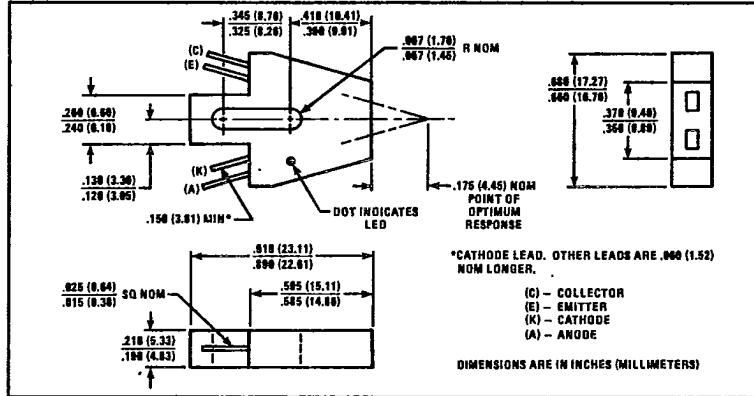
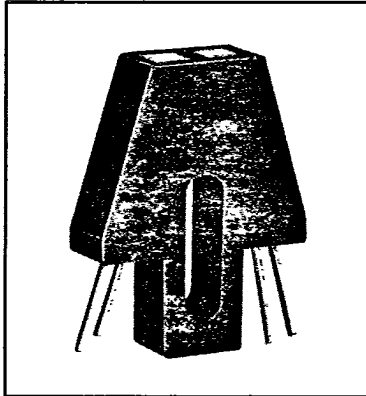


Reflective Object Sensor Type OPB703A



Features

- Phototransistor output
- High sensitivity
- Low cost plastic housing
- Lensed for dust protection and ambient light filtration

Description

The OPB703A consists of an infrared emitting diode and an NPN silicon phototransistor mounted side-by-side on converging optical axes, in a black plastic housing. A filtering lens in the face of the housing seals the device from dust and dirt and reduces ambient light noise. The photosensor responds to radiation from the LED only when a reflective object passes within its field of view.

OPB703A utilizes an OP160 or OP260 LED and an OP500 family sensor.

Absolute Maximum Ratings (TA = 25°C unless otherwise noted)

Storage Temperature Range	-40°C to +85°C
Operating Temperature Range	-40°C to +85°C
Lead Soldering Temperature (1/16 in. [1.6 mm] from case for 5 sec. with soldering iron ⁽¹⁾)	240°C

Input Diode

Forward DC Current	40 mA
Reverse DC Voltage	2.0 V
Power Dissipation	70 mW ⁽²⁾

Output Photosensor

Collector-Emitter Voltage	.30 V
Emitter-Collector Voltage	5.0 V
Power Dissipation	60 mW ⁽³⁾

Notes:

- (1) RMA flux is recommended. Duration can be extended to 10 sec. max. when flow soldering.
- (2) Derate linearly 1.27 mW/°C above 25°C.
- (3) Derate linearly 0.91 mW/°C above 25°C.
- (4) d is the distance from the assembly face to the reflective surface.
- (5) Measured using an Eastman Kodak neutral white test card having 90% diffuse reflectance as a reflecting surface.
- (6) Measured using a reflecting surface that has a very black dull surface with optical reflectance qualities comparable to a surface coated with carbon black printer's ink.
- (7) Lower curve is based on a calculated worst case condition rather than the conventional -2σ limit.

T-41-73

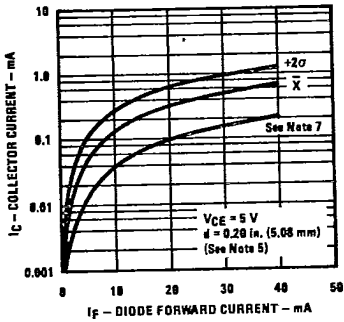
Type OPB703A

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

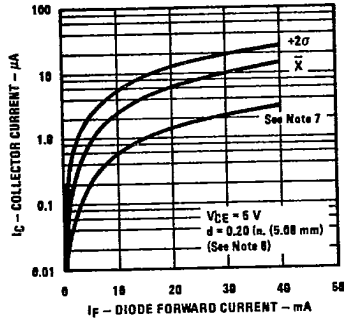
Symbol	Parameter	Min.	Max.	Units	Test Conditions
Input Diode					
V _F	Forward Voltage		1.70	V	I _F = 40 mA
I _R	Reverse Current		100	μA	V _R = 2.0 V
Output Phototransistor					
V _{(BR)CEO}	Collector-Emitter Breakdown Voltage	30		V	I _{CE} = 100 μA
V _{(BR)ECO}	Emitter-Collector Breakdown Voltage	5.0		V	I _{EC} = 100 μA
I _{CEO}	Collector Dark Current		100	nA	V _{CE} = 10.0 V, I _F = 0, E _B = 0
Combined					
I _{C(ON)}	On-State Collector Current	200		μA	I _F = 40 mA, V _{CE} = 5.0 V, d = 0.20 in. (5.08 mm) ⁽⁴⁾⁽⁵⁾
V _{CE(SAT)}	Collector-Emitter Saturation Voltage		0.40	V	I _F = 40 mA, I _C = 100 μA, d = 0.20 in. (5.08 mm) ⁽⁴⁾⁽⁵⁾

Typical Performance Curves

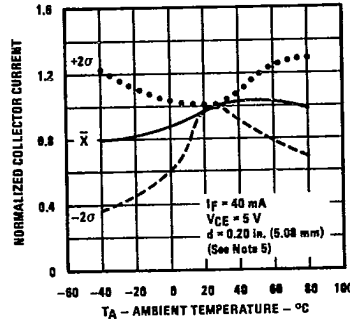
Reflective Surface Collector Current vs. Diode Forward Current



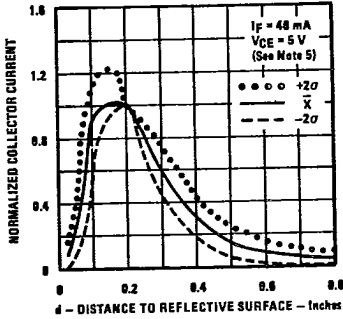
Diffused Surface Collector Current vs. Diode Forward Current



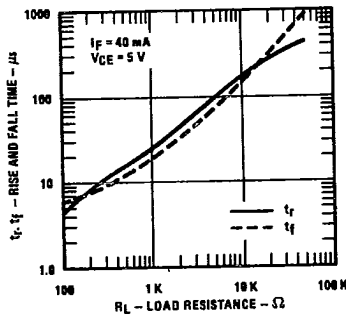
Normalized Collector Current vs. Ambient Temperature



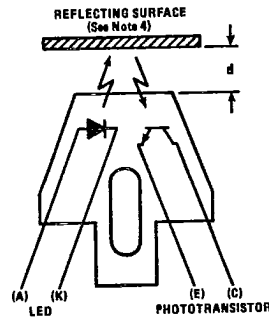
Normalized Collector Current vs. Object Distance



Rise and Fall Time vs. Load Resistance



Test Condition



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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