Reflective photosensor (photoreflector) RPR-220

The RPR-220 is a reflective photosensor. The emitter is a GaAs infrared light emitting diode and the detector is a high-sensitivity, silicon planar phototransistor. A custom lamp was developed to enable the achievement of a smaller package than with conventional reflectors.

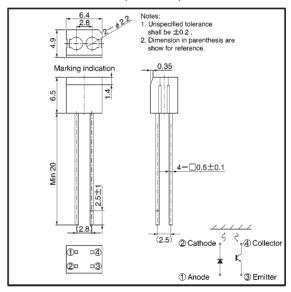
Applications

Compact disk players, Copiers, Game machines, Office automation equipment

Features

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

External dimensions (Units: mm)



● Absolute maximum ratings (Ta = 25°C)

Parameter		Symbol	Limits	Unit
Input(LED)	Forward current	lF	50	mA
	Reverse voltage	VR	5	V
	Power dissipation	P□	80	mW
Output (photo- (transistor)	Collector-emitter voltage	VCEO	30	V
	Emitter-collector voltage	VECO	4.5	V
	Collector current	Ic	30	mA
	Collector power dissipation	Pc	80	mW
Operating temperature		Topr	-25~ + 85	°C
Storage temperature		Tstg	−30~+85	Ĉ

Sensors RPR-220

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

Parameter		Symbol	Min.	Тур.	Max.	Unit	Conditions
Input charac- teristics	Forward voltage	VF	_	1.34	1.6	٧	I _F =50mA
	Reverse current	lR	_	_	10	μΑ	V _R =5V
Output charac- teristics	Dark current	ICEO	_	_	0.5	μΑ	V _{CE} =10V
	Peak sensitivity wavelength	λp	_	800	_	nm	
Transfer charac- teristics	Collector current	lc	0.08	0.3	8.0	mA	VcE=2V, IF=10mA
	Collector-emitter saturation voltage	V _{CE(sat)}	_	0.1	0.3	٧	I _F =20mA, I _C =0.1mA
	Response time	tr • tf	_	10	_	μS	Vcc=10V, I==20mA, RL=100 Ω

Electrical and optical characteristic curves

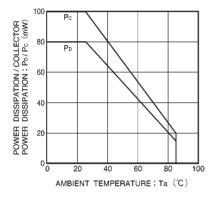


Fig.1 Power dissipation / collector power dissipation vs. ambient temperature

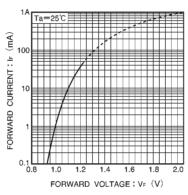


Fig.2 Forward current vs. forward voltage

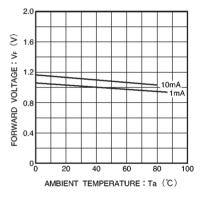


Fig.3 Forward voltage vs.ambient temperature

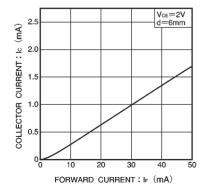


Fig.4 Collector current vs. forward current

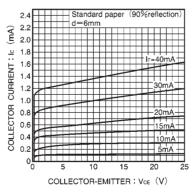


Fig.5 Output characteristics

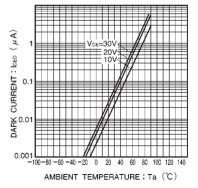


Fig.6 Dark current vs. ambient temperature



Sensors RPR-220

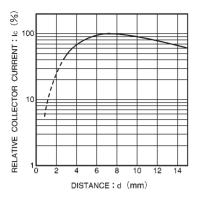


Fig.7 Relative output vs. distance

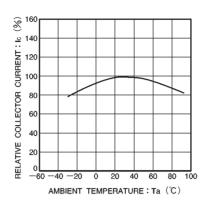


Fig.8 Relative output vs. ambient temperature

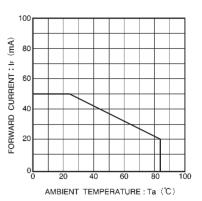


Fig.9 Forward current vs. ambient temperature

Circuit for testing transfer characteristics

