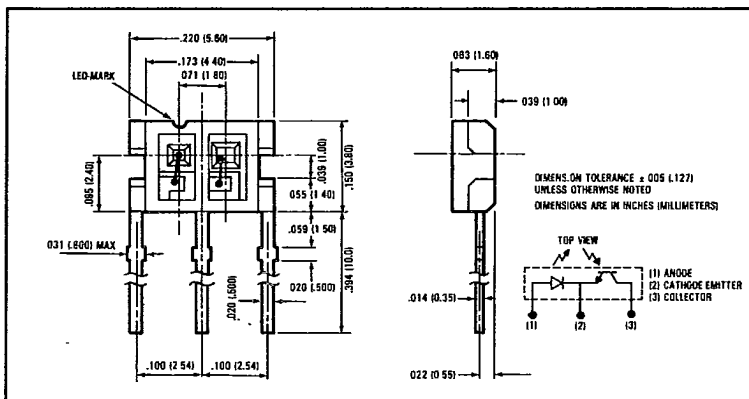
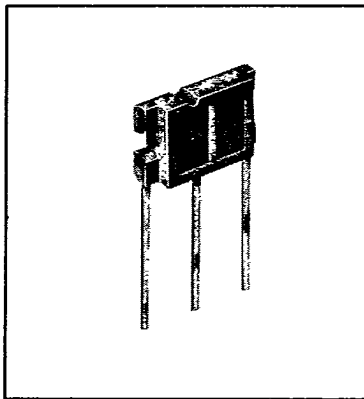


Miniature Reflective Object Sensor Type OPM101



Features

- Miniature package
- Common cathode-emitter lead for simple PC board design
- Electrical performance equivalent to larger conventional types
- Easily mountable package
- Low cost

Description

The OPM101 is a miniature reflective object sensor which consists of an infrared emitting diode and an NPN silicon phototransistor mounted on a common cathode-emitter lead frame and encapsulated in a plastic package. Phototransistor sensing takes place when a reflective surface moves within the field of view. The common cathode-emitter lead frame affords simple and reliable PC board installation and the low cost plastic package is designed for easy and secure mounting. Electrical performance is equivalent to larger conventional unfocused reflective object sensors.

Low cost and miniature size make the OPM101 reflective object sensor an excellent choice for new equipment designs or cost reductions of existing designs.

Applications

- BOT, EOT sensing in VTR or tape drive
- Computer peripherals
- Banking equipment
- Out of paper sensor
- DC motor control sensor

Absolute Maximum Ratings ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Operating Temperature Range	-10°C to $+70^\circ\text{C}$
Storage Temperature Range	-20°C to $+80^\circ\text{C}$
Soldering Temperature (1/16 in. [1.6 mm] from case for 5 sec. with soldering iron) ⁽¹⁾	240°C

Input Diode

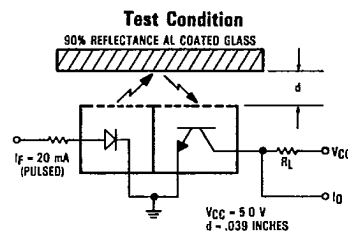
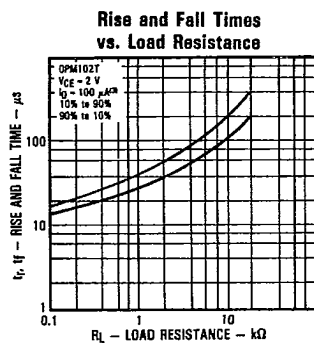
Forward DC Current	.50 mA
Reverse Voltage	5.0 V
Power Dissipation	.50 mW ⁽²⁾

Output Phototransistor

Collector-Emitter Voltage	30 V
Collector DC Current	.25 mA
Power Dissipation	.50 mW ⁽²⁾

Notes: (1) RMA flux is recommended. Duration can be extended to 10 sec. max when wave soldering. (2) Derate linearly .31mW/ $^\circ\text{C}$ above 25°C . (3) Measured using 90% reflectance aluminized glass located .039 inches (1.00 mm) from the sensor. The diode is pulsed and 10% to 90%, then 90% to 10% of the output signal is taken to measure rise and fall time, respectively. See Test Condition.

