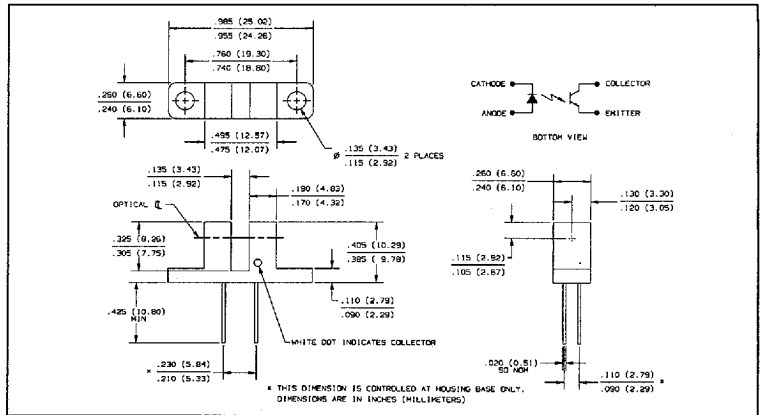
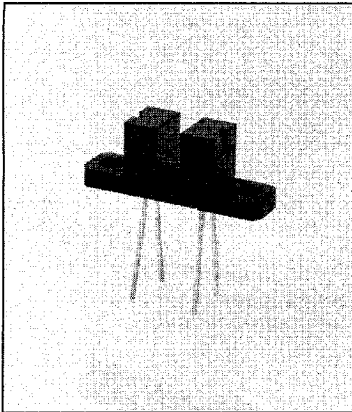


Slotted Optical Switches

Types OPB828A, OPB828B, OPB828C, OPB828D



Features

- Printed circuit board mounting
- 0.125" (3.18 mm) wide slot
- 0.220" (5.59 mm) lead spacing
- Inexpensive plastic housing

Description

The OPB828 series consists of an infrared emitting diode and an NPN silicon phototransistor mounted on opposite sides of a 0.125" (3.18 mm) wide slot. The OPB828A has an IR transmissive housing. The OPB828B has an IR transmissive housing with an 0.010" (0.25 mm) aperture located in front of the phototransistor. The OPB828C has an opaque housing with a molded 0.060" (1.52 mm) aperture located in front of the phototransistor. The OPB828D has an opaque housing with a molded 0.010" (0.25 mm) aperture located in front of the phototransistor. Phototransistor switching takes place whenever an opaque object passes through the slot.

Other configurations available:

OPB827 = 0.300" lead spacing

OPB829 = 24" min. 26 AWG wire leads

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] $240^\circ\text{C}^{(2)}$

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⁽¹⁾

Output Phototransistor

Collector-Emitter Voltage 30 V
 Emitter-Collector Voltage 5.0 V
 Collector DC Current 30 mA
 Power Dissipation 100 mW⁽¹⁾

Notes:

- (1) Derate Linearly 1.67 mW/ $^\circ\text{C}$ above 25°C .
- (2) RMA flux is recommended. Duration can be extended to 10 sec. max. when flow soldering.
- (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.

Descriptions		
Type	Housing	Phototransistor Aperture
OPB828A	IR Transmissive	None
OPB828B	IR Transmissive	0.010"
OPB828C	Opaque	0.060"
OPB828D	Opaque	0.010"

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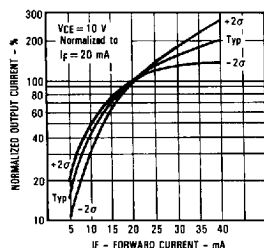
Types OPB828A, OPB828B, OPB828C, OPB828D

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

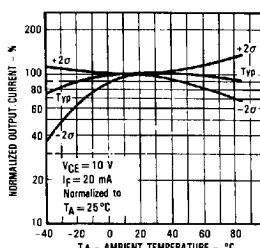
SYMBOL	PARAMETER	MIN	MAX	UNITS	TEST CONDITIONS
Input Diode					
V_F	Forward Voltage		1.7	V	$I_F = 20\text{ mA}$
I_R	Reverse Current		100	μA	$V_R = 2\text{ V}$
Output Phototransistor					
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	30		V	$I_C = 1\text{ mA}$
$V_{(BR)ECO}$	Emitter-Collector Breakdown 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	$V_{CE} = 0.6\text{ V}$, $I_F = 20\text{ mA}$

Typical Performance Curves

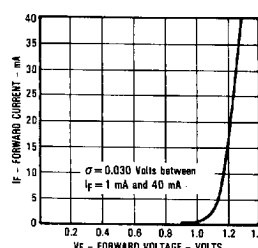
Normalized Output Current vs Forward Current



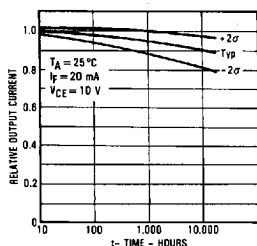
Normalized Output Current vs Ambient Temperature



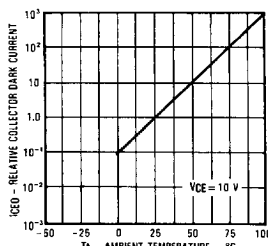
Forward Current vs Forward Voltage Input Diode



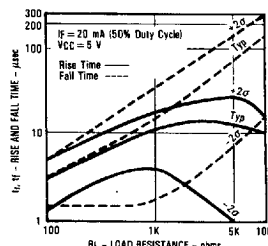
Relative Output Current vs Time



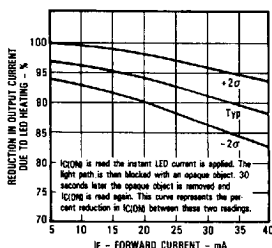
Collector Dark Current vs Ambient Temperature



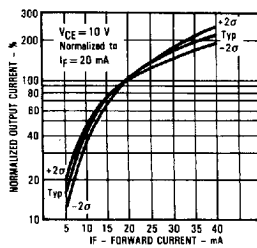
Rise and Fall Time vs Load Resistance



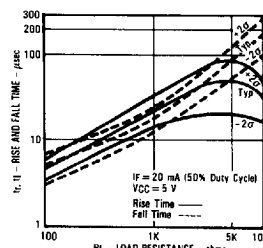
Reduction in Output Current Due to LED Heating vs Forward Current



Normalized Output Current vs Input Current



Rise and Fall Time vs Load Resistance



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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SLOTTED
OPTICAL
SWITCHES