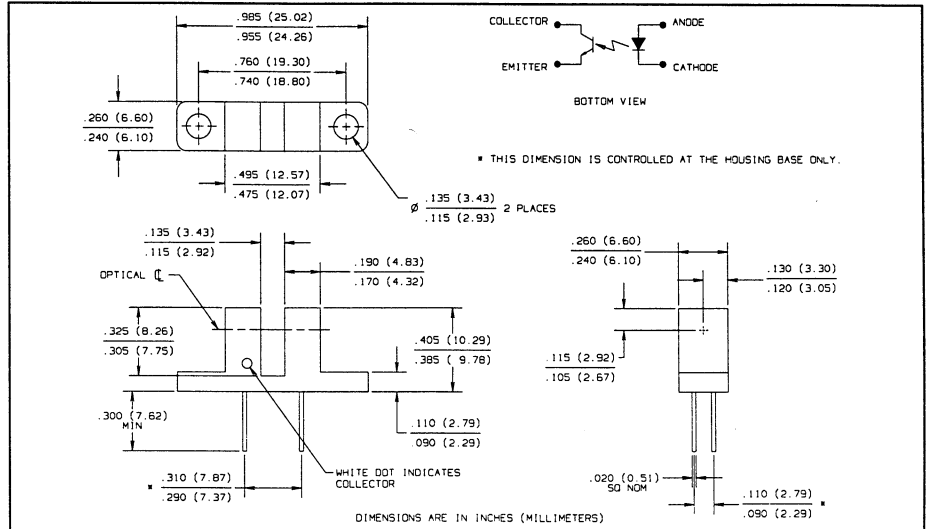
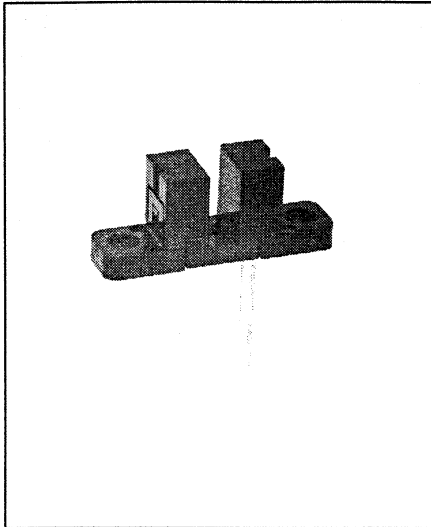


# Slotted Optical Switches

## Types OPB844A, OPB844B



### Features

- Non-contact switching
- Printed circuit board mounting
- 0.125" (3.18 mm) wide slot
- 0.300" (7.62 mm) lead spacing
- Transmissive plastic housing

### Description

The OPB844 series consists of an infrared emitting diode and an NPN silicon phototransistor mounted on opposite sides of a .125" (3.18 mm) wide slot. The inexpensive plastic housing is transmissive to infrared and provides for environmental protection from dust and contamination. The "A" option is unapertured, while the "B" version offers a .010" (0.254 mm) wide aperture located over the phototransistor for improved resolution. Phototransistor switching takes place whenever an opaque object passes through the slot.

### Absolute Maximum Ratings (T<sub>A</sub> = 25° C unless otherwise noted)

Storage and 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]. . . . . 240° C<sup>(1)</sup>

#### Input Diode

Forward DC Current . . . . . 50 mA  
 Peak Forward Current (1 μs pulse width, 300 pps) . . . . . 3.0 A  
 Reverse DC Voltage . . . . . 2.0 V  
 Power Dissipation . . . . . 100 mW<sup>(2)</sup>

#### Output Phototransistor

Collector-Emitter Voltage . . . . . 30 V  
 Emitter-Collector Voltage . . . . . 5.0 V  
 Collector DC Current . . . . . 30 mA  
 Power Dissipation . . . . . 100 mW<sup>(2)</sup>

#### Notes:

- (1) RMA flux is recommended. Duration can be extended to 10 sec. max. when flow soldering.
- (2) Derate Linearly 1.67 mW/°C above 25° C.
- (3) All parameters tested using pulse technique.
- (4) Methanol or isopropanol are recommended as cleaning agents. Plastic housing is soluble in chlorinated hydrocarbons and ketones.

