

# Slotted Optical Switches

## Types OPB380, OPB390 Series



### Features

- 0.125" (3.18 mm) wide gap
- 24" minimum, 26 AWG wire leads
- Choice of aperture
- Choice of opaque or IR transmissive shell material
- Choice of mounting configuration
- Choice of lead spacing

### Description

The OPB380/390 series of slotted switches provides the design engineer with the flexibility of a custom device from a standard product line. Building from a standard housing with a 0.125" (3.18 mm) wide slot, the user can specify (1) electrical output parameters, (2) mounting tab configuration, (3) discrete shell material, and (4) aperture width.

All housings are an opaque grade of injection-molded plastic to minimize the assembly's sensitivity to ambient radiation, both visible and near-infrared. Discrete shells (exposed only on the parallel faces inside the device throat) are either IR transmissive plastic for applications where aperture contamination may occur or opaque plastic with aperture openings for maximum protection against ambient light.

### Replaces/Upgrades

OPB880/OPB890 Series

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

Storage and Operating Temperature Range . . . . . -40° C to +80° 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>(1)</sup>

#### Output Phototransistor

Collector-Emitter Voltage . . . . . 30 V  
Emitter-Collector Voltage . . . . . 5.0 V  
Collector DC Current . . . . . 30 mA  
Power Dissipation . . . . . 100 mW<sup>(1)</sup>

#### Notes:

- (1) Derate linearly 1.82 mW/° C above 25° C (Maximum storage and operating temperature is limited by the temperature rating of the lead wires)
- (2) All parameters tested using pulse technique.
- (3) The OPB380/OPB390 wire terminations are 24" of 7 strand, 26 AWG, UL 1429 insulated wire on each terminal. The devices incorporate a wire strain relief at the housing surface. The insulation colors and functions are:

RED - IRED Anode                      WHITE - Phototransistor Collector  
BLACK - IRED Cathode                GREEN - Phototransistor Emitter

Other wire lengths and/or colors are available. Contact your local representative or call the factory.

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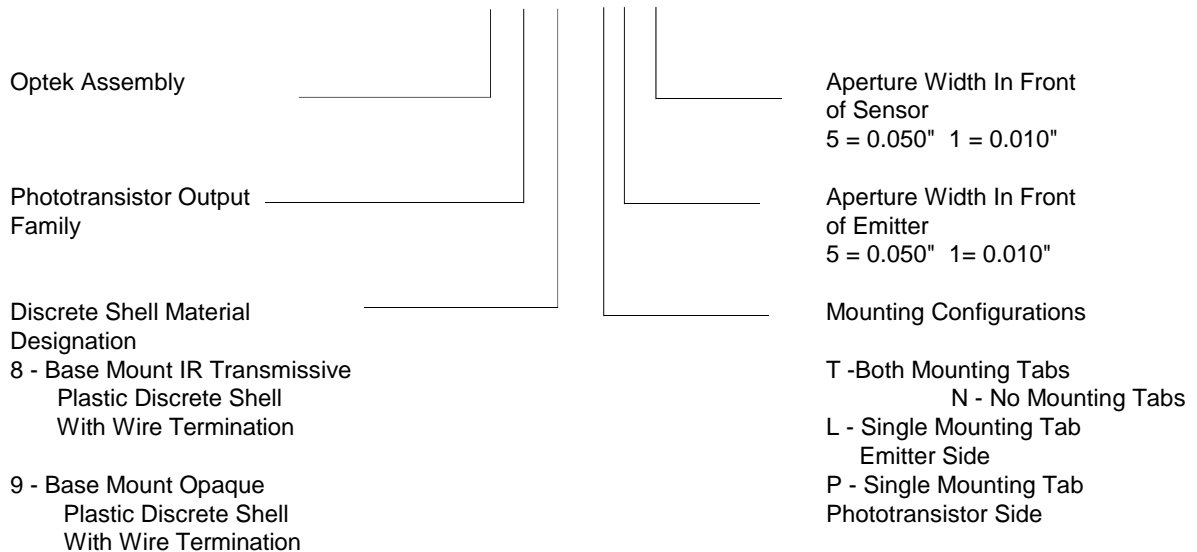
Electrical Characteristics ( $T_A = 25^\circ\text{C}$  unless otherwise noted)

