

Surface Mount type 4 Direction Detector

Absolute maximum ratings (Ta=25°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	°C
Storage temperature		T _{stg}	-30 to +85	°C

Electrical and optical characteristics (Ta=25°C)

Parameter		Symbol	Min.	Typ.	Max.	Unit	Conditions
Input charac-teristics	Forward voltage	V _F	—	1.3	1.6	V	I _F =50mA
	Reverse current	I _R	—	—	10	μA	V _R =5V
Output charac-teristics	Dark current	I _{CEO}	—	—	0.5	μA	V _{CE} =10V
	Peak sensitivity wavelength	λ _P	—	800	—	nm	—
Transfer characteristics	Collector current	I _C	100	—	—	μA	V _{CE} =5V, I _F =5mA
	DC leakage current	I _{leak}	—	—	15	μA	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						V _{CC} =5V, I _F =20mA, R _L =100Ω
Infrared light emitter diode	Cut-off frequency	f _c	—	1	—	MHz	I _F =50mA * Non-coherent Infrared light emitting diode used.
	Peak light emitting wavelength	λ _P	—	950	—	nm	
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

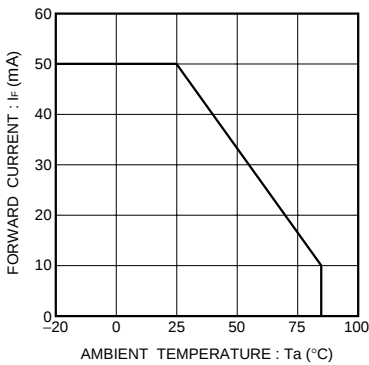


