

# GP2S03

## Long Focal Distance Type Photointerrupter

### ■ Features

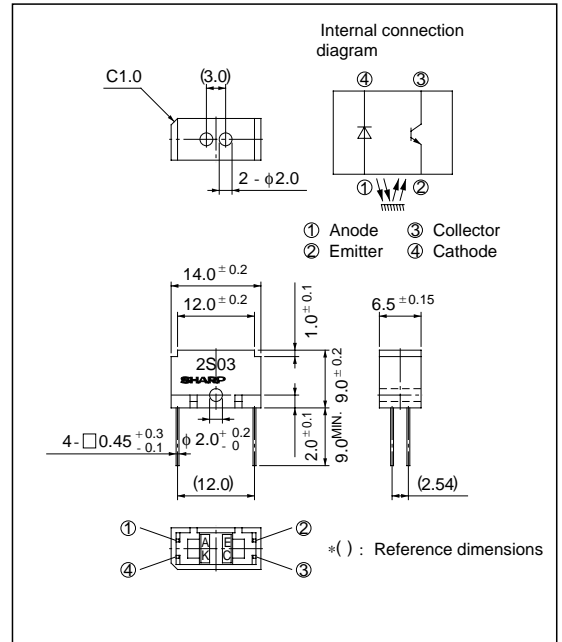
1. Long focal distance (4mm)
2. Visible light cut-off type

### ■ Applications

1. Analyzers, measuring instruments
2. Copiers, printers
3. Optoelectronic switches, optoelectronic counters

### ■ Outline Dimensions

(Unit : mm)



### ■ Absolute Maximum Ratings

(Ta= 25°C)

Parameter		Symbol	Rating	Unit
Input	Forward current	I <sub>F</sub>	50	mA
	*1 Peak forward current	I <sub>FM</sub>	1	A
	Reverse voltage	V <sub>R</sub>	6	V
	Power dissipation	P	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
Operating temperature		T <sub>opr</sub>	- 25 to + 85	°C
Storage temperature		T <sub>stg</sub>	- 40 to + 100	°C
*2 Soldering temperature		T <sub>sol</sub>	260	°C

\*1 Pulse width &lt;= 100μs, Duty ratio = 0.01

\*2 For 5 seconds

■ Electro-optical Characteristics

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

Parameter		Symbol	Conditions	MIN.	TYP.	MAX.	Unit	
Input	Forward voltage	$V_F$	$I_F = 20\text{mA}$	-	1.2	1.4	V	
	Peak forward voltage	$V_{FM}$	$I_{FM} = 0.5\text{A}$	-	3	4	V	
	Reverse current	$I_R$	$V_R = 3\text{V}$	-	-	10	$\mu\text{A}$	
Output	Collector dark current	$I_{CEO}$	$V_{CE} = 20\text{V}$	-	$10^{-9}$	$10^{-7}$	A	
Transfer-characteristics	* <sup>3</sup> Collector Current		$I_C$	$I_F = 20\text{mA}, V_{CE} = 5\text{V}$	0.16	-	-	mA
	Response time	Rise time	$t_r$	$I_C = 200\ \mu\text{A}, V_{CE} = 2\text{V}, R_L = 1\text{k}\Omega$ $d = 5\text{mm}$	-	30	90	$\mu\text{s}$
		Fall time	$t_f$		-	40	120	
	* <sup>4</sup> Leak current		$I_{LEAK}$	$I_F = 20\text{mA}, V_{CE} = 5\text{V}$	-	-	10	$\mu\text{A}$

\*<sup>3</sup> Test method: A reflective object shall be an OMS test card (white) specified by Sharp, and be 5.0mm away from the sensor.

\*<sup>4</sup> Without reflective object.

