

Surface Mount type 4 Direction Detector

Absolute maximum ratings (Ta=25°C)

Parameter		Symbol	Limits	Unit
Input (LED)	Forward current	IF	50	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

Electrical and optical characteristics (Ta=25°C)

Parameter		Symbol	Min.	Typ.	Max.	Unit	Conditions
Input charac-teristics	Forward voltage	VF	-	1.3	1.6	V	IF=50mA
	Reverse current	IR	-	-	10	µA	VR=5V
Output charac-teristics	Dark current	ICEO	-	-	0.5	µA	VCE=10V
	Peak sensitivity wavelength	λP	-	800	-	nm	-
Transfer characteristics	Collector current	IC	100	-	-	µA	VCE=5V, IF=5mA
	DC leakage current	Ileak	-	-	15	µA	VCE=5V, IF=5mA
	Collector-emitter saturation voltage	VCE(sat)	-	-	0.4	V	IF=20mA, IC=0.1mA
	Response time						VCC=5V, IF=20mA, RL=100Ω
Infrared light emitter diode	Cut-off frequency	fC	-	1	-	MHz	IF=50mA * Non-coherent Infrared light emitting diode used.
	Peak light emitting wavelength	λP	-	950	-	nm	
Photo transistor	Response time	tr+tf	-	10	-	µs	VCC=5V, IC=1mA, RL=100Ω * This product is not designed to be protected against electromagnetic wave.
	Maximum sensitivity wavelength	λP	-	800	-	nm	-

