

Sensors

Reflective photosensor (photoreflector)

RPR-359F

The RPR-359F is a reflective photosensor. The emitter is a GaAs infrared light emitting diode and the detector is a high-sensitivity, silicon planar phototransistor. A plastic lens is used for high sensitivity. In addition, since it is molded in plastic with a visible light filter, there is almost no effect from stray light.

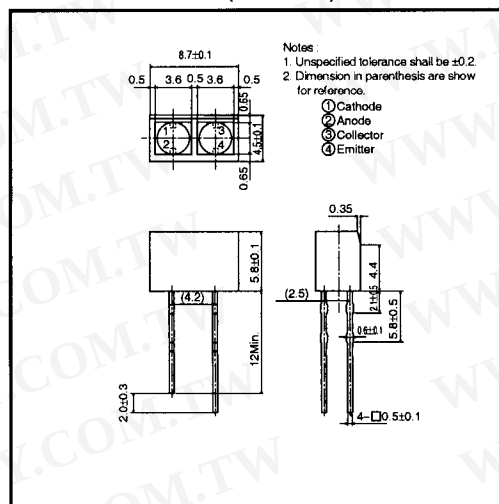
●Application

Copiers, Compact disc players

●Features

- 1) A plastic lens is used for high sensitivity.
- 2) A built-in visible light filter minimizes the influence of stray light.
- 3) Low collector-emitter saturation voltage.
- 4) Lightweight and compact.

●External dimensions (Units : mm)



●Absolute maximum ratings (Ta=25°C)

	Parameter	Symbol	Limits	Unit
Input (LED)	Forward current	I _F	50	mA
	Reverse voltage	V _R	5	V
	Power dissipation	P _D	80	mW
Output (Photo- transistor)	Collector-emitter voltage	V _{CEO}	30	V
	Emitter-collector voltage	V _{ECO}	4.5	V
	Collector current	I _C	30	mA
	Collector power dissipation	P _C	100	mW
Operating temperature		T _{opr}	-25~+85	°C
Storage temperature		T _{stg}	-40~+100	°C

Sensors

●Electrical and optical characteristics (Ta=25°C)

	Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Input characteristics	Forward voltage	V_F	—	1.3	1.6	V	$I_F=50\text{mA}$
	Reverse current	I_R	—	—	10	μA	$V_R=5\text{V}$
Output characteristics	Dark current	I_{CE0}	—	—	0.5	μA	$V_{CE}=10\text{V}$
	Peak sensitivity wavelength	λ_P	—	800	—	nm	—
Transfer characteristics	Collector current	I_C^*	200	500	1800	μA	$V_{CC}=5\text{V}$, $I_F=20\text{mA}$, $R_L=100\Omega$, $d=3.5\text{mm}$
	Collector-emitter saturation voltage	$V_{CE(sat)}$	—	0.1	0.3	V	$I_F=20\text{mA}$, $I_C=100\mu\text{A}$
	Response time	t_{rtf}	—	10	—	μs	$V_{CC}=10\text{V}$, $I_F=20\text{mA}$, $R_L=100\Omega$

* Standard paper (90% reflection)

●Electrical and optical characteristic curves

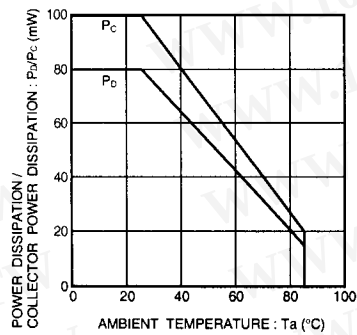


Fig.1 Power dissipation / collector power dissipation vs. ambient temperature

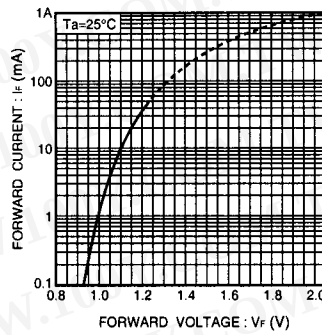


Fig.2 Forward current vs. forward voltage

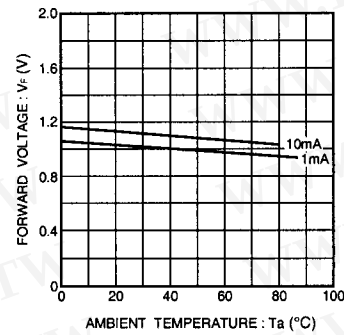


Fig.3 Forward voltage vs. ambient temperature

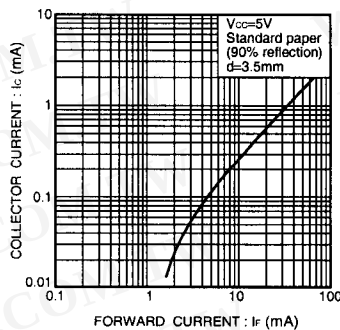


Fig.4 Collector current vs. forward current

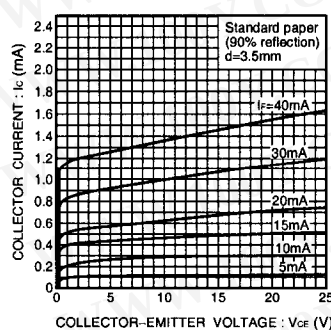


Fig.5 Output characteristics

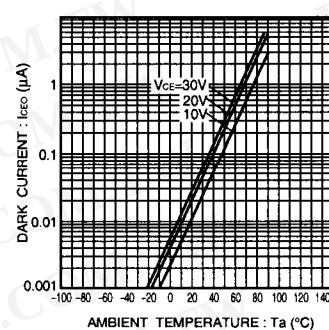


Fig.6 Dark current vs. ambient temperature