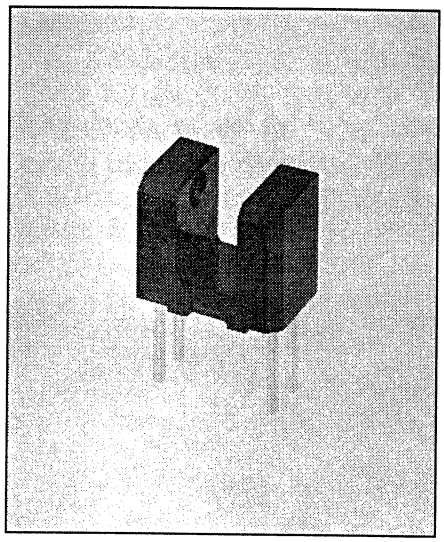
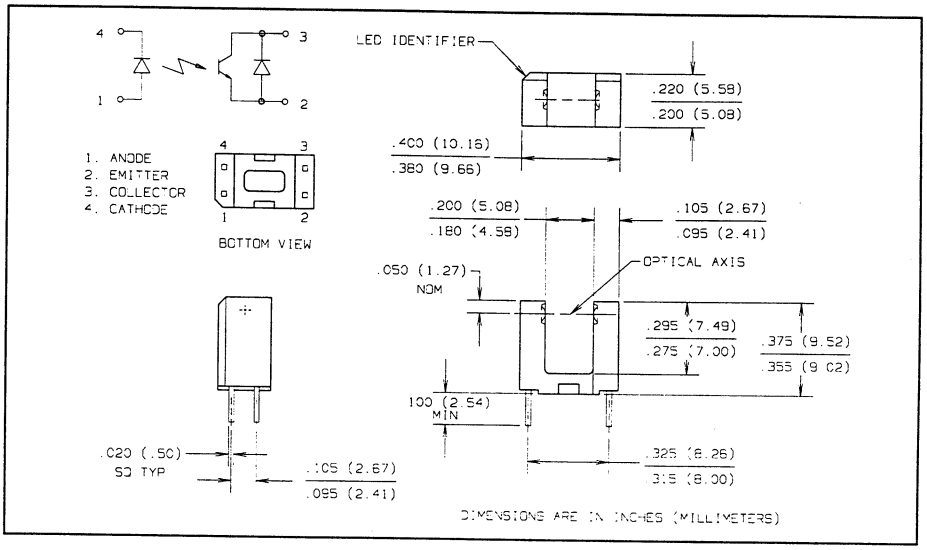
Slotted Optical Switch
Type OPB620





Features

- Non-contact switching
- Printed circuit board mounting
- 0.320" (8.13 mm) Lead centers
- 0.190" (4.83 mm) Gap
- Enhanced signal to noise ratio

Description

The OPB620 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.

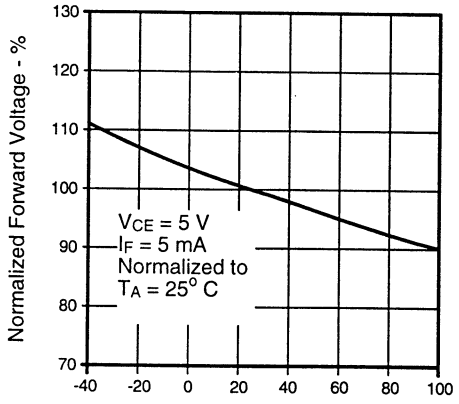
Absolute Maximum Ratings (T_A = 25° C unless otherwise noted)

Storage and Operating Temperature	-40° C to +100° C
Lead Soldering Temperature [1/16 inch (1.6 mm) from case for 5 sec with soldering iron]	260° 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/° C above 25° C.
(3) Derate linearly 2.0 mW/° C above 25° C.

