a toxic substance by law. Be sure to adhere strictly to all applicable laws and regulations enacted for this substance, particularly when it comes to disposal.

Manufactured by ; **Tottori SANYO Electric Co., Ltd.**
LED Division
5-318, Tachikawa-cho, Tottori City, 680-8634 Japan
TEL: +81-857-21-2137 FAX: +81-857-21-2161