

Surface Mount type 4 Direction Detector



Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Forward current	I <sub>F</sub>	50	mA
Reverse voltage	V <sub>R</sub>	5	V
Power dissipation	P <sub>D</sub>	80	mW
Collector-emitter voltage	V <sub>CEO</sub>	30	V
Emitter-collector voltage	V <sub>ECO</sub>	4.5	V
Collector current	I <sub>C</sub>	30	mA
Collector power dissipation	P <sub>C</sub>	80	mW
Operating temperature	T <sub>opr</sub>	-25 to +85	°C
Storage temperature	T <sub>stg</sub>	-30 to +85	°C

Applications

DSC(Digital steal camera)  
 DVC(Digital video camera)  
 Digital handy phone, Fan herater,  
 Projector

Features

- 1) Surface Mount type
- 2) Optical Sensor
- 3) 4 Pirection Detector

Electrical and optical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Forward voltage	V <sub>F</sub>	-	1.3	1.6	V	I <sub>F</sub> =50mA
Reverse current	I <sub>R</sub>	-	10	10	μA	V <sub>R</sub> =5V
Dark current	I <sub>CEO</sub>	-	0.5	0.5	μA	V <sub>CE</sub> =10V
Peak sensitivity wavelength	λ <sub>P</sub>	-	800	-	nm	-
Collector current	I <sub>C</sub>	100	-	-	μA	V <sub>CE</sub> =5V, I <sub>F</sub> =5mA
DC leakage current	I <sub>leak</sub>	-	15	15	μA	V <sub>CE</sub> =5V, I <sub>F</sub> =5mA
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	-	0.4	0.4	V	I <sub>F</sub> =20mA, I <sub>C</sub> =0.1mA
Response time	Rise time	t <sub>r</sub>	10	-	μs	V <sub>CC</sub> =5V, I <sub>F</sub> =20mA, R <sub>L</sub> =100Ω
	Fall time	t <sub>f</sub>	10	-	μs	
Cut-off frequency	f <sub>c</sub>	-	1	-	MHz	I <sub>F</sub> =50mA * Non-coherent Infrared light emitting diode used.
Peak light emitting wavelength	λ <sub>P</sub>	-	950	-	nm	-
Response time	t <sub>r</sub> · t <sub>f</sub>	-	10	-	μs	V <sub>CC</sub> =5V, I <sub>C</sub> =1mA, R <sub>L</sub> =100Ω * This product is not designed to be protected against electromagnetic wave.
Maximum sensitivity wavelength	λ <sub>P</sub>	-	800	-	nm	-

