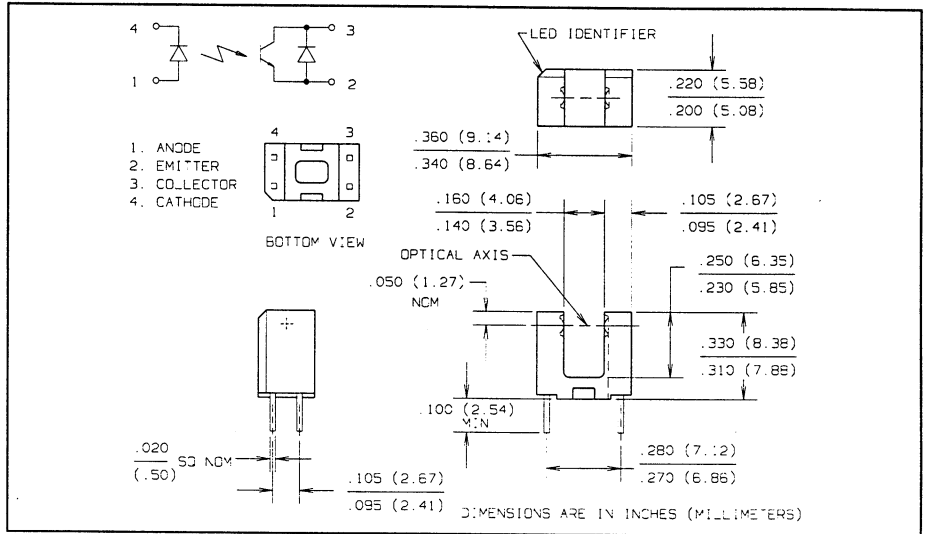
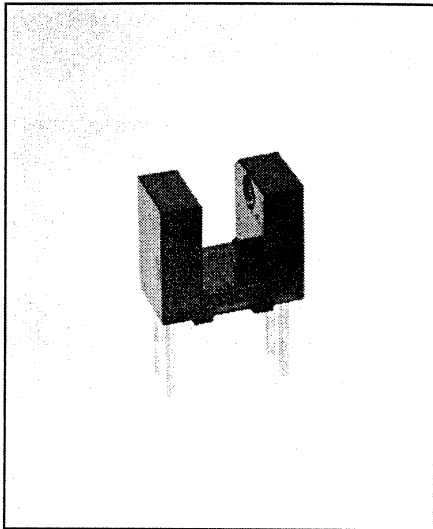




Product Bulletin OPB610

June 1996

Slotted Optical Switch Type OPB610



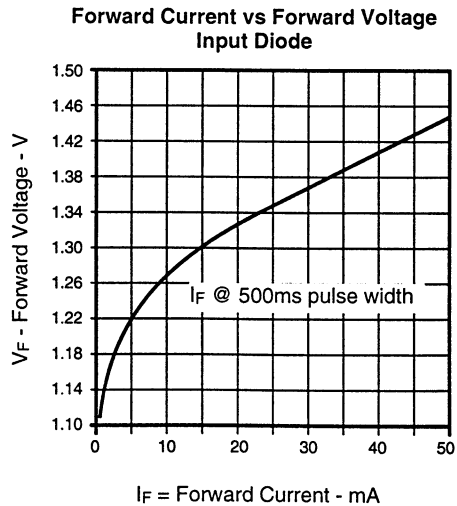
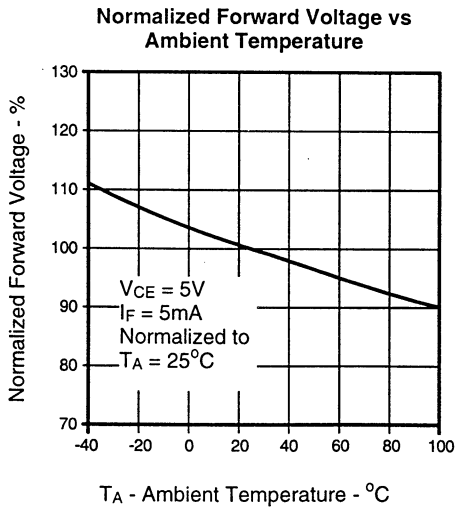
Features

- Non-contact switching
- Printed circuit board mounting
- 0.275" Lead centers
- 0.150" Gap
- Enhanced signal to noise ratio

Description

The OPB610 slotted optical switch consists of an infrared emitting diode and an NPN silicon phototransistor with an enhanced low current roll-off to improve contrast ratio and immunity to background irradiance.

Typical Performance Curves



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

Storage and Operating Temperature $-40^\circ C$ to $+100^\circ C$
Lead Soldering Temperature [1/16 inch (1.6 mm) from case for 5 sec with soldering iron] $260^\circ C^{(1)}$

Input Diode

Forward DC Current 50 mA
Peak Forward Current (1 μs pulse width, 300 pps) 3.0 A
Reverse DC Voltage 3.0 V
Power Dissipation $100 mW^{(2)}$

Output Phototransistor

Collector-Emitter Voltage 30 V
Emitter Reverse Current 10 mA
Collector DC Current 30 mA
Power Dissipation $200 mW^{(3)}$

Notes:

- (1) RMA flux is recommended. Duration can be extended to 10 sec. max. when flow soldering. Max. 20 grams force may be applied to leads when soldering.
- (2) Derate linearly $1.33 mW/^\circ C$ above $25^\circ C$.
- (3) Derate linearly $2.0 mW/^\circ C$ above $25^\circ C$.

