

# GP2S60

## Subminiature, Reflective Type Photointerrupter for Automatic Mounting

### ■ Features

1. Subminiature, leadless type. (Dimensions : 3.2×1.7×1.1mm)
2. Soldering reflow.  
(Peak temperature : 240°C, 10s or less)
3. Taped model. (2 000 pcs/reel)
4. Visible light cut-off type.

### ■ Applications

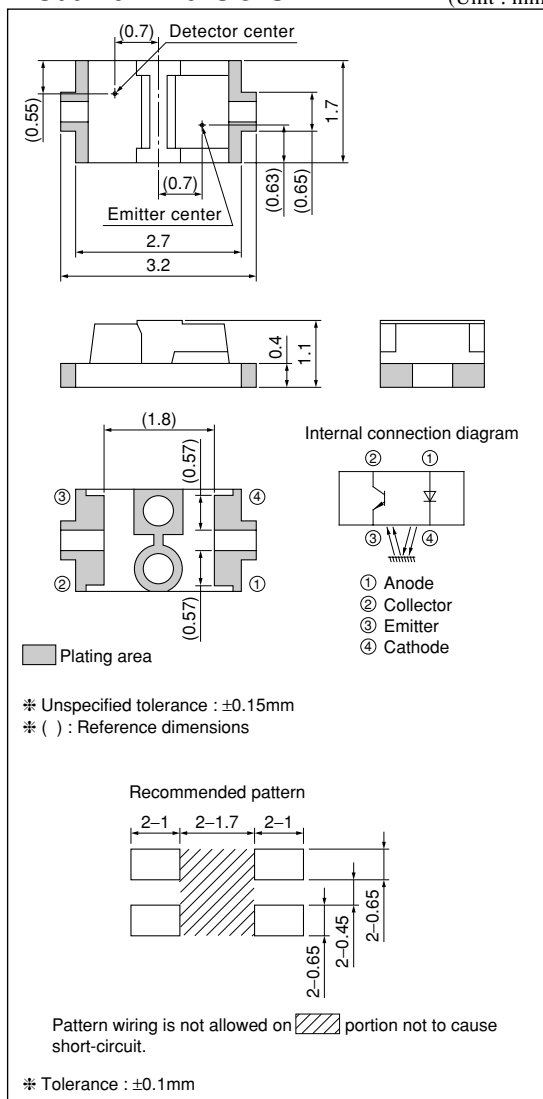
1. Audio equipment
2. VCR
3. Camcoders
4. Printers
5. CD-ROM drives

### ■ Absolute Maximum Ratings (T<sub>a</sub>=25°C)

	Parameter	Symbol	Rating	Unit
Input	Forward current	I <sub>F</sub>	50	mA
	Reverse voltage	V <sub>R</sub>	6	V
	Power dissipation	P <sub>D</sub>	75	mW
Output	Collector-emitter voltage	V <sub>CEO</sub>	35	V
	Emitter-collector voltage	V <sub>ECO</sub>	6	V
	Collector current	I <sub>C</sub>	20	mA
	Collector power dissipation	P <sub>C</sub>	75	mW
	Total power dissipation	P <sub>tot</sub>	100	mW
	Operating temperature	T <sub>opr</sub>	-25 to +85	°C
	Storage temperature	T <sub>stg</sub>	-40 to +100	°C
	*Soldering temperature	T <sub>sol</sub>	260	°C

\*For MAX. 5s

### ■ Outline Dimensions (Unit : mm)



**Electro-optical Characteristics**

(Ta=25°C)

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit	
Input	Forward voltage	V <sub>F</sub>	I <sub>F</sub> =20mA	-	1.2	1.4	V	
	Reverse current	I <sub>R</sub>	V <sub>R</sub> =6V	-	-	10	μA	
Output	Collector dark current	I <sub>CEO</sub>	V <sub>CE</sub> =20V	-	1	100	nA	
Transfer characteristics	*1 Collector current	I <sub>C</sub>	V <sub>CE</sub> =2V, I <sub>F</sub> =4mA	40	85	130	μA	
	*2 Leak current	I <sub>LEAK</sub>	V <sub>CE</sub> =2V, I <sub>F</sub> =4mA	-	-	500	nA	
	Response time	Rise time	t <sub>r</sub>	V <sub>CE</sub> =2V, I <sub>C</sub> =100μA R <sub>L</sub> =1 000Ω, d=1mm	-	20	100	μs
		Fall time	t <sub>f</sub>		-	20	100	μs

