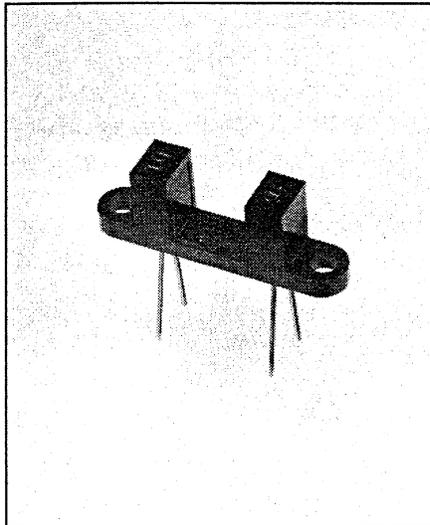


# Wide Gap Slotted Optical Switches

## Types OPB800L, OPB810L Series



### Features

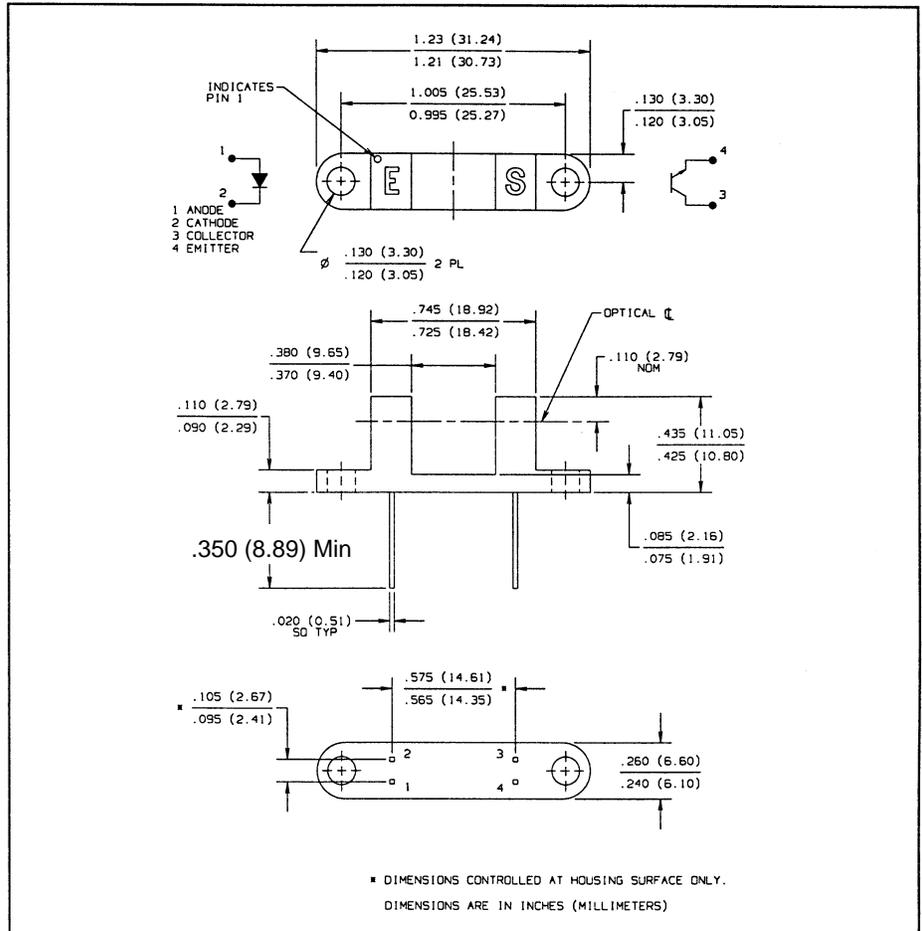
- 0.375" (9.53 mm) wide gap
- Choice of aperture size
- Choice of minimum photocurrent
- Choice of opaque or IR transmissive shells
- 0.570" (14.48 mm) lead spacing

### Description

The OPB800L/OPB810L series of wide gap slotted switches provides the design engineer with the flexibility of a custom device from a standard product line. Building from a standard housing utilizing a .375" (9.53 mm) wide slot, the user can specify (1) electrical output parameters, (2) discrete shell material and (3) aperture width. Available with wire leads as OPB800W/OPB810W.

