

# GP2S03

Long Focal **Distance** Type  
Photointerrupter

## ■ Features

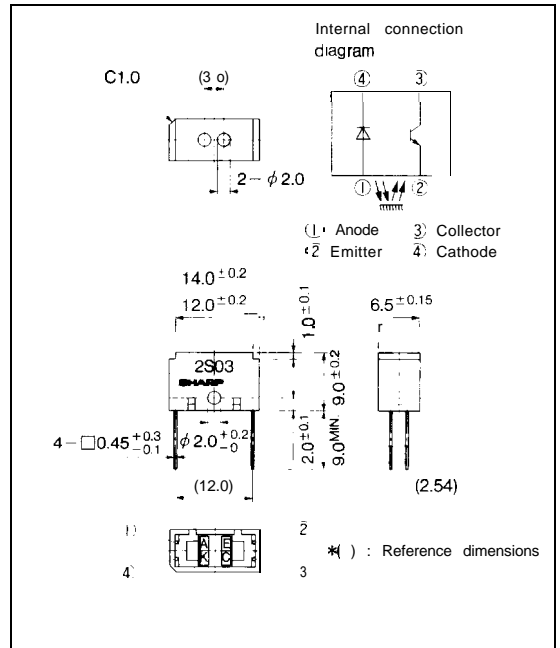
1. Long focal distance (5mm)
2. Visible light cut-off type

## ■ Applications

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

## ■ Outline Dimensions

(Unit: mm)



## ■ Absolute Maximum Ratings

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

Parameter		Symbol	Rating	Unit
Input	Forward current	$I_F$	50	mA
	*1 Peak forward current	$I_{FM}$	1	A
	Reverse voltage	$V_R$	6	V
	Power dissipation	$P$	75	mW
Output	Collector-emitter voltage	$V_{CEO}$	35	V
	Emitter-collector voltage	$V_{ECO}$	6	V
	Collector current	$I_C$	20	mA
	Collector power dissipation	$P_C$	75	mW
Operating temperature		$T_{opr}$	-25 to +85	$^\circ\text{C}$
Storage temperature		$T_{stg}$	-40 to +100	$^\circ\text{C}$
*2 Soldering temperature		$T_{sol}$	260	$^\circ\text{C}$

\*1 Pulse width  $\leq 100 \mu\text{s}$ , 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	$I_{CBO}$	$V_{CE} = 20\text{V}$	-	$10^{-9}$	$10^{-7}$	A	
Transfer characteristics	*3 Current transfer ratio		CTR	$I_F = 20\text{mA}, V_{CE} = 5\text{V}$	0.8	-	%	
	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	
	*4 Peak current		$I_{FAK}$	$I_F = 20\text{mA}, V_{CE} = 5\text{V}$	-	-	10	$\mu\text{A}$

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

\*4 Without reflective object.

Fig. 1 Forward Current vs. Ambient Temperature

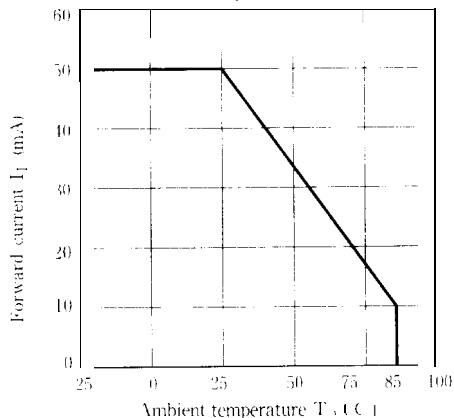


Fig. 2 Collector Power Dissipation vs. Ambient Temperature

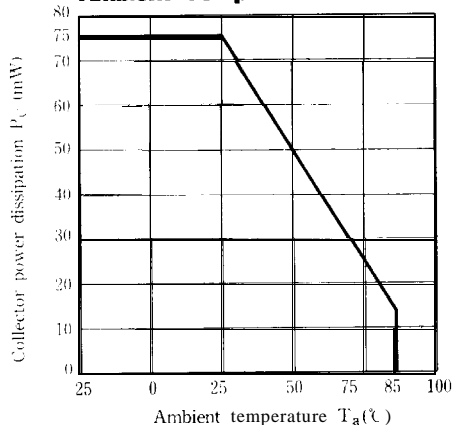


Fig. 3 Peak Forward Current vs. Duty Ratio

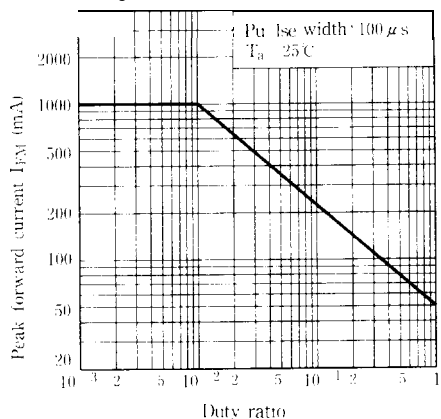
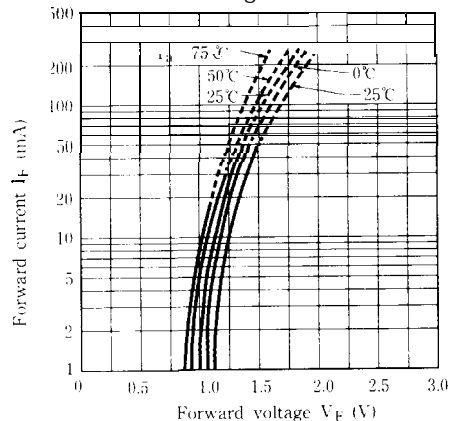
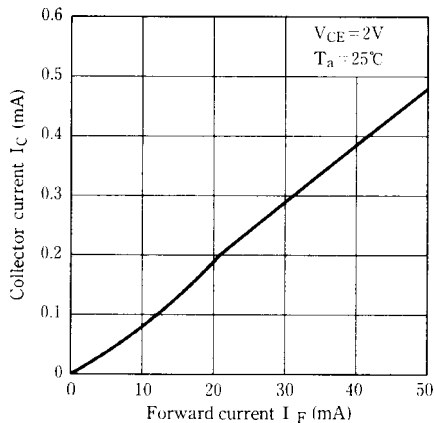


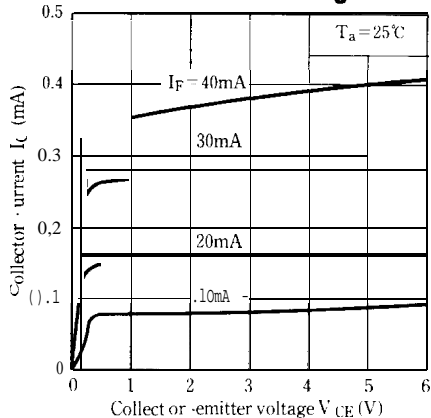
Fig. 4 Forward Current vs. Forward Voltage



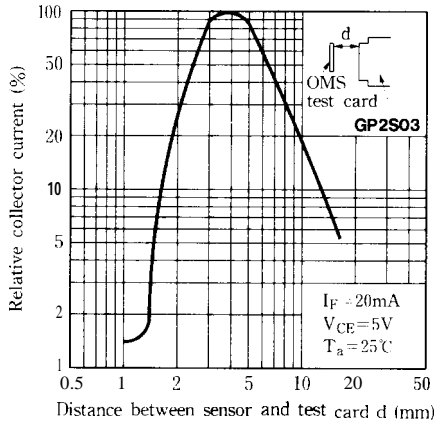
**Fig. 5 Collector Current vs. Forward Current**



**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” (Page 78 to 93),