Types OPB610

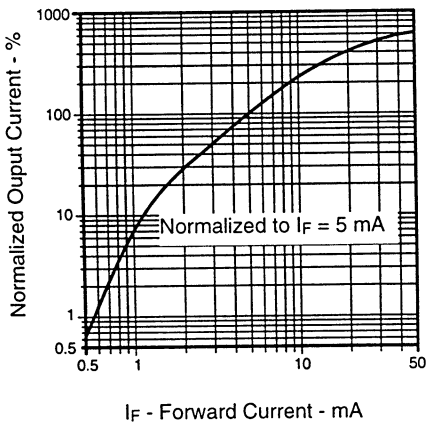
Electrical Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise noted)

SYMBOL	PARAMETER	MIN	MAX	UNITS	TEST CONDITIONS
Input Diode					
V_F	Forward Voltage		1.60	V	$I_F = 10\text{ mA}$
I_R	Reverse Current		100	μA	$V_R = 3.0\text{ V}$
Output Phototransistor					
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	30		V	$I_C = 100\ \mu\text{A}$
I_{ECO}	Emitter Reverse Current		100	μA	$V_{EC} = 0.4\text{ V}$
I_{CEO}	Collector-Emitter Dark Current		100	nA	$V_{CE} = 5\text{ V}$
Coupled					
V_{SAT}	Saturation Voltage		0.40	V	$I_F = 5\text{ mA}, I_C = 100\ \mu\text{A}$
$I_{C(ON)}$	On-State Collector Current	1.0		mA	$I_F = 5\text{ mA}, V_{CE} = 5\text{ V}$

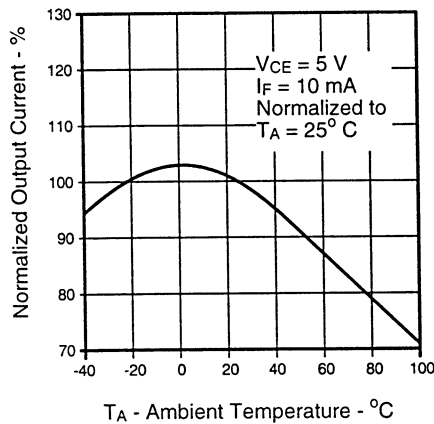
SLOTTED OPTICAL SWITCHES

Typical Performance Curves

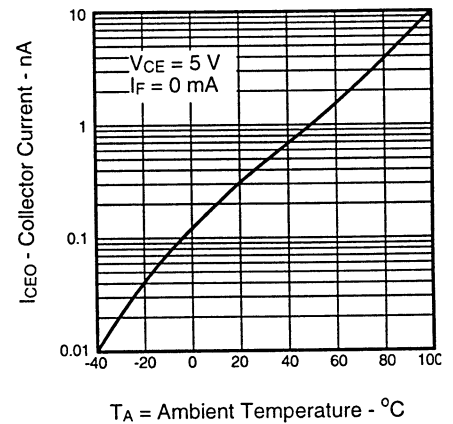
Normalized Output Current vs Forward Current



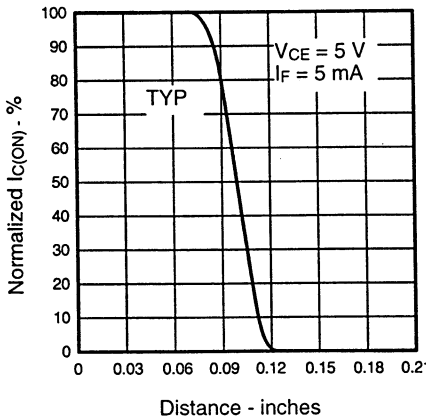
Normalized Output Current vs Ambient Temperature



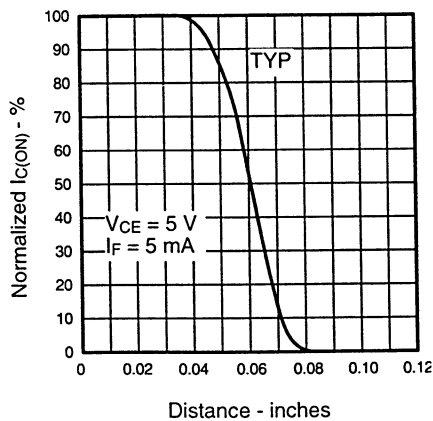
Collector Dark Current vs Ambient Temperature



Normalized $I_{C(ON)}$ vs Distance (X Axis Blocked)



Normalized $I_{C(ON)}$ vs Distance (Y Axis Blocked)



Switching Speed vs Load

