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.

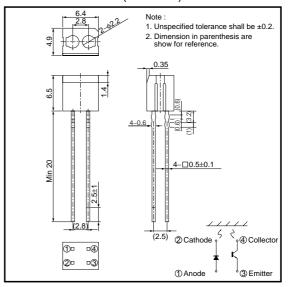
Application

Compact disc 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	Po	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	°C

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

Parameter		Symbol	Min.	Тур.	Max.	Unit	Conditions
Input characteristics	Forward voltage	VF	-	1.34	1.6	V	I=50mA
	Reverse current	lR	-	_	10	μΑ	V _R =5V
Output characteristics	Dark current	Iceo	1	_	0.5	μΑ	Vce=10V
	Peak sensitivity wavelength	λР	-	800	_	nm	-
Transfer characteristics	Collector current	Ic	0.08	0.3	0.8	μΑ	Vce=2V, Ir=10mA
	Collector-emitter saturation voltage	V _{CE(sat)}	1	0.1	0.3	V	I=20mA, Ic=0.1mA
	Response time	tr∙tf	_	10	_	μs	Vcc=10V, I=20mA, RL=100Ω

Electrical and optical characteristic curves

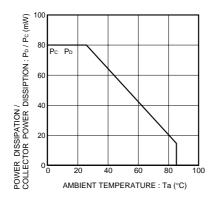


Fig.1 Power dissipation / collector power dissipation vs. ambient temperature

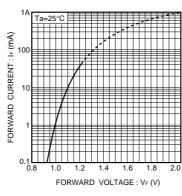


Fig.2 Forward current vs. forward voltage

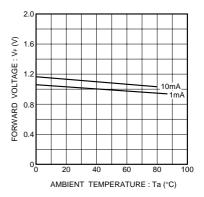


Fig.3 Forward voltage vs. ambient temperature

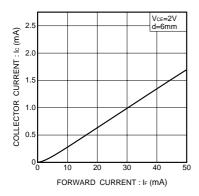


Fig.4 Collector current vs. forward current

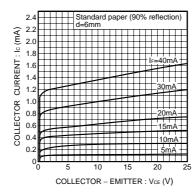


Fig.5 Output characteristics

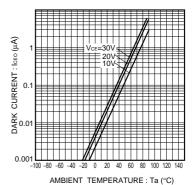
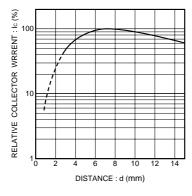


Fig.6 Dark current vs. ambient temperature



(%) 160 S 140

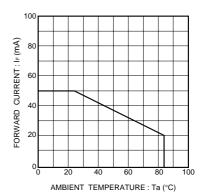
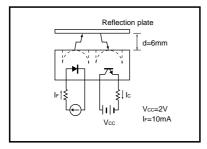


Fig.7 Relative output vs. distance

Fig.8 Relative output vs. ambient temperature

Fig.9 Forward current vs. ambient temperature

● Circuit for testing transfer characteristics



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