### Replaces

KT800L - KT810L series



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

Storage and Operating Temperature Range ..... -40° C to +85° C<sup>(1)</sup>  
 Lead Soldering Temperature [1/16 inch (1.6 mm) from case for 5 sec. with soldering iron] ..... 240° C<sup>(2)</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 1.67 mW/° 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.

# Types OPB800L, OPB810L Series

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	$\mu\text{A}$	$V_R = 2.0\text{ V}$
<b>Output Phototransistor</b>					
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	30		V	$I_C = 1.0\text{ mA}$
$V_{(BR)ECO}$	Emitter-Collector Breakdown Voltage	5.0		V	$I_E = 100\ \mu\text{A}$
$I_{CEO}$	Collector Dark Current		100	nA	$V_{CE} = 10\text{ V}$
<b>Coupled</b>					
$V_{CE(SAT)}$	Collector-Emitter Saturation Voltage				
	Parameter A	OPB800L/OPB810L	0.4	V	$I_C = 250\ \mu\text{A}, I_F = 20\text{ mA}$
	Parameter B	OPB801L/OPB811L	0.4	V	$I_C = 500\ \mu\text{A}, I_F = 10\text{ mA}$
	Parameter C	OPB802L/OPB812L	0.6	V	$I_C = 1800\ \mu\text{A}, I_F = 20\text{ mA}$
$I_{C(ON)}$	On-State Collector Current				
	Parameter A	OPB800L/OPB810L	500	$\mu\text{A}$	$V_{CE} = 10\text{ V}, I_F = 20\text{ mA}$
	Parameter B	OPB801L/OPB811L	1000	$\mu\text{A}$	$V_{CE} = 5\text{ V}, I_F = 10\text{ mA}$
	Parameter C	OPB802L/OPB812L	1800	$\mu\text{A}$	$V_{CE} = 0.6\text{ V}, I_F = 20\text{ mA}$