SYMBOL	PARAMETER	MIN	MAX	UNITS	TEST CONDITIONS
<b>Input Diode</b>					
$V_F$	Forward Voltage		1.7	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-Collector 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>					
$I_{C(ON)}$	On-State Collector Current OPB380T, N, L, P55 OPB390T, N, L, P55	3.5	14.0	mA	$V_{CE} = 0.4\text{ V}, I_F = 20\text{ mA}$
	OPB380T, N, L, P51 OPB390T, N, L, P51	2.5	10.0	mA	$V_{CE} = 0.4\text{ V}, I_F = 20\text{ mA}$
	OPB380T, N, L, P11 OPB390T, N, L, P11	1.0	5.0	mA	$V_{CE} = 0.4\text{ V}, I_F = 20\text{ mA}$

SLOTTED OPTICAL COMPONENTS

## PART NUMBER GUIDE

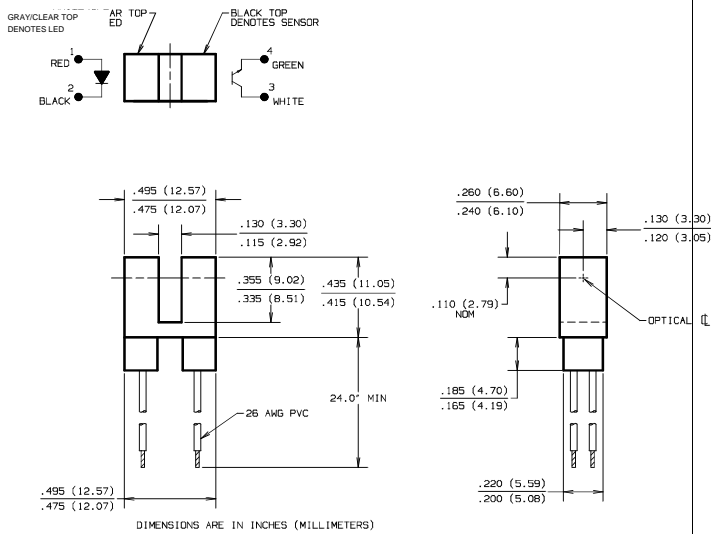
OPB 3 X X X X X



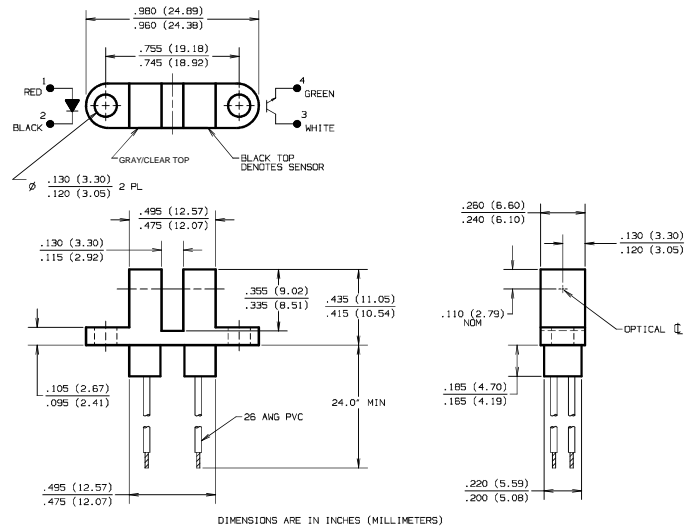
Optek reserves the right to make changes at any time in order to improve design and to supply the best product possible.

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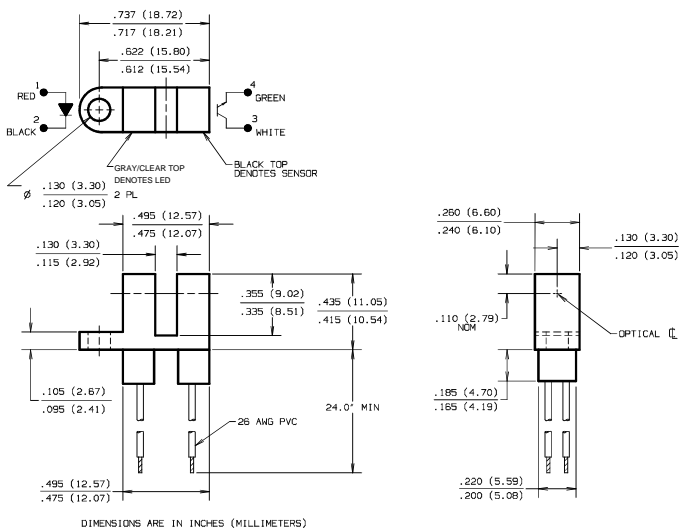
### Package N