OPB#	Phototransistor Aperture Width
OPB844A	.040"
OPB844B	.010"



RoHS

# Types OPB844A, OPB844B

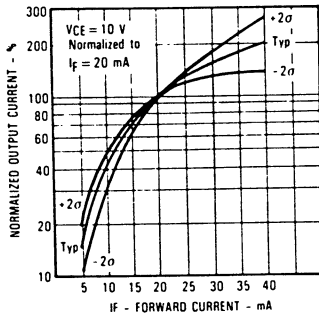
Electrical Characteristics ( $T_A = 25^\circ\text{C}$  unless otherwise noted)

SLOTTED OPTICAL SWITCHES

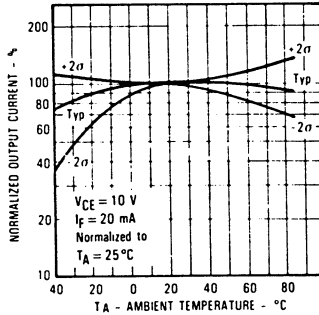
SYMBOL	PARAMETER	MIN	MAX	UNITS	TEST CONDITIONS
<b>Input Diode</b>					
$V_F$	Forward Voltage		1.7	V	$I_F = 20\text{ mA}$
$I_R$	Reverse Current		100	$\mu\text{A}$	$V_R = 2\text{ V}$
<b>Output Phototransistor</b>					
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	30		V	$I_C = 1\text{ mA}$
$V_{(BR)ECO}$	Emitter-Collectro Breakdown Voltage	5.0		V	$I_E = 100\ \mu\text{A}$
$I_{CEO}$	Collector-Emitter Dark Current		100	nA	$V_{CE} = 10\text{ V}, I_F = 0, E_e = 0$
<b>Coupled</b>					
$V_{CE(SAT)}$	Saturation Voltage		0.6	V	$I_C = 1800\ \mu\text{A}, I_F = 20\text{ mA}$
$I_{C(ON)}$	On-State Collector Current	1800		$\mu\text{A}$	$V_{CE} = 0.6\text{ V}, I_F = 20\text{ mA}$

### Typical Performance Curves

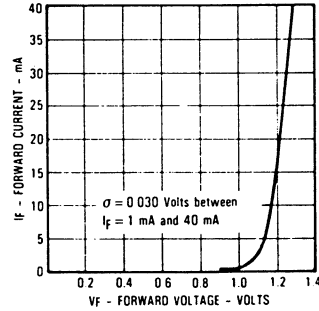
**Normalized Output Current vs Forward Current**



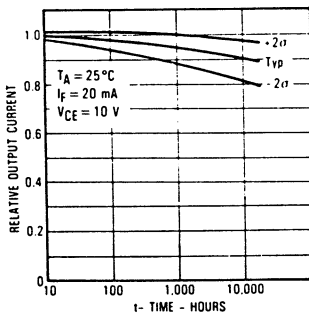
**Normalized Output Current vs Ambient Temperature**



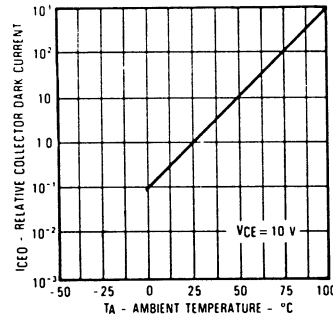
**Forward Current vs Forward Voltage Input Diode**



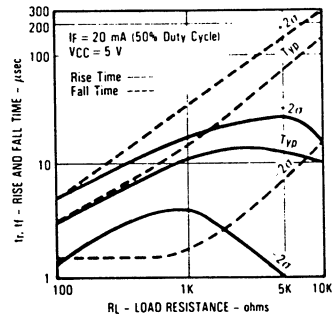
**Relative Output Current vs Time**



**Collector Dark Current vs Ambient Temperature**



**Rise and Fall Time vs Load Resistance**



**Reduction in Output Current Due to LED Heating vs Forward Current**