Fig. 1 Forward Current vs. Ambient Temperature

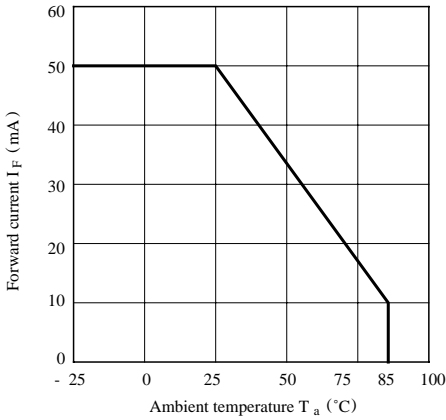


Fig. 2 Collector Power Dissipation vs. Ambient Temperature

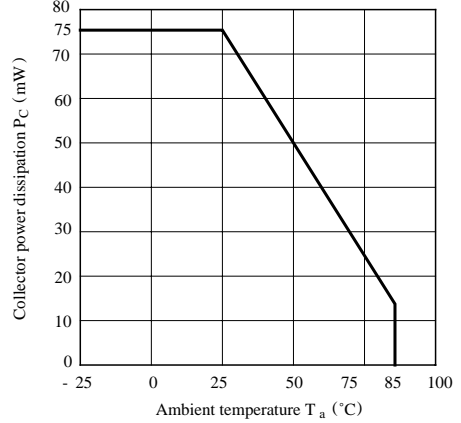


Fig. 3 Peak Forward Current vs. Duty Ratio

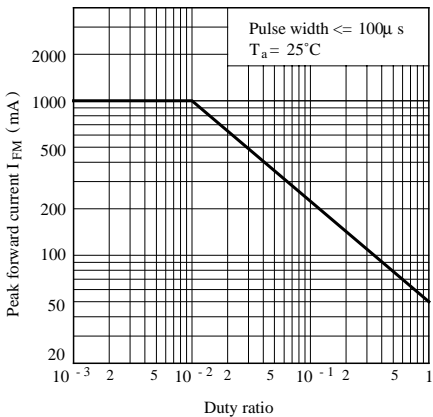
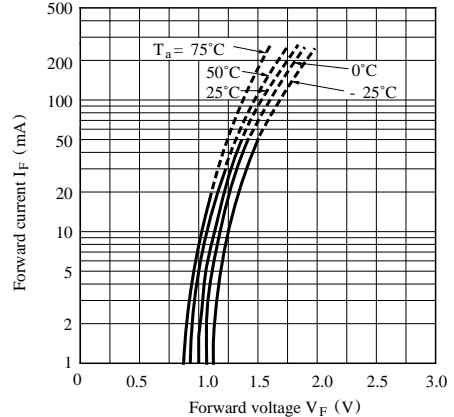
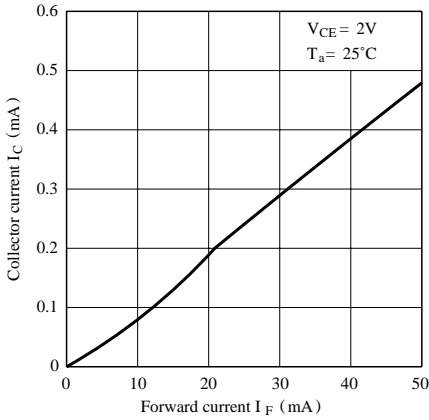


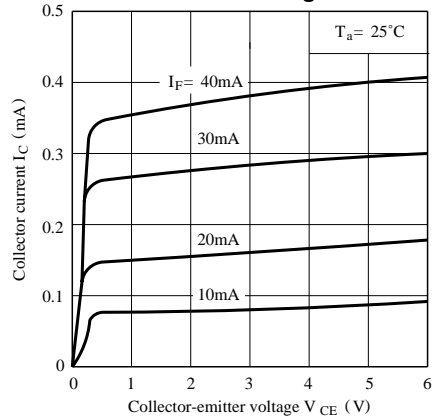
Fig. 4 Forward Current vs. Forward Voltage



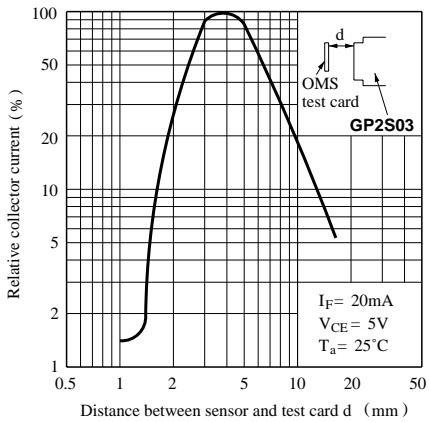
**Fig. 5 Collector Current vs. Forward Current**



**Fig. 6 Collector Current vs. Collector-emitter Voltage**



**Fig. 7 Relative Collector Current vs. Distance between Sensor and Card**



- Please refer to the chapter “Precautions for Use”.