Electrical and optical characteristics curves

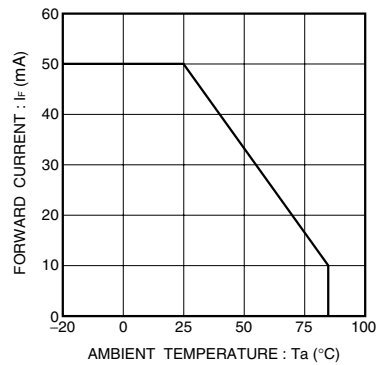


Fig.1 Forward current falloff

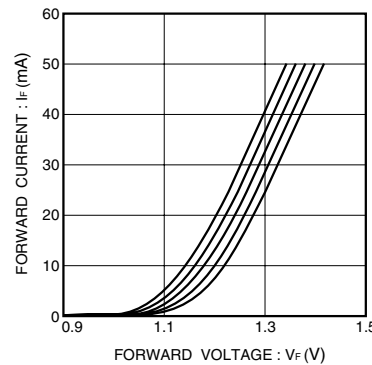


Fig.2 Forward current vs. forward voltage

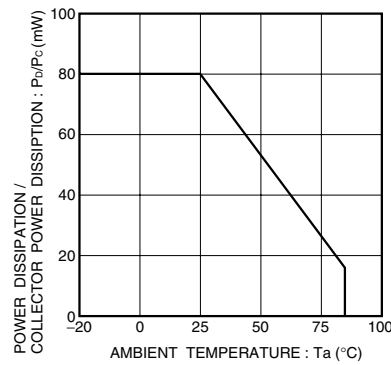


Fig.3 Power dissipation / collector power dissipation vs. ambient temperature

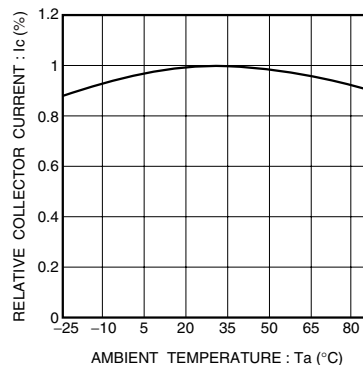


Fig.4 Relative output vs. ambient temperature

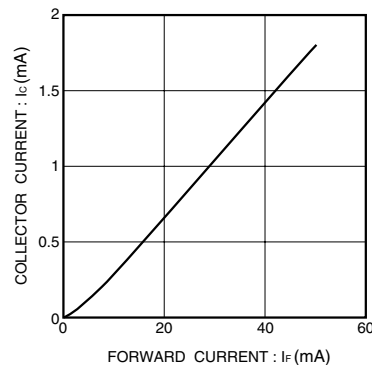


Fig.5 Collector current vs. forward current

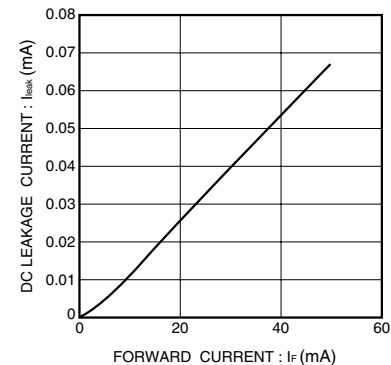


Fig.6 DC leakage current vs. forward current

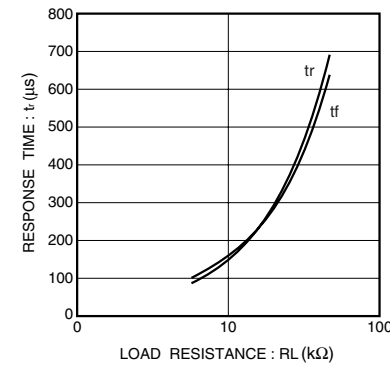


Fig.7 Response time vs. collector current

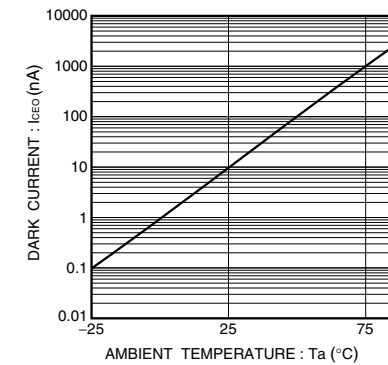


Fig.8 Dark current vs. ambient temperature

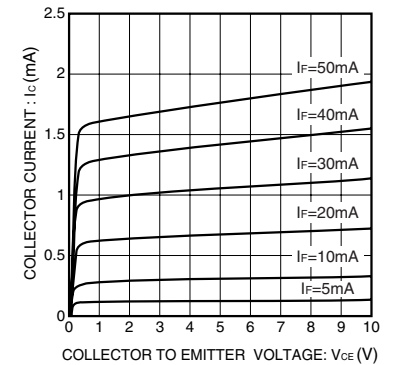


Fig.9 Output characteristics

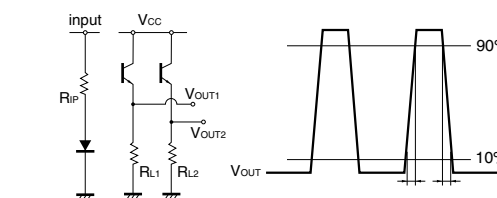
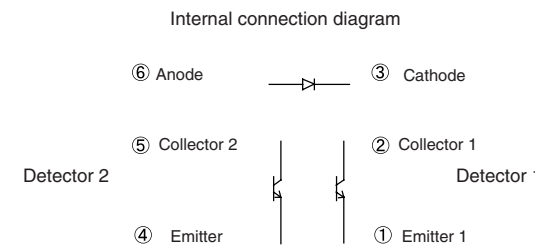
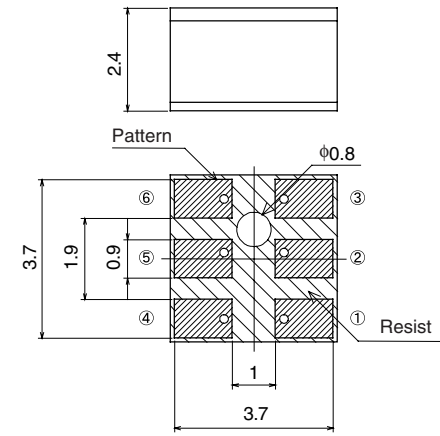
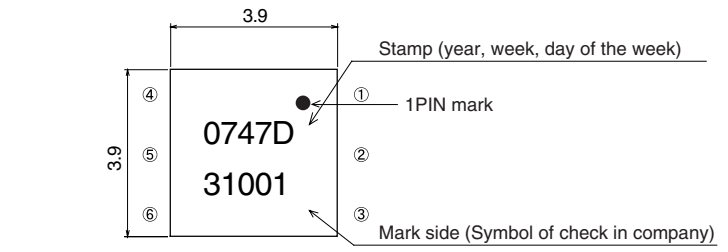


Fig.10 Response time measurement circuit

Dimensions (Unit : mm)



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

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