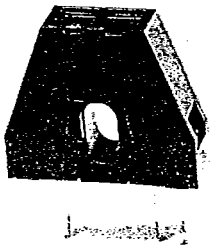
OPTO TECHNOLOGY

REFLECTIVE SWITCH

TYPE OTR 660

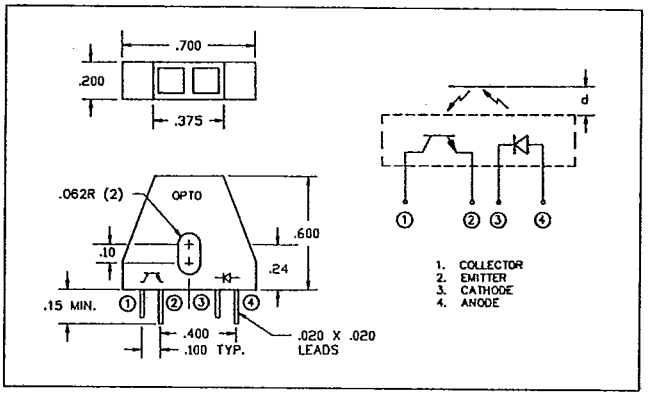


Features

- Visible LED (660 nM)
- Phototransistor
- Low cost plastic housing

Description

Opto Technology's OTR 660 Reflective Sensors combine a visible red 660 nanometer light emitting diode and a silicon phototransistor in a molded plastic housing. The visible LED makes setup and adjustment of the sensor in the field much easier. These devices are useful as motion detectors, paper sensors and end of tape indicators. special assemblies and modifications of this device are available upon request.



Absolute Maximum Ratings[4]

Storage Temperature Range	−55°C to +100°C
Operating Temperature Range	−40°C to +85°C
Lead Soldering Temperature (1/16 inch (1.6 mm) from case for 5 sec. with soldering iron)	260°C[1]

Input Diode

Reverse Voltage	4.0 V
Continuous Forward Current	40 mA
Peak Forward Current (1 µs pulse width, 300 pps)	300 mA
Power Dissipation	80 mW[2]

Output Phototransistor

Collector-Emitter Voltage	30 V
Emitter-Collector Voltage	5 V
Power Dissipation	50 mW[3]

Notes:

(1) RMA flux recommended. Duration can be extended to 10 sec. max. when flow soldering.
(2) Derate 1.33 mW/°C above 25°C ambient.
(3) Derate .85 mW/°C above 25°C ambient.
(4) T_A = 25°C unless otherwise specified.
(5) Reflecting surface is an Eastman Kodak neutral white test card having a 90% diffused reflectance.
(6) No reflecting surface.

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TYPE OTR 660

T-41-73

Electrical Characteristics: (25°C)

INFRARED EMITTING DIODE	SYMBOL	MIN.	TYP.	MAX.	UNITS
Forward Voltage $I_F = 20$ mA	V_F		1.7	2.0	V
Reverse Current $V_R = 4V$	I_R			100	µA
Wavelength at Peak Emission $I_F = 20$ mA	λ_P		660		nM

PHOTOTRANSISTOR	SYMBOL	MIN.	TYP.	MAX.	UNITS
Collector-Emitter Breakdown Voltage $I_C = 1$mA	$V_{(BR)CEO}$	30.0			V
Emitter-Collector Breakdown Voltage $I_E = 100\mu A$	$V_{(BR)ECO}$	5.0			V
Collector Dark Current $V_{CE} = 25V$	I_{CEO}			100	nA

Coupled Electrical Characteristics: (25°C)

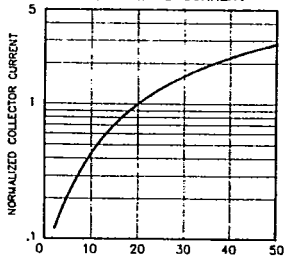
	SYMBOL	MIN.	TYP.	MAX.	UNITS
Light Current* $I_F = 20$mA, $V_{CE} = 5V^{(5)}$, d = .175	$I_{C(ON)}$	50			µA
No Light Current $I_F = 40$mA, $V_{CE} = 5V^{(6)}$	$I_{C(OFF)}$			100	nA
Saturation Voltage $I_F = 40$mA, $I_C = 1.85$mA	$V_{CE(SAT)}$			.40	V
Rise Time $V_{CC} = 5V$, $I_F = 20$mA, $R_L = 1K\Omega$	t_{on}		10		µS
Fall Time $V_{CC} = 5V$, $I_F = 20$mA, $R_L = 1K\Omega$	t_{off}		15		µS

*Special screenings available upon request.

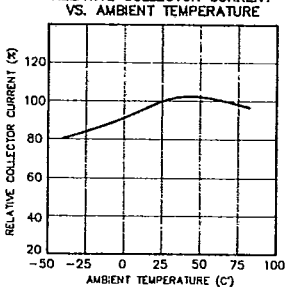
REFLECTIVE SENSORS

TYPICAL PERFORMANCE CURVES

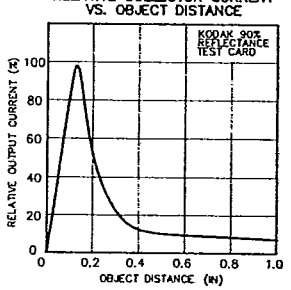
NORMALIZED COLLECTOR CURRENT VS. FORWARD CURRENT



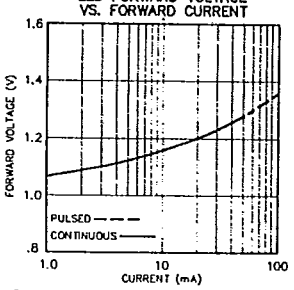
RELATIVE COLLECTOR CURRENT VS. AMBIENT TEMPERATURE



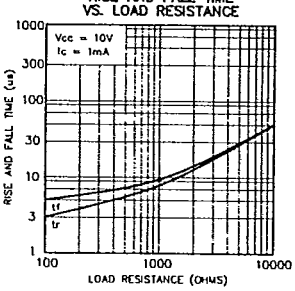
RELATIVE COLLECTOR CURRENT VS. OBJECT DISTANCE



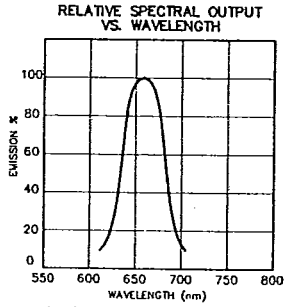
LED FORWARD VOLTAGE VS. FORWARD CURRENT



RISE AND FALL TIME VS. LOAD RESISTANCE



RELATIVE SPECTRAL OUTPUT VS. WAVELENGTH



Opto Technology reserves the right to make changes at any time to improve product design and reliability.

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