Fig.1 Forward current falloff

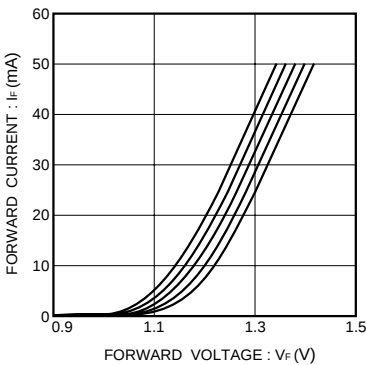


Fig.2 Forward current vs. forward voltage

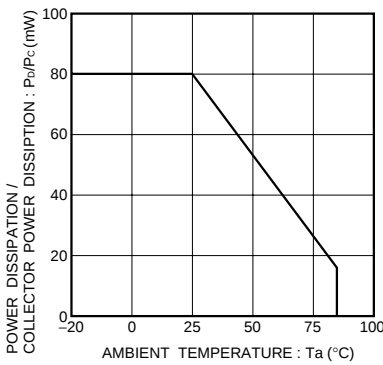


Fig.3 Power dissipation / collector power dissipation vs. ambient temperature

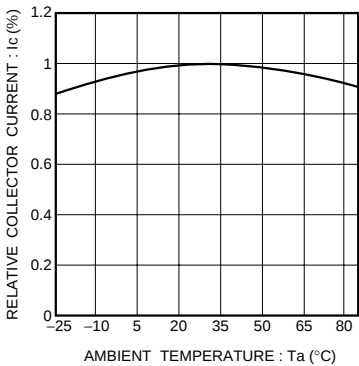


Fig.4 Relative output vs. ambient temperature

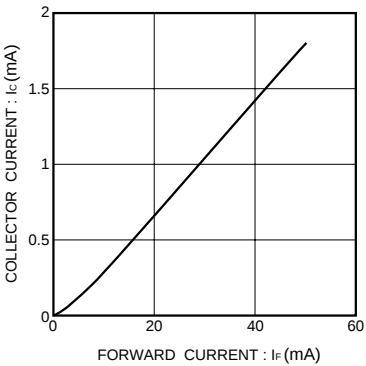


Fig.5 Collector current vs. forward current

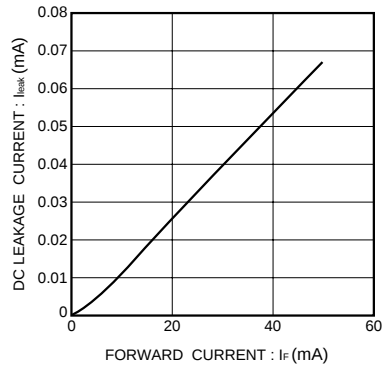
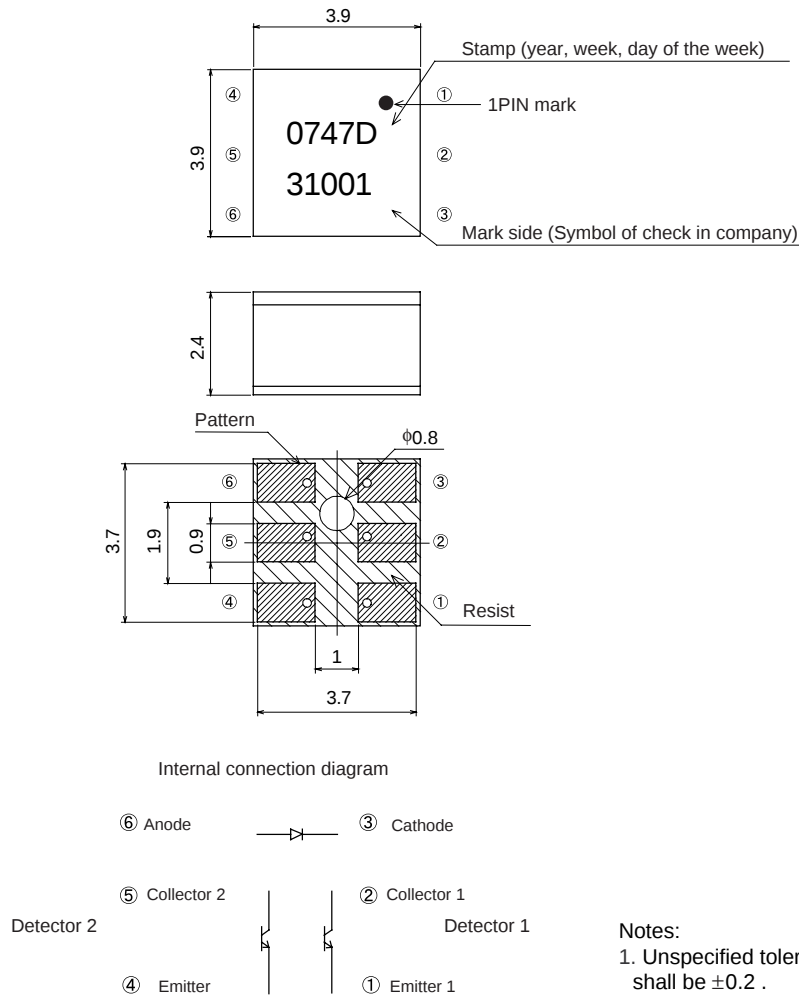


Fig.6 DC leakage current vs. forward current

Dimensions (Unit : mm)



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

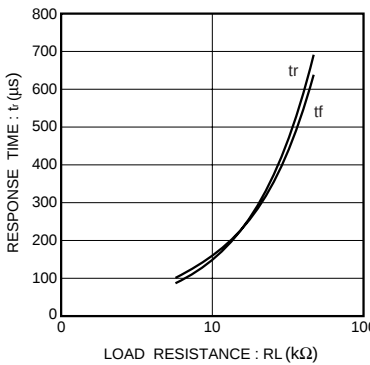


Fig.7 Response time vs. collector current

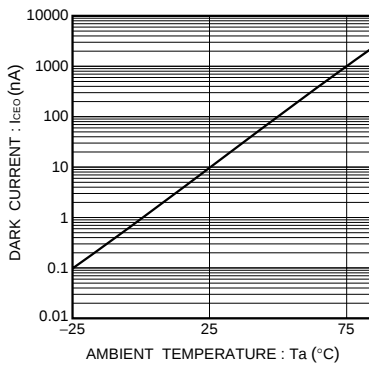


Fig.8 Dark current vs. ambient temperature

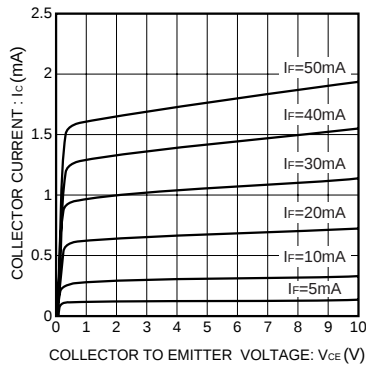


Fig.9 Output characteristics

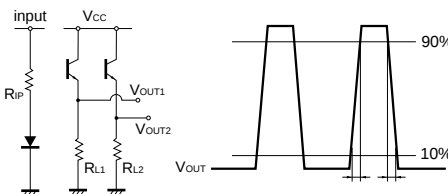


Fig.10 Response time measurement circuit

Notes

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