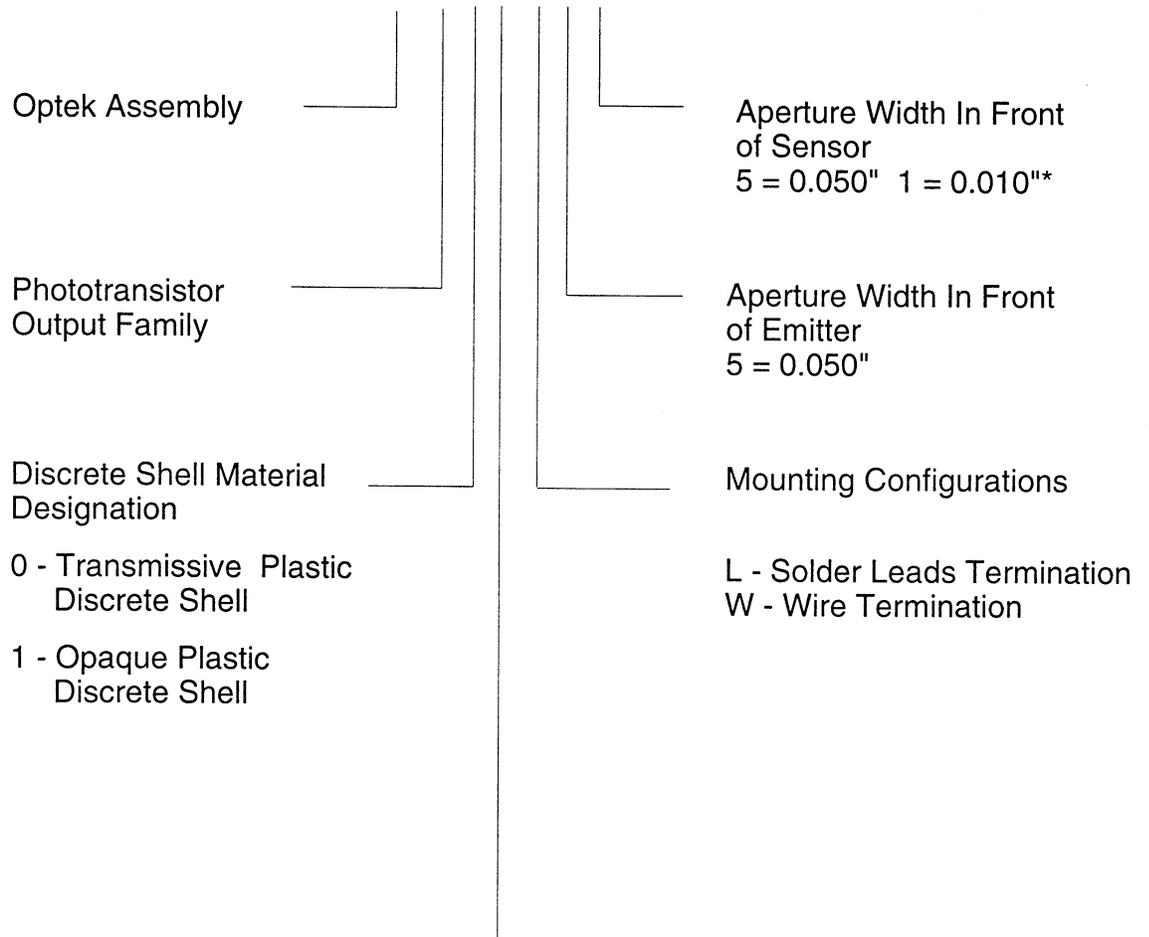
SLOTTED OPTICAL SWITCHES

## Housing

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.

# PART NUMBER GUIDE

OPB 8 X X X X X



## Mechanical And Electrical Specification Variations

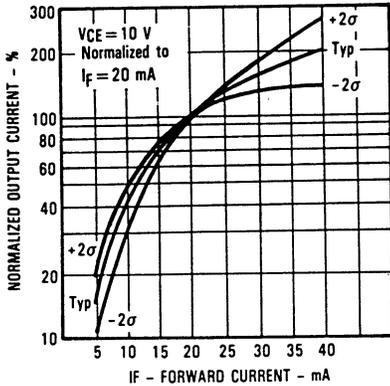
- 0 - Electrical Parameter A
- 1 - Electrical Parameter B
- 2 - Electrical Parameter C

\*Assemblies with 0.010" apertures are currently available with electrical parameter "A" only.

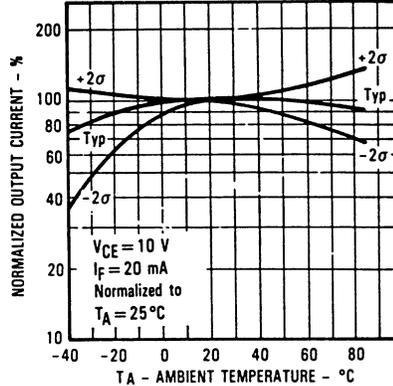
# Types OPB800L, OPB810L Series

## Typical Performance Curves

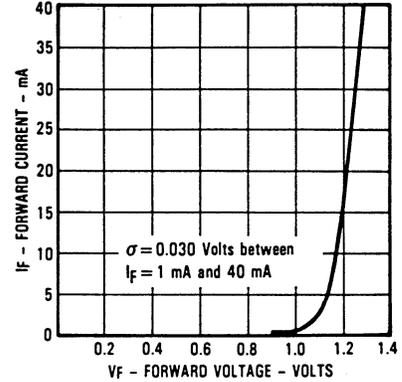
### Normalized Output Current vs Forward Current



