

Red light source high output reflective photosensor (photoreflector)

RPR-220UC30N

The RPR-220UC30N employs a red light source which peak emitting wavelength is $\lambda_p=630\text{nm}$ in the emitting side. Therefore, it enables not only to judge whether it is an object with conventional function or not, but also to distinguish a cyanogens color due to its complementary. Peak sensitivity wavelength which is $\lambda_p=600\text{nm}$ also goes very well with the receiving side.

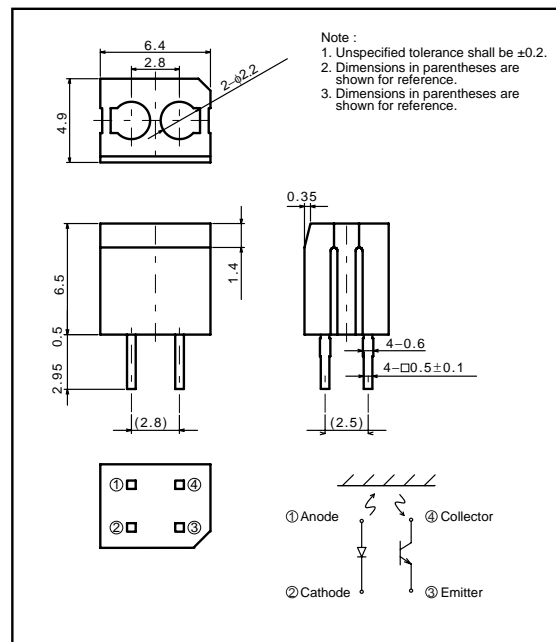
●Application

Printers, facsimile machines and various control machineries

●Features

- 1) High output at $I_c 0.4\text{mA}$ (typ.) output
- 2) Detection distance is from 6mm to 12mm.
- 3) It is unnecessary to cut a lead which length is 2.95mm after mounting.

●External dimensions (Unit : mm)



●Absolute maximum ratings ($T_a=25^\circ\text{C}$)

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	80	mW
Operating temperature		T_{opr}	-25 to +85	$^\circ\text{C}$
Storage temperature		T_{stg}	-30 to +85	$^\circ\text{C}$

Sensors

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

Parameter		Symbol	Min.	Typ.	Max.	Unit	Conditions	
Input characteristics	Forward voltage	V_F	–	2.0	2.6	V	$I_F=50\text{mA}$	
	Reverse current	I_R	–	–	100	μA	$V_R=9\text{V}$	
	Peak emitting wavelength	λ_P	–	630	–	nm	–	
Output characteristics	Dark current	I_{CE0}	–	–	10	μA	$V_{CE}=10\text{V}$	
	Peak sensitivity wavelength	λ_P	–	600	–	nm	–	
Transfer characteristics	Collector current	I_C	0.08	0.4	0.8	mA	$V_{CE}=5\text{V}, I_F=10\text{mA}$	
	Collector-emitter saturation voltage	$V_{CE(sat)}$	–	0.1	0.3	V	$I_F=20\text{mA}, I_C=0.1\text{mA}$	
	Response time	Rising time	t_r	–	10	–	μs	$V_{CC}=5\text{V}, I_F=20\text{mA}, R_L=100\Omega$
		Falling time	t_f	–	10	–	μs	

●Electrical and optical characteristic curves

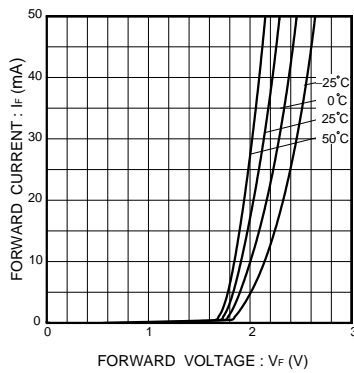


Fig.1 Forward current vs. forward voltage

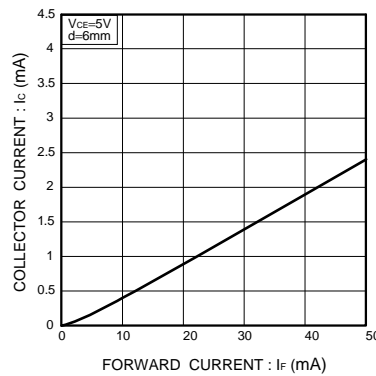


Fig.2 Collector current vs. forward current

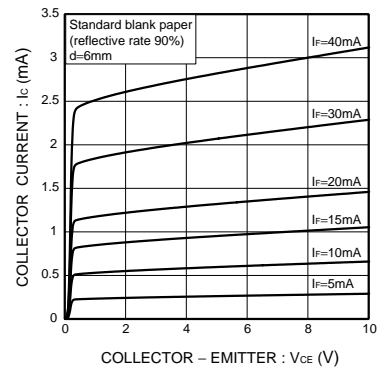


Fig.3 Output characteristics

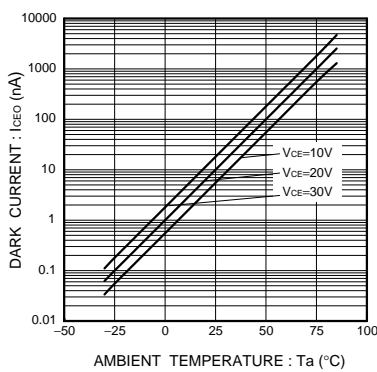


Fig.4 Dark current vs. ambient temperature

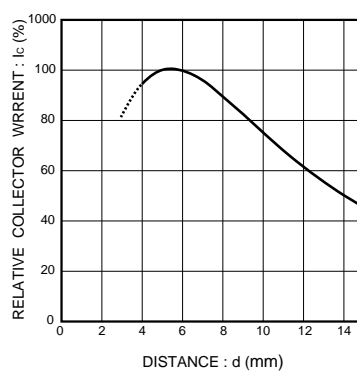


Fig.5 Relative output vs. distance

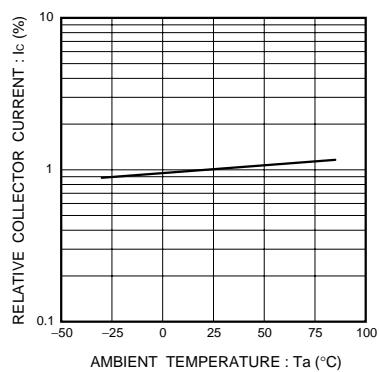


Fig.6 Relative output vs. ambient temperature

Sensors

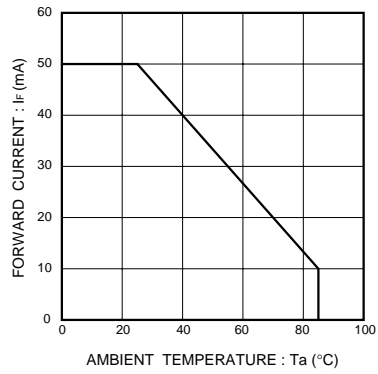
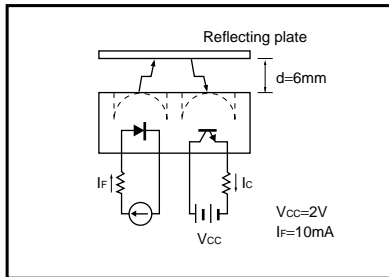


Fig.7 Forward current vs. ambient temperature

●Circuit for testing transfer characteristics



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