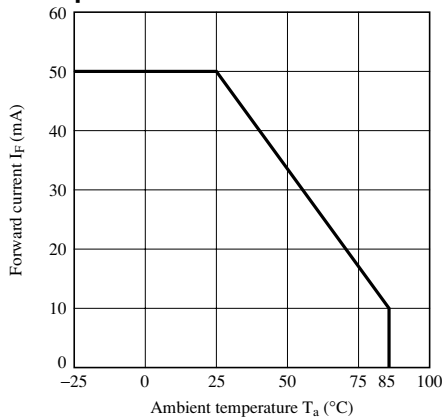
\*1 Refer to Fig.11

\*2 No Reflective object

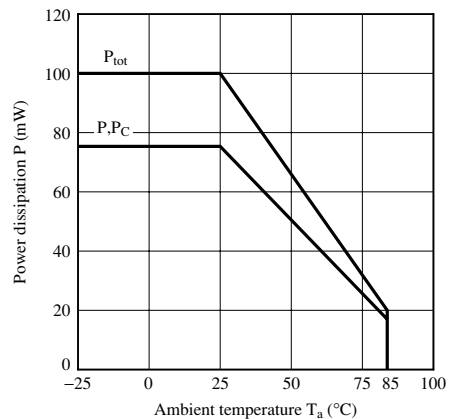
**Rank Table**

Model No.	Rank mark	I <sub>C</sub> (μA)	Conditions
<b>GP2S60</b>	A or B	40 to 130	I <sub>F</sub> =4mA V <sub>CE</sub> =2V Ta=25°C
<b>GP2S60A</b>	A	40 to 80	
<b>GP2S60B</b>	B	65 to 130	

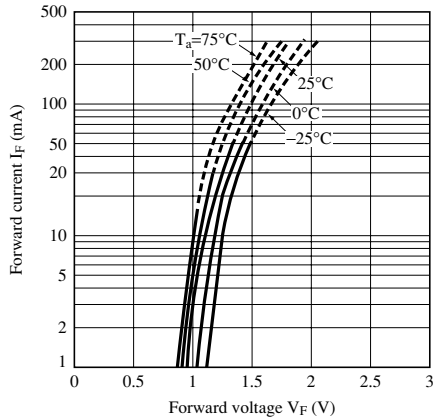
**Fig.1 Forward Current vs. Ambient Temperature**



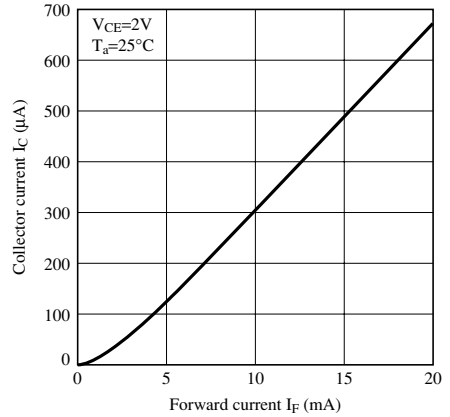
**Fig.2 Power Dissipation vs. Ambient Temperature**



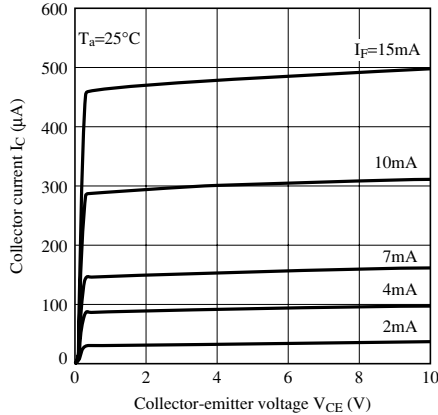
**Fig.3 Forward Current vs. Forward Voltage**



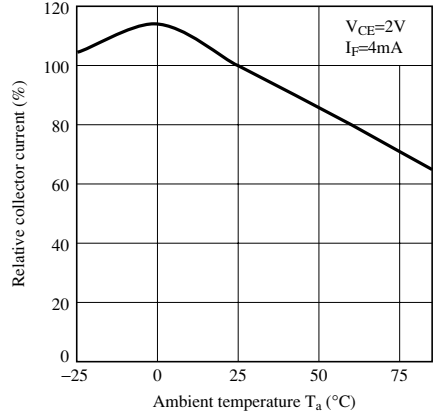
**Fig.4 Collector Current vs. Forward Current**



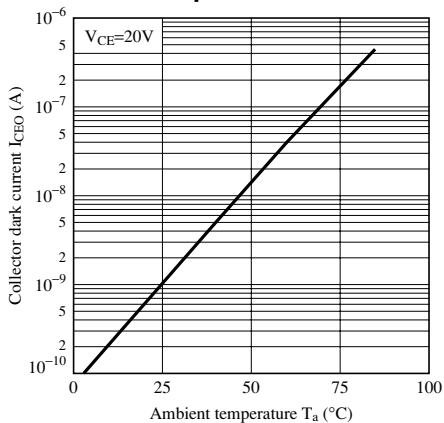
**Fig.5 Collector Current vs. Collector-emitter Voltage**



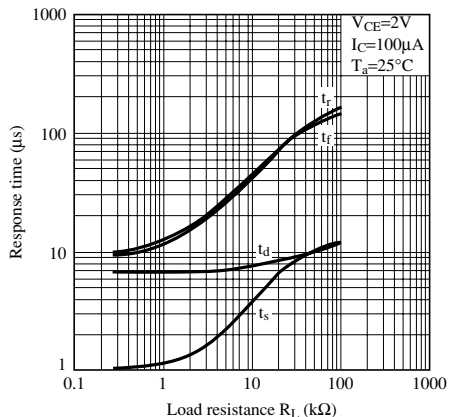
**Fig.6 Relative Collector Current vs. Ambient Temperature**



