

ON2280

Reflective Photosensor

Outline

ONN2280 is a small, thin reflective photosensor consisting of a high efficiency GaAs infrared light emitting diode which is integrated with a high sensitivity Darlington phototransistor is used as the photodetector in a single resin package.

Features

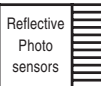
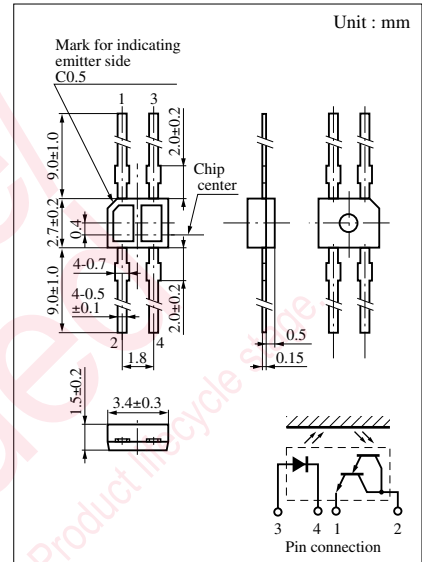
- Ultraminiature : 2.7 × 3.4 mm
- Visible light cutoff resin is used
- High current-transfer ratio

Application

- Detection of paper, film and cloth
- Detection of position and edge
- Detection of rotary positioning
- Liquid level sensor
- Start, end mark detection of magnetic tape

Absolute Maximum Ratings (Ta = 25°C)

	Parameter	Symbol	Rated	Unit
Input (Light emitting diode)	Reverse voltage (DC)	V_R	3	V
	Forward current (DC)	I_F	50	mA
	Power dissipation	P_D^{*1}	75	mW
Output (Photo transistor)	Collector current	I_C	30	mA
	Collector to emitter voltage	V_{CEO}	20	V
	Emitter to collector voltage	V_{ECO}	5	V
Temperature	Collector power dissipation	P_C^{*2}	75	mW
	Operating ambient temperature	T_{opr}	-25 to +85	°C
	Storage temperature	T_{stg}	-30 to +100	°C



*1 Input power derating ratio is 1.0 mW/°C at Ta ≥ 25°C.

*2 Output power derating ratio is 1.0 mW/°C at Ta ≥ 25°C.

Electrical Characteristics (Ta = 25°C)

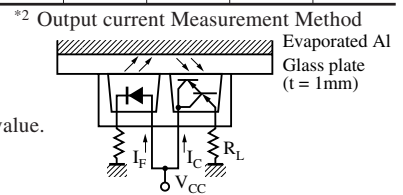
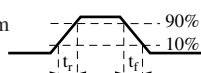
	Parameter	Symbol	Conditions	min	typ	max	Unit
Input characteristics	Forward voltage (DC)	V_F	$I_F = 50\text{mA}$		1.3	1.5	V
	Reverse current (DC)	I_R	$V_R = 3\text{V}$		0.01	10	μA
	Capacitance between terminals	C_i	$V_R = 0\text{V}, f = 1\text{MHz}$		30		pF
Output characteristics	Collector cutoff current	I_{CEO}	$V_{CE} = 10\text{V}$			1.0	μA
Transfer characteristics	Collector current	$I_C^{*1, *2}$	$V_{CC} = 5\text{V}, I_F = 2\text{mA}, R_L = 100\Omega, d = 1\text{mm}$	0.46		12.0	mA
	Leakage current	I_D	$V_{CC} = 5\text{V}, I_F = 2\text{mA}, R_L = 100\Omega$			2.0	μA
	Collector to emitter saturation voltage	$V_{CE(sat)}$	$I_F = 5\text{mA}, I_C = 0.5\text{mA}$			1.5	V
	Response time	t_r^{*3}, t_f^{*4}	$V_{CC} = 10\text{V}, I_C = 1\text{mA}, R_L = 100\Omega$		150		μs