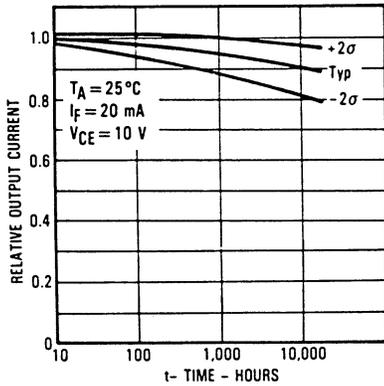
### Normalized Output Current vs Ambient Temperature



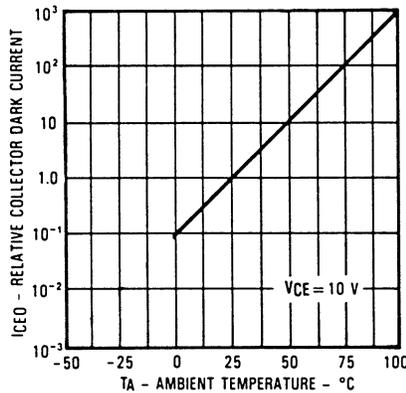
### Forward Current vs Forward Voltage Input Diode



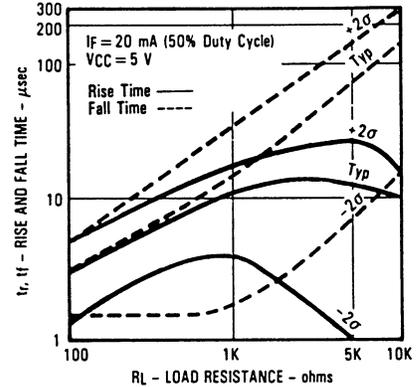
### Relative Output Current vs Time



### Collector Dark Current vs Ambient Temperature

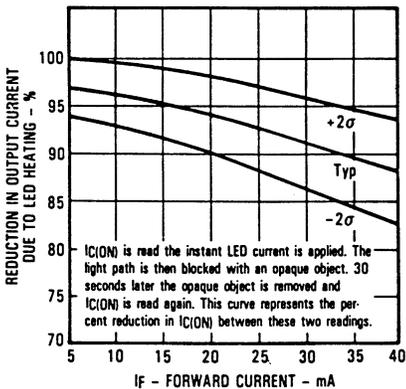


### Rise and Fall Time vs Load Resistance

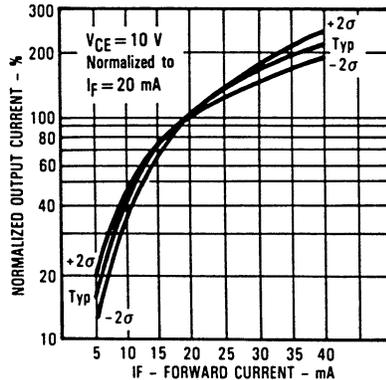


## All Part Numbers Ending in "1"

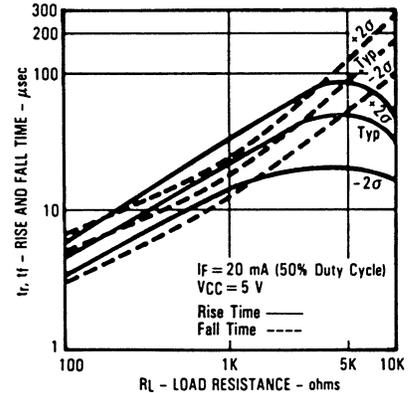
### Reduction in Output Current Due to LED Heating vs Forward Current



### Normalized Output Current vs Input Current



### Rise and Fall Time vs Load Resistance



SLOTTED OPTICAL SWITCHES