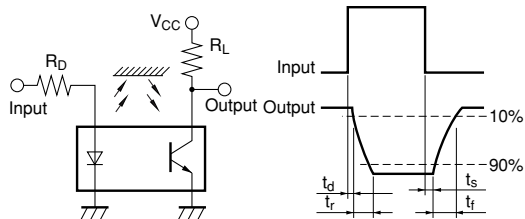
**Fig.7 Collector Dark Current vs. Ambient Temperature**



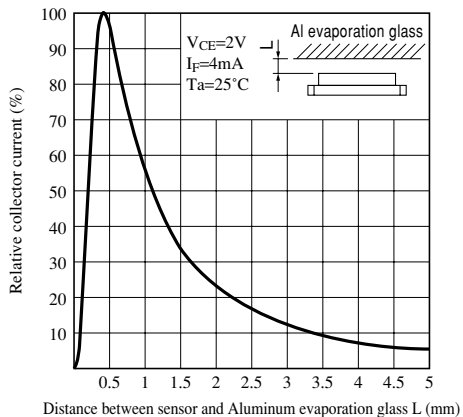
**Fig.8 Response Time vs. Load Resistance**



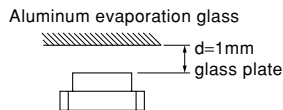
**Fig.9 Test Circuit For Response Time**



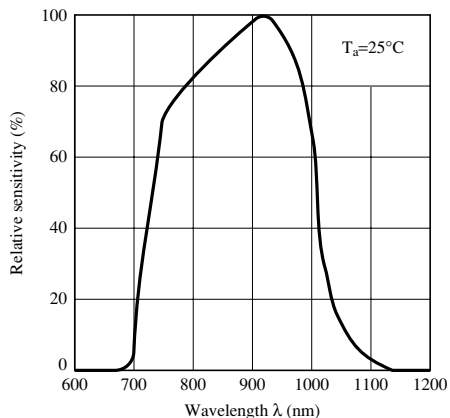
**Fig.10 Relative Collector Current vs. Distance Between Sensor and Aluminum Evaporation Glass**



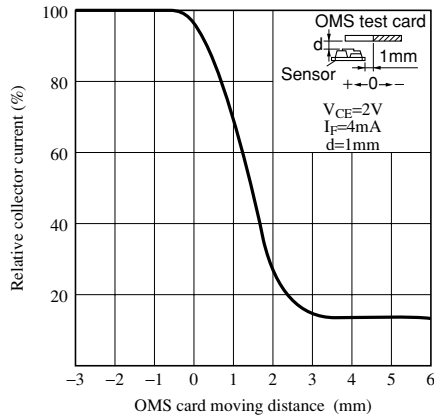
**Fig.11 Measuring Configuration of Collector Current**



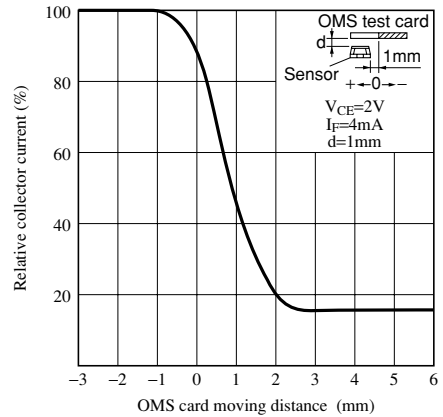
**Fig.12 Spectral Sensitivity**



**Fig.13 Relative Collector Current vs.OMS Card Moving Distance**

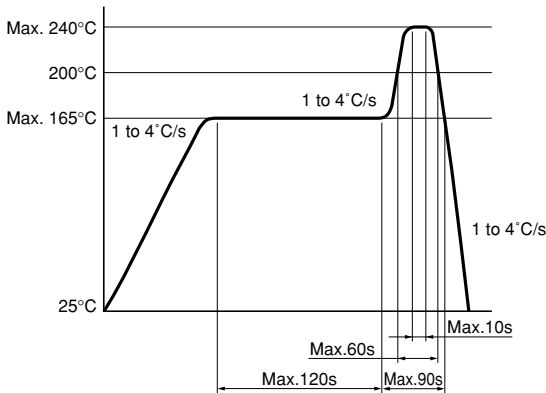


**Fig.14 Relative Collector Current vs.OMS Card Moving Distance**



**Fig.15 Reflow Soldering**

Only one time soldering is available within the temperature profile shown below.



■ **Other Precautions**

An infrared lamp used to heat up for soldering may cause a localized temperature rise in the resin. So keep the package temperature within that specified in Item 1. Also avoid immersing the resin part in the solder. Even if within the temperature profile above, there is the possibility that the gold wire in package is broken in case that the deformation of PCW gives the affection to lead pins. Please use after confirmation the conditions fully by actual solder reflow machine.

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