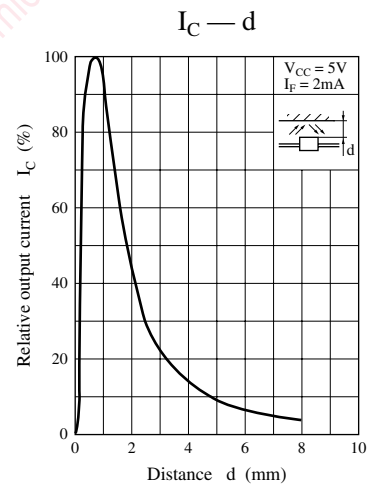
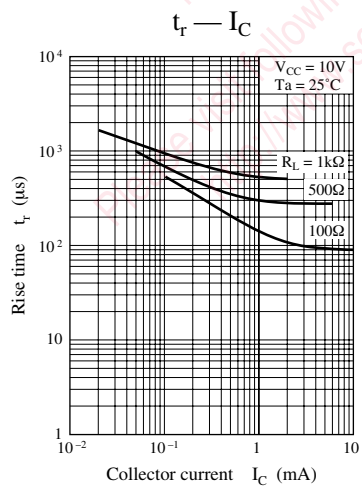
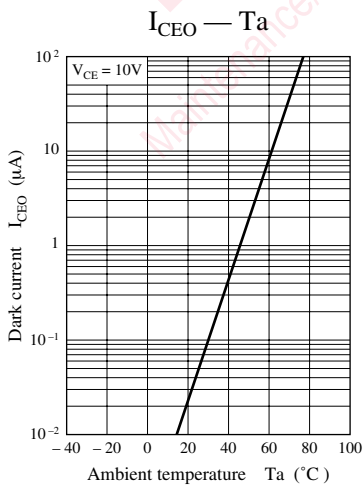
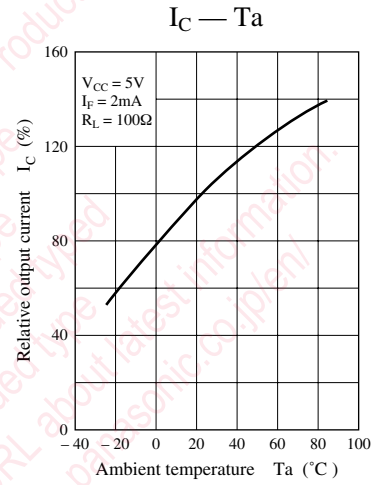
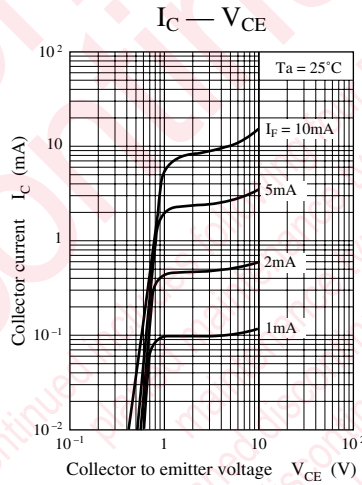
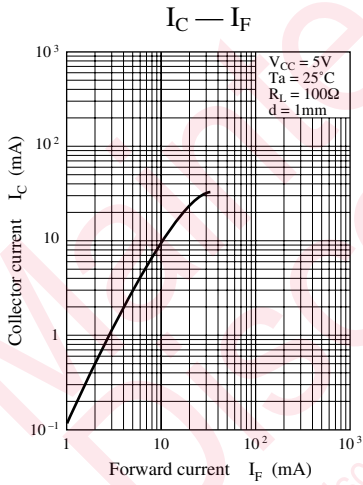
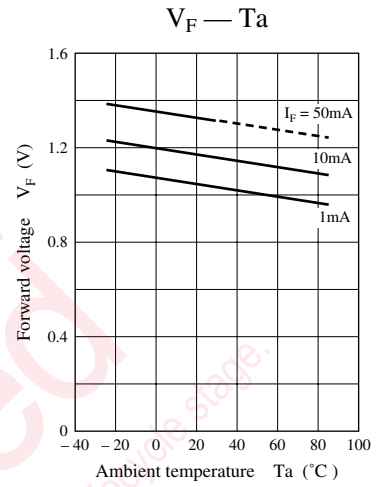
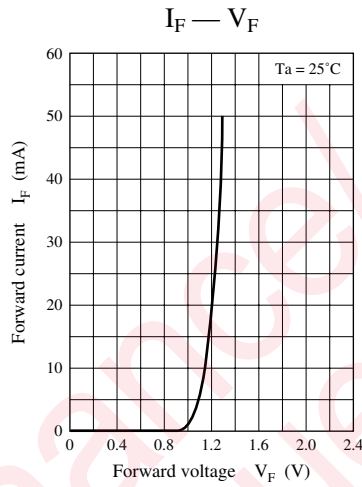
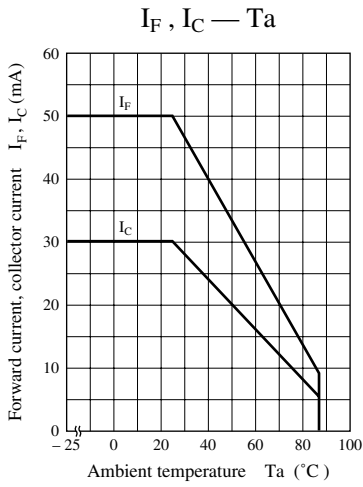
*1 IC classifications

Class	Q	R	S
I_C (mA)	0.46 to 1.75	1.3 to 4.95	3.15 to 12.0

*3 Time required for the collector current to increase from 10% to 90% of its final value.

*4 Time required for the collector current to decrease from 90% to 10% of its initial value.





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