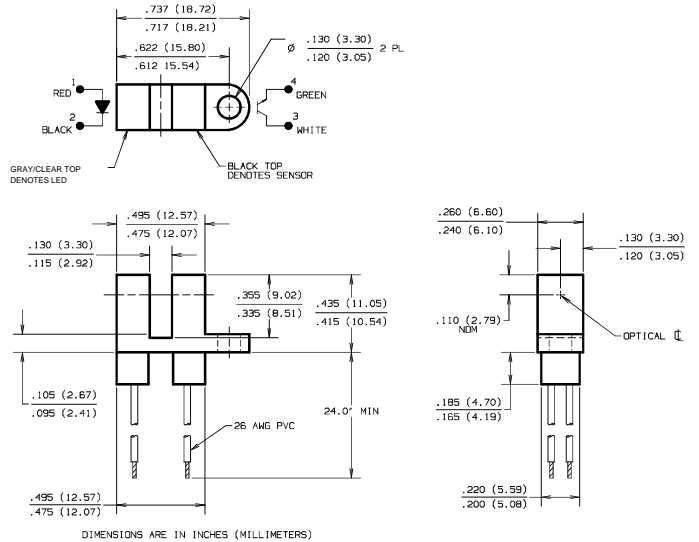
### Package T



### Package L



### Package P

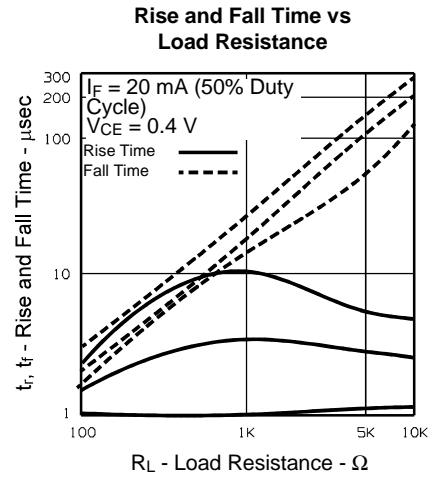
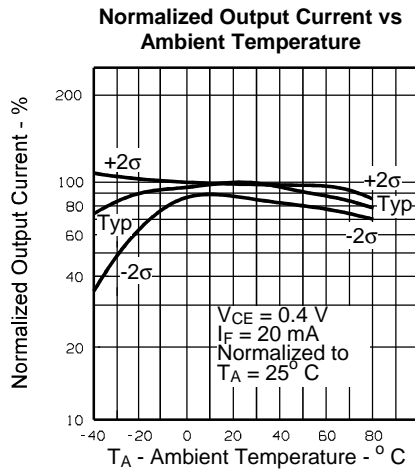
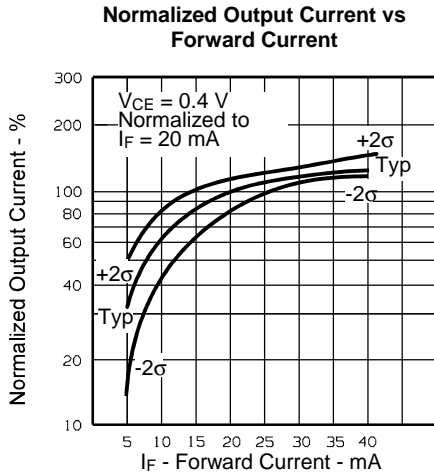


Notes:  
 (1) Aperture dimensions dependent on part number. See Part Number Guide.

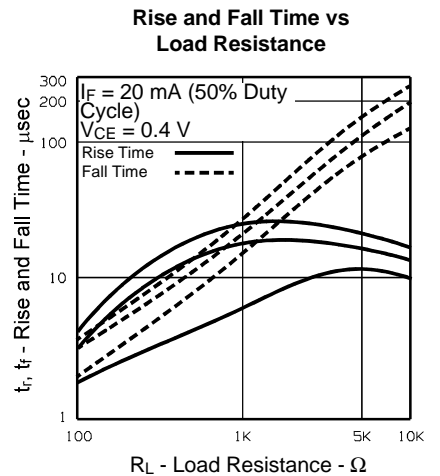
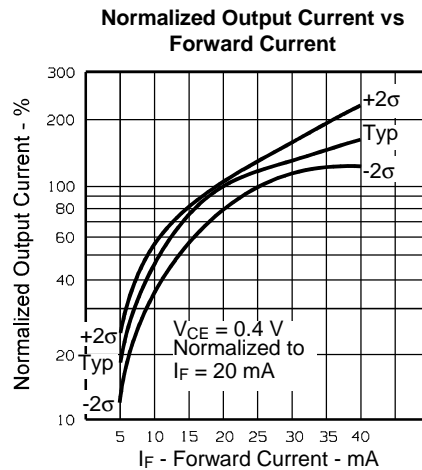
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## Typical Performance Curves

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All Part Numbers Ending in "1"



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