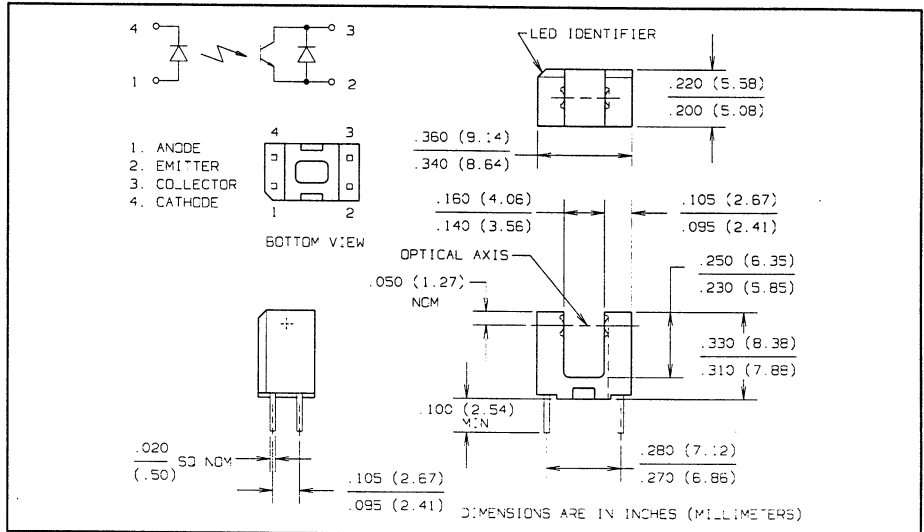
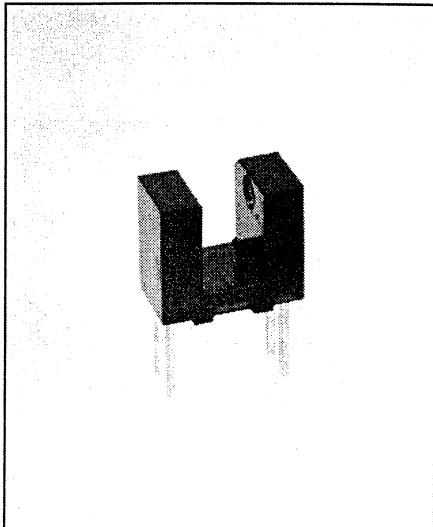


# Slotted Optical Switch Type OPB610



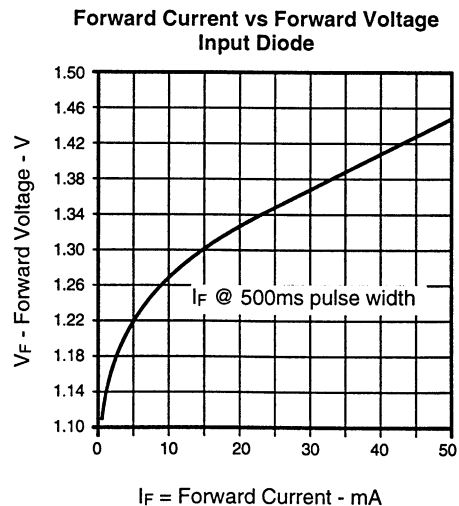
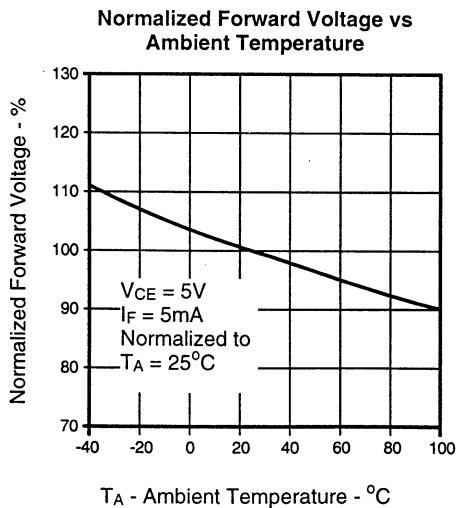
### Features

