

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    |

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 |   |
|------------------------------|--------------------------------------|-----------|------|------|------|------------|---|
| 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                        | Rise time | tr   | -    | 10   | -          | µs  |
| Fall time                    |                                      | tf        | -    | 10   | -    | µs         |   |
| Infrared light emitter diode | Cut-off frequency                    | fc        | -    | 1    | -    | MHz        | IF=50mA<br>* 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<br>* This product is not designed to be protected against electromagnetic wave. |
|                              | Maximum sensitivity wavelength       | λP        | -    | 800  | -    | nm         |   |

Electrical and optical characteristics curves

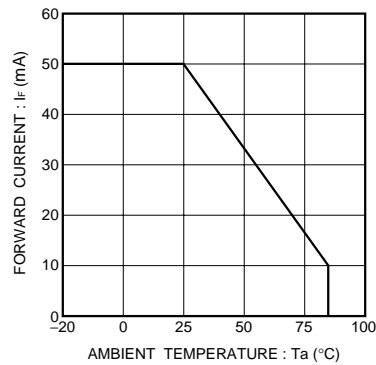


Fig.1 Forward current falloff

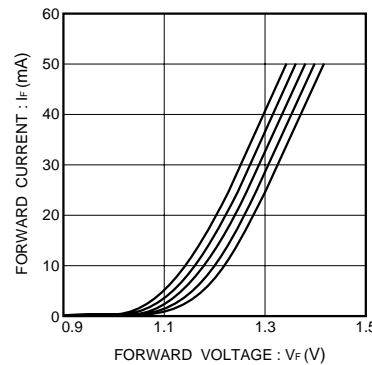


Fig.2 Forward current vs. forward voltage

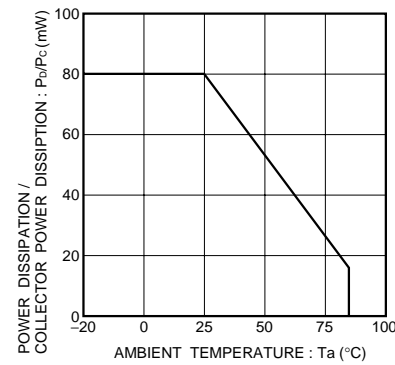


Fig.3 Power dissipation / collector power dissipation vs. ambient temperature

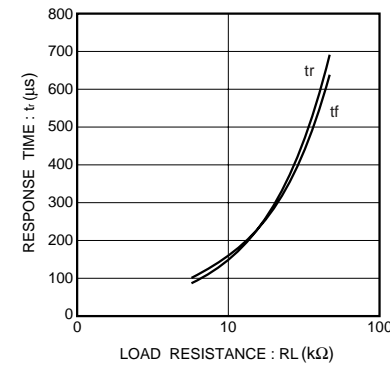


Fig.7 Response time vs. collector current

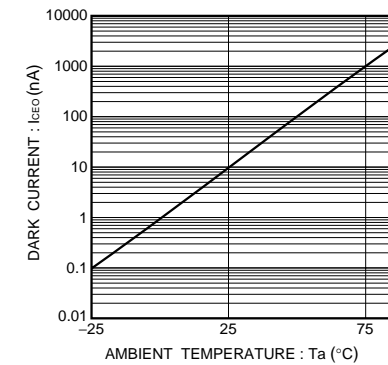


Fig.8 Dark current vs. ambient temperature

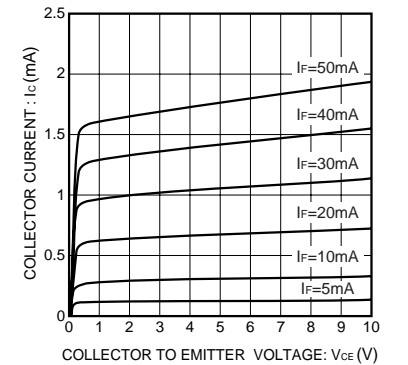


Fig.9 Output characteristics

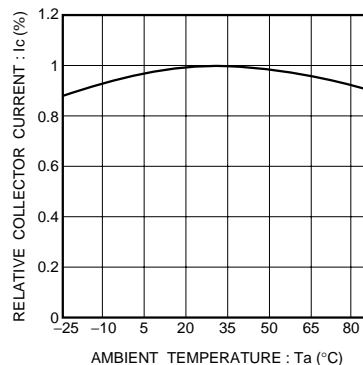


Fig.4 Relative output vs. ambient temperature

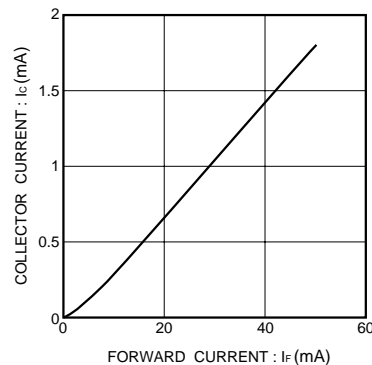


Fig.5 Collector current vs. forward current

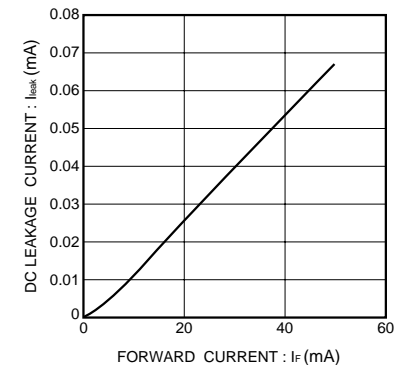


Fig.6 DC leakage current vs. forward current

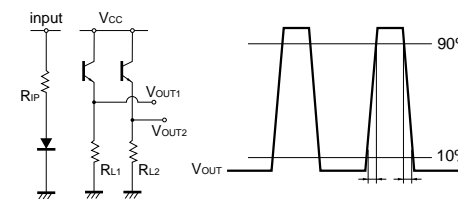
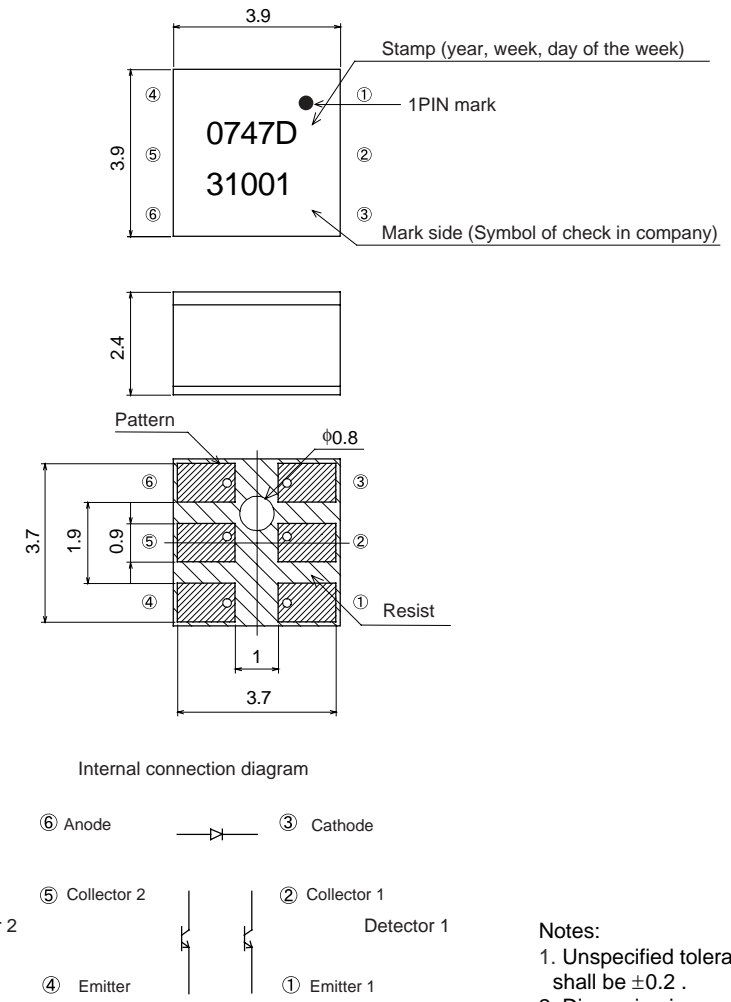


Fig.10 Response time measurement circuit

Dimensions (Unit : mm)



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

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