Electrical and optical characteristics curves

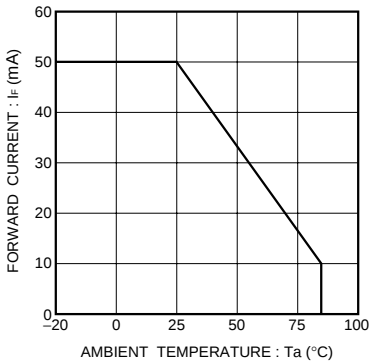


Fig.1 Forward current falloff

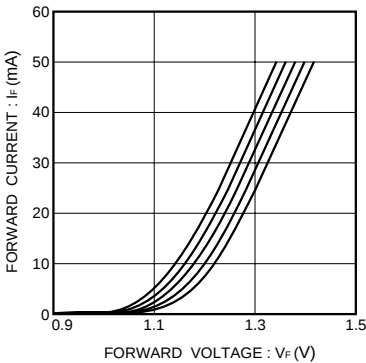


Fig.2 Forward current vs. forward voltage

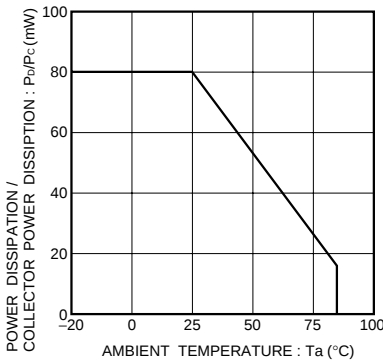


Fig.3 Power dissipation / collector power dissipation vs. ambient temperature

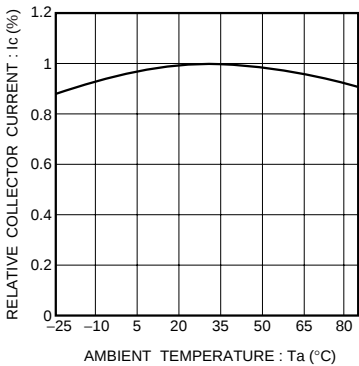


Fig.4 Relative output vs. ambient temperature

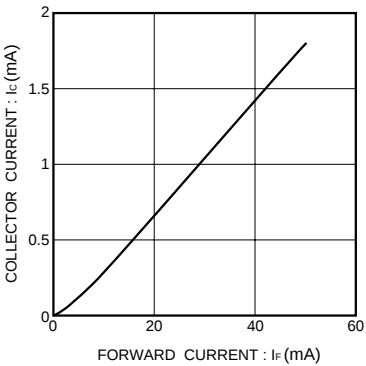


Fig.5 Collector current vs. forward current

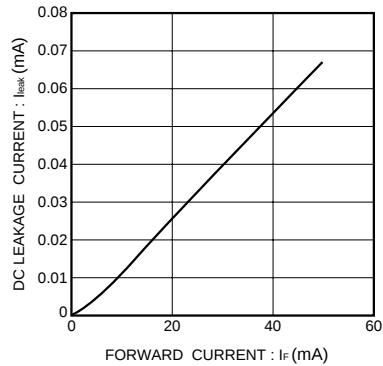
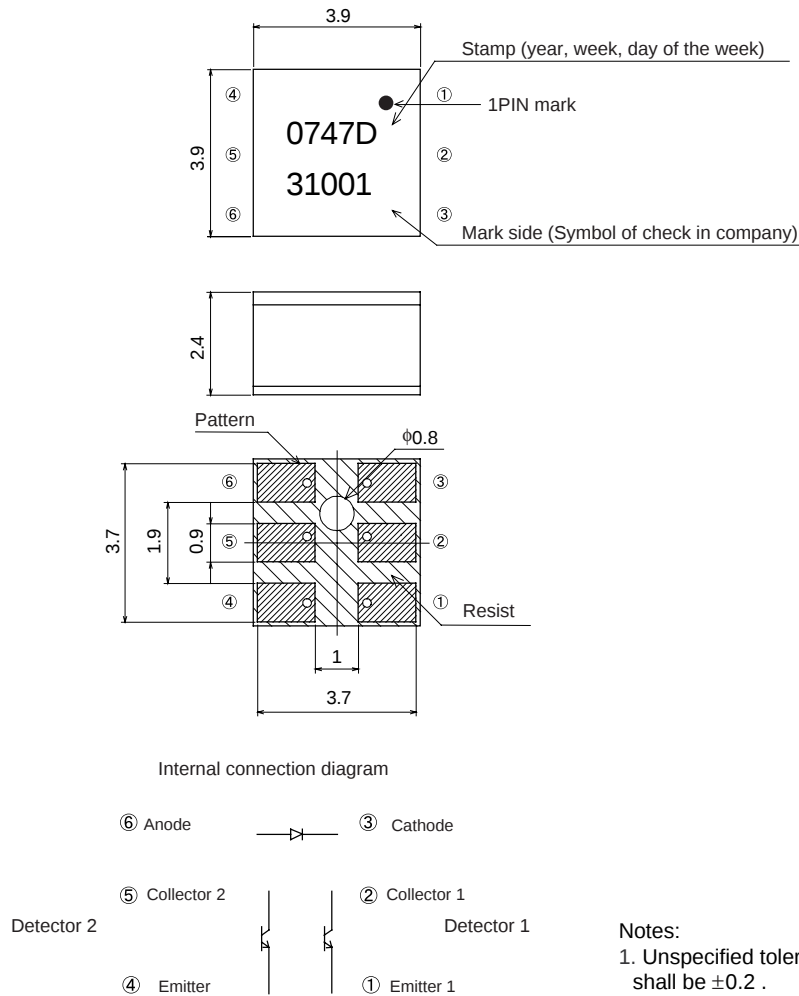


Fig.6 DC leakage current vs. forward current

Dimensions (Unit : mm)



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

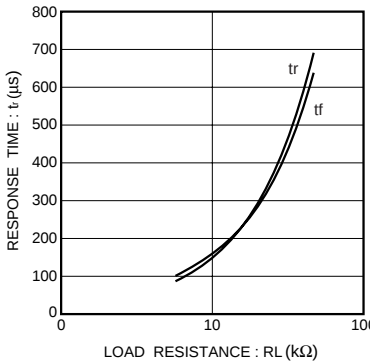


Fig.7 Response time vs. collector current

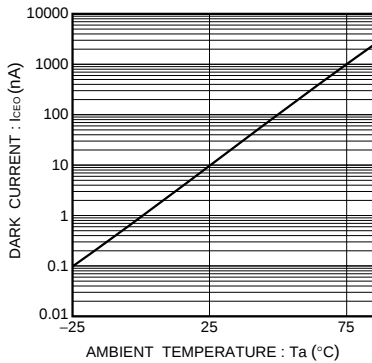


Fig.8 Dark current vs. ambient temperature

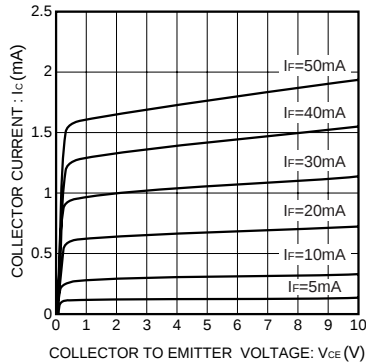


Fig.9 Output characteristics

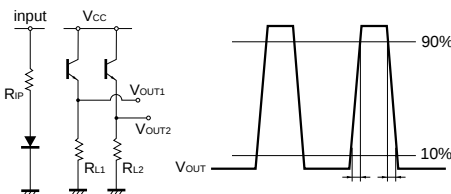


Fig.10 Response time measurement circuit

Notes

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