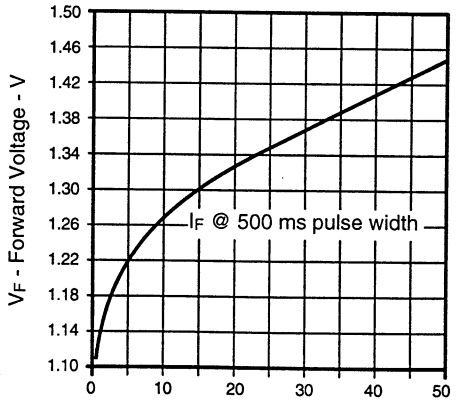
Typical Performance Curves

Normalized Forward Voltage vs Ambient Temperature



T_A - Ambient Temperature - °C

Forward Current vs Forward Voltage Input Diode



I_F = Forward Current - mA

Types OPB620

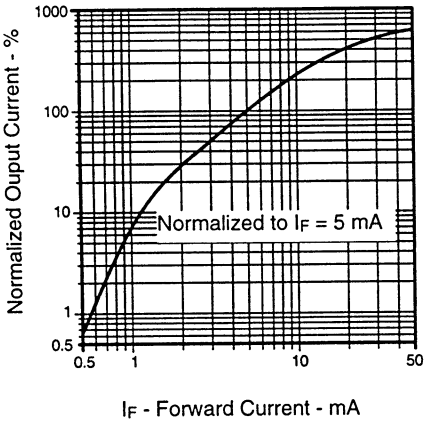
Electrical Characteristics (T_A = 25° C unless otherwise noted)

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

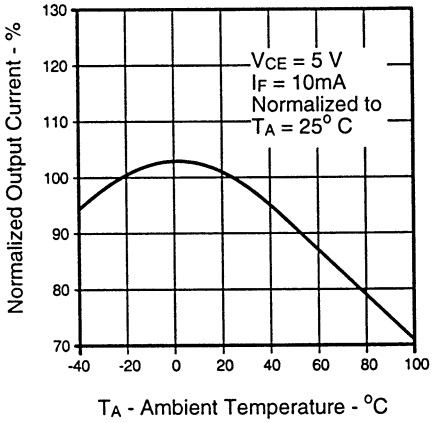
SLOTTED OPTICAL SWITCHES

Typical Performance Curves

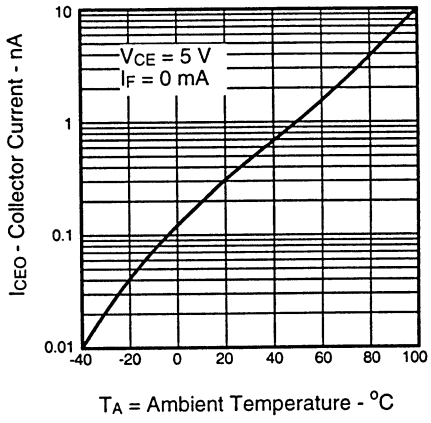
Normalized Output Current vs Forward Current



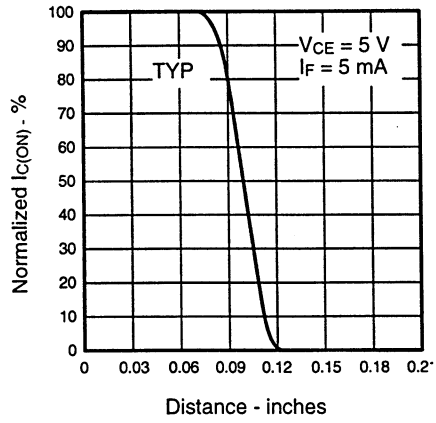
Normalized Output Current vs Ambient Temperature



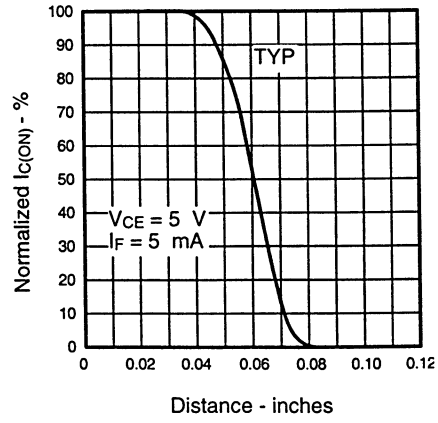
Collector Dark Current vs Ambient Temperature



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



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



Switching Speed vs Load