- 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  $\mu s$  pulse width, 300 pps) . . . . . 3.0 A  
Reverse DC Voltage . . . . . 3.0 V  
Power Dissipation . . . . . 100 mW<sup>(2)</sup>

### Output Phototransistor

Collector-Emitter Voltage . . . . . 30 V  
Emitter Reverse Current . . . . . 10 mA  
Collector DC Current . . . . . 30 mA  
Power Dissipation . . . . . 200 mW<sup>(3)</sup>

### 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

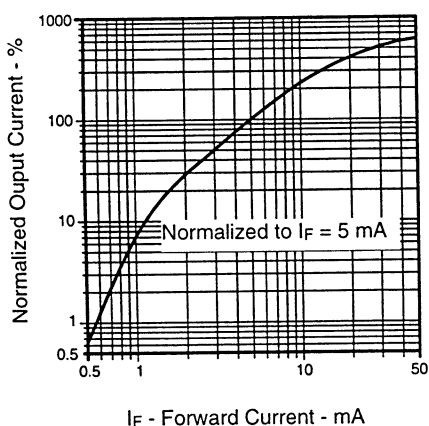
Electrical Characteristics ( $T_A = 25^\circ\text{C}$  unless otherwise noted)

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

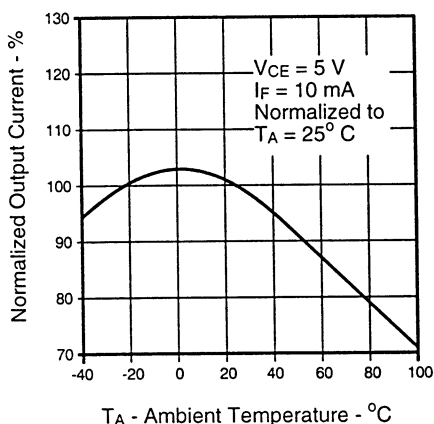
SLOTTED OPTICAL SWITCHES

## Typical Performance Curves

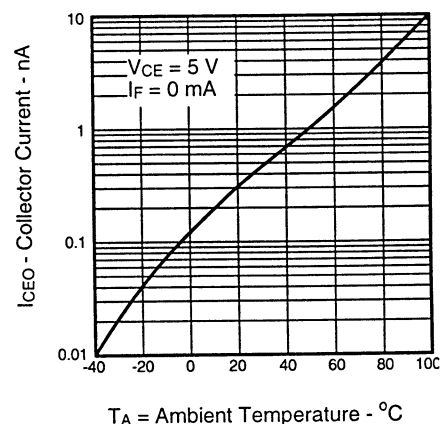
Normalized Output Current vs Forward Current



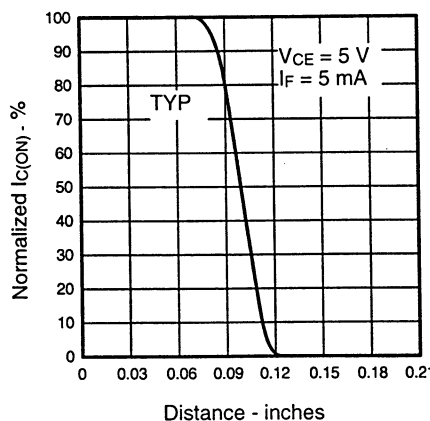
Normalized Output Current vs Ambient Temperature



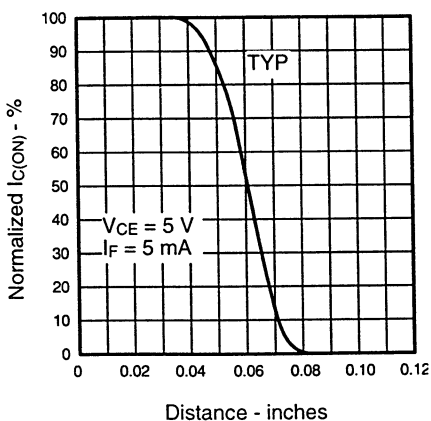
Collector Dark Current vs Ambient Temperature



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



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



Switching Speed vs Load

