

Photointerrupter, Ultraminiature SMD type



Absolute maximum ratings (Ta=25°C)

Parameter		Symbol	Limits	Unit
Input (LED)	Forward current	IF	30	mA
	Reverse voltage	VR	5	V
	Power dissipation	Pd	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 to +85	°C
Storage temperature		Tstg	-30 to +85	°C

Applications

DSC(Digital steal camera)
DVC(Digital video camera)
Digital handy phone

Features

- 1) Ultraminiature SMD type.
- 2) Gap 1.2mm.

Electrical and optical characteristics (Ta=25°C)

Parameter		Symbol	Min.	Typ.	Max.	Unit	Conditions	
Input characteristics	Forward voltage	V _F	1.2	1.35	1.5	V	I _F =5mA	
	Reverse current	I _R	—	—	10	μA	V _R =5V	
Output characteristics	Dark current	I _{CEO}	—	—	0.1	μA	V _{CE} =10V	
	Peak sensitivity wavelength	λ _P	—	800	—	nm	—	
Transfer characteristics	Collector current		I _{C1}	5.0	—	25	mA	V _{CE} =5V, I _F =20mA
			I _{C2}	1.0	—	5	mA	V _{CE} =5V, I _F =5mA
	Collector-emitter saturation voltage		V _{CE(sat)}	—	—	0.4	V	I _F =20mA, I _C =0.1mA
	Response time	Rise time	t _r	—	10	—	μs	V _{CC} =5V, I _F =20mA, R _L =100Ω
		Fall time	t _f	—	10	—	μs	
Infrared light emitter diode	Cut-off frequency		f _C	—	1	—	MHz	I _F =5mA
	Peak light emitting wavelength		λ _P	—	850	—	nm	* Non-coherent Infrared light emitting diode used.
Photo transistor	Response time		t _r •t _f	—	10	—	μs	V _{CC} =5V, I _C =1mA, R _L =100Ω * This product is not designed to be protected against electromagnetic wave.
	Maximum sensitivity wavelength		λ _P	—	800	—	nm	—

Electrical and optical characteristics curves

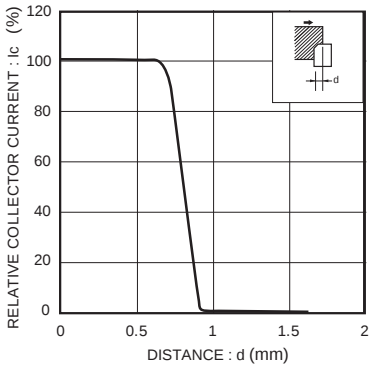


Fig.1 Relative output current vs. distance (I)

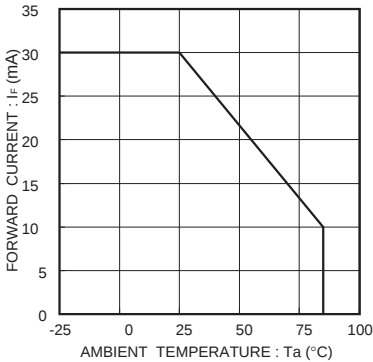


Fig.2 Forward current falloff

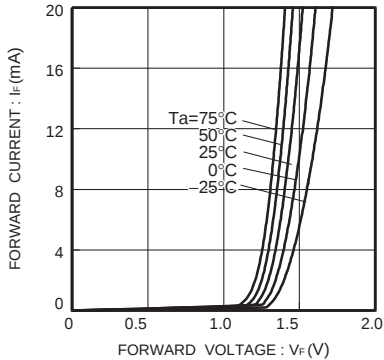


Fig.3 Forward current vs. forward voltage

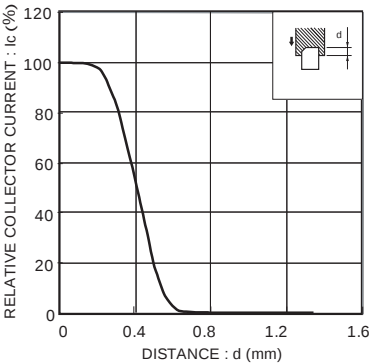


Fig.4 Relative output current vs. distance (II)