Typical Performance Curves



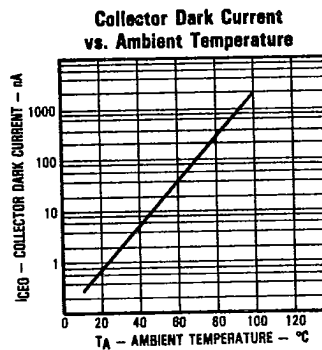
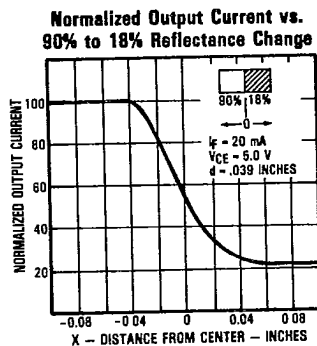
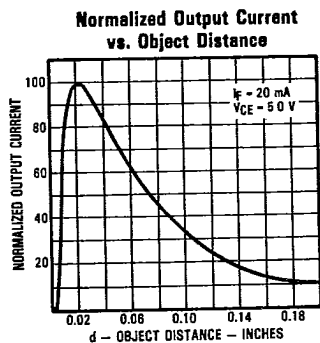
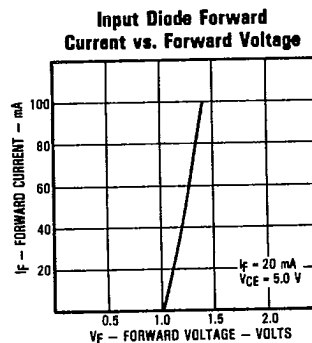
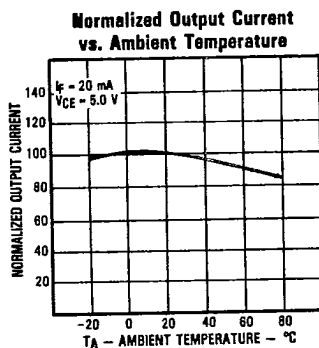
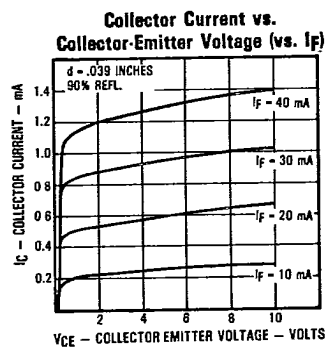
Type OPM101

T-41-73

Electrical Characteristics (T_A = 25°C ambient temperature unless otherwise noted)

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
Input Diode						
V _F	Forward Voltage			1.40	V	I _F = 30 mA
I _R	Reverse Current			10.0	μA	V _R = 5.0 V
Output Photosensor						
V _{BRICEO}	Collector-Emitter Breakdown Voltage			30	V	I _C = 100 μA
I _{CEO}	Collector Dark Current			100	nA	V _{CE} = 10.0 V
Combined						
I _{C(ON)}	On-State Collector Current	100			μA	I _F = 20 mA, V _{CE} = 5.0 V ⁽³⁾
I _{CX}	Crosstalk			10.0	μA	I _F = 20 mA, V _{CE} = 5.0 V
t _r	Rise Time		25		μs	V _{CE} = 5.0 V, I _C = 100 μA, R _L = 1kΩ
t _f	Fall Time		30		μs	V _{CE} = 5.0 V, I _C = 100 μA, R _L = 1kΩ

Typical Performance Curves



TRW reserves the right to make changes at any time in order to improve design and to supply the best product possible.

Optoelectronics Division, TRW Electronic Components Group, 1215 W. Crosby Rd., Carrollton, TX 75006 (214) 323-2200, TLX 6716032 or 215849
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