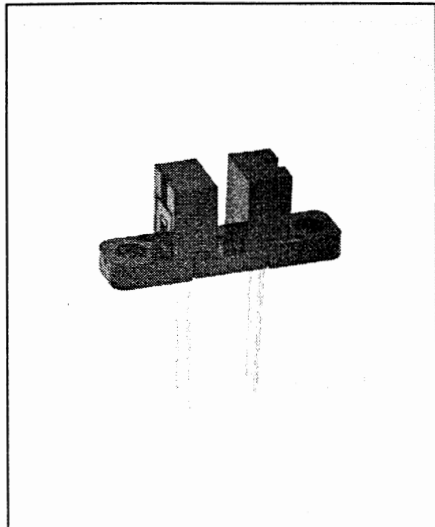


Product Bulletin OPB845

January 2006

Slotted Optical Switches

Types OPB845A, OPB845B



Features

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

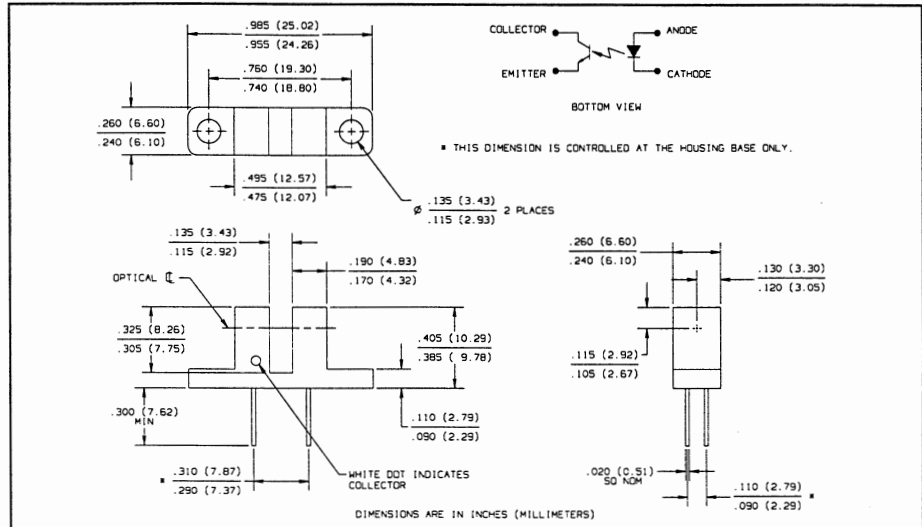
Description

The OPB845 series consists of an infrared emitting diode and an NPN silicon phototransistor encased in an opaque housing on opposite sides of a .125" (3.18 mm) wide slot. The opaque housing, with molded apertures, provides protection in areas where ambient radiation may be a concern. The "A" option offers a .050" (1.27 mm) wide aperture molded in front of the phototransistor while the "B" version offers a .010" (0.254 mm) wide aperture.

OPB#	Phototransistor Aperture Width
OPB845A	0.050"
OPB845B	0.010"



RoHS



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

Storage and Operating Temperature Range -40°C to $+85^\circ\text{C}$
 Lead Soldering Temperature [1/16 inch (1.6 mm) from case for 5 sec. with soldering iron] $240^\circ\text{C}^{(1)}$

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⁽²⁾

Output Phototransistor

Collector-Emitter Voltage 30 V
 Emitter-Collector Voltage 5.0 V
 Collector DC Current 30 mA
 Power Dissipation 100 mW⁽²⁾

Notes:

- (1) RMA flux is recommended. Duration can be extended to 10 sec. max. when flow soldering.
- (2) Derate Linearly 1.67 mW/ $^\circ\text{C}$ 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.

Types OPB845A, OPB845B

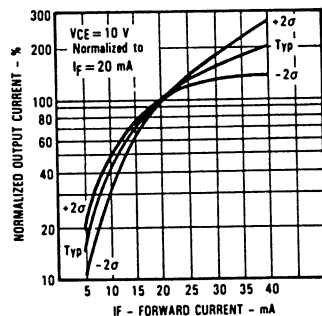
Electrical Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise noted)

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

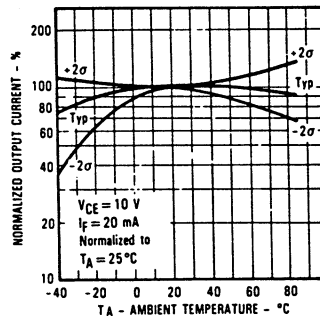
SLOTTED
OPTICAL
SWITCHES

Typical Performance Curves

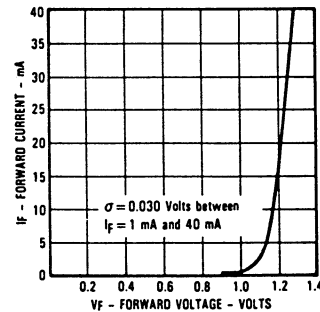
Normalized Output Current
vs Forward Current



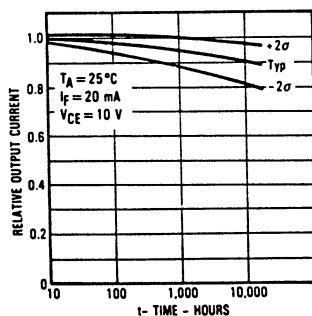
Normalized Output Current
vs Ambient Temperature



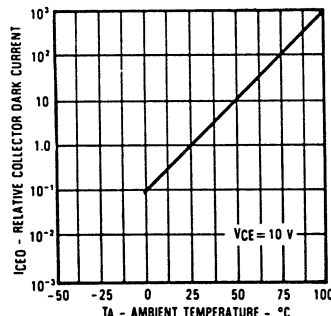
Forward Current
vs Forward Voltage Input Diode



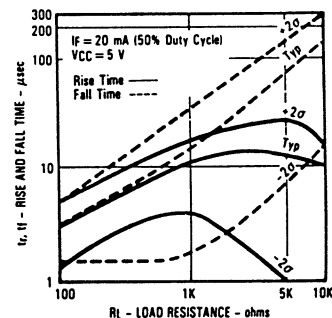
Relative Output Current
vs Time



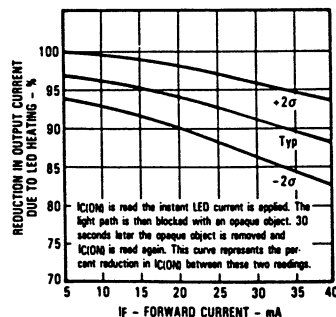
Collector Dark Current
vs Ambient Temperature



Rise and Fall Time
vs Load Resistance



Reduction in Output Current Due to
LED Heating vs Forward Current



Optek reserves the right to make changes at any time in order to improve design and to supply the best product possible.

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