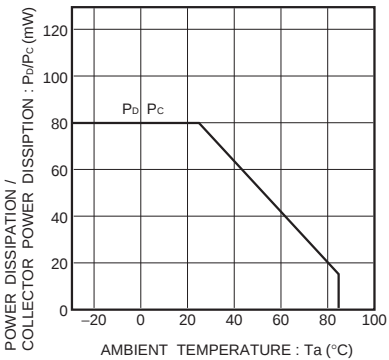


Fig.5 Power dissipation / collector power dissipation vs. ambient temperature

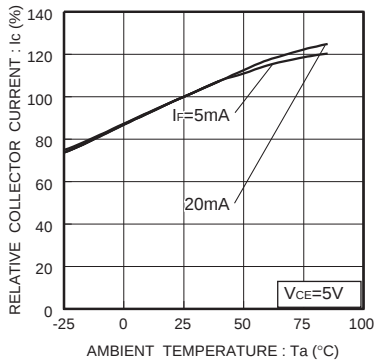
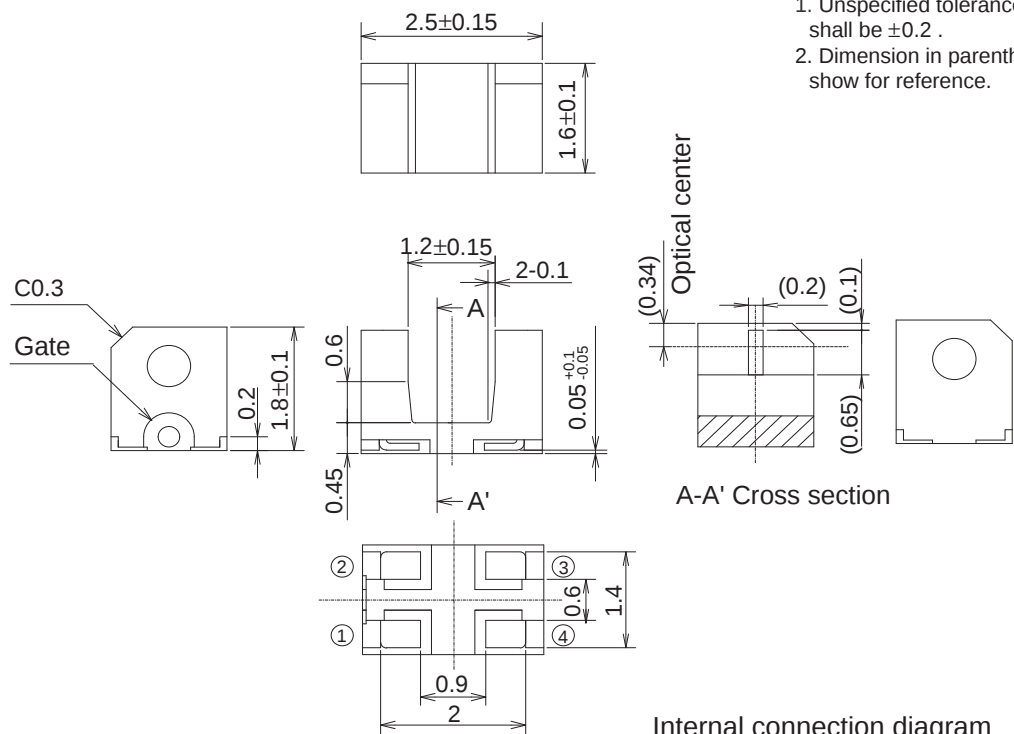


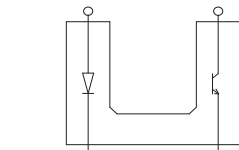
Fig.6 Relative output vs. ambient temperature



- Notes:
1. Unspecified tolerance shall be ± 0.2 .
 2. Dimension in parenthesis are show for reference.

Internal connection diagram

② Anode ③ Collector



① Cathode ④ Emitter

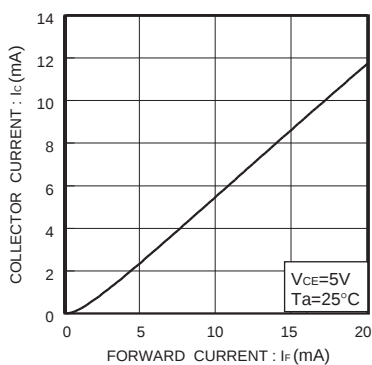


Fig.7 Collector current vs. forward current

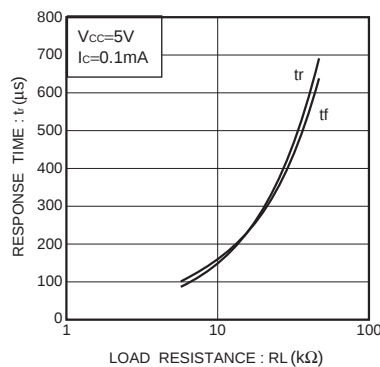


Fig.8 Response time vs. load resistance

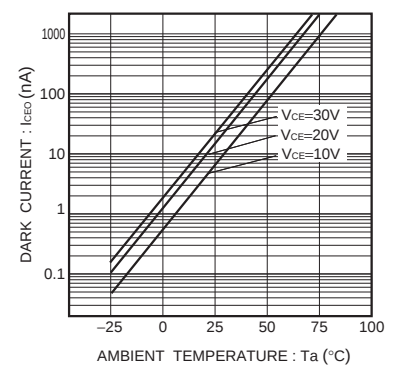


Fig.9 Dark current vs. ambient temperature

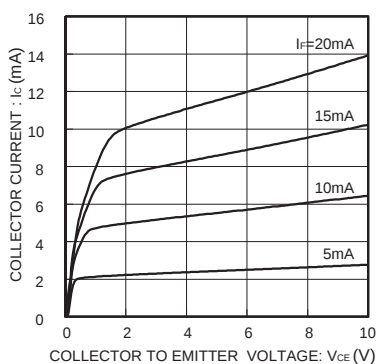


Fig.10 Output characteristics

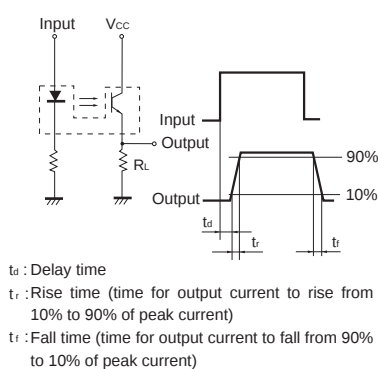


Fig.11 Response time measurement circuit

Notes

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