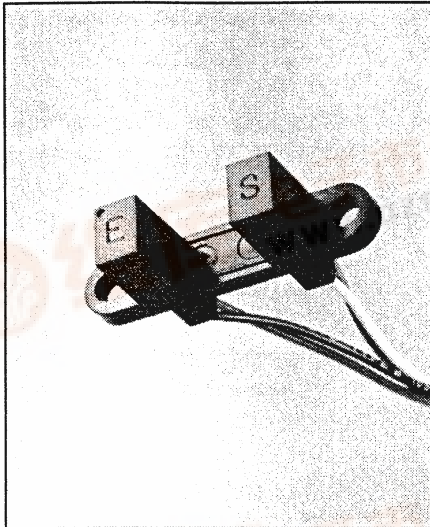


Product Bulletin OPB800W
July 1996

Wide Gap Slotted Optical Switches Types OPB800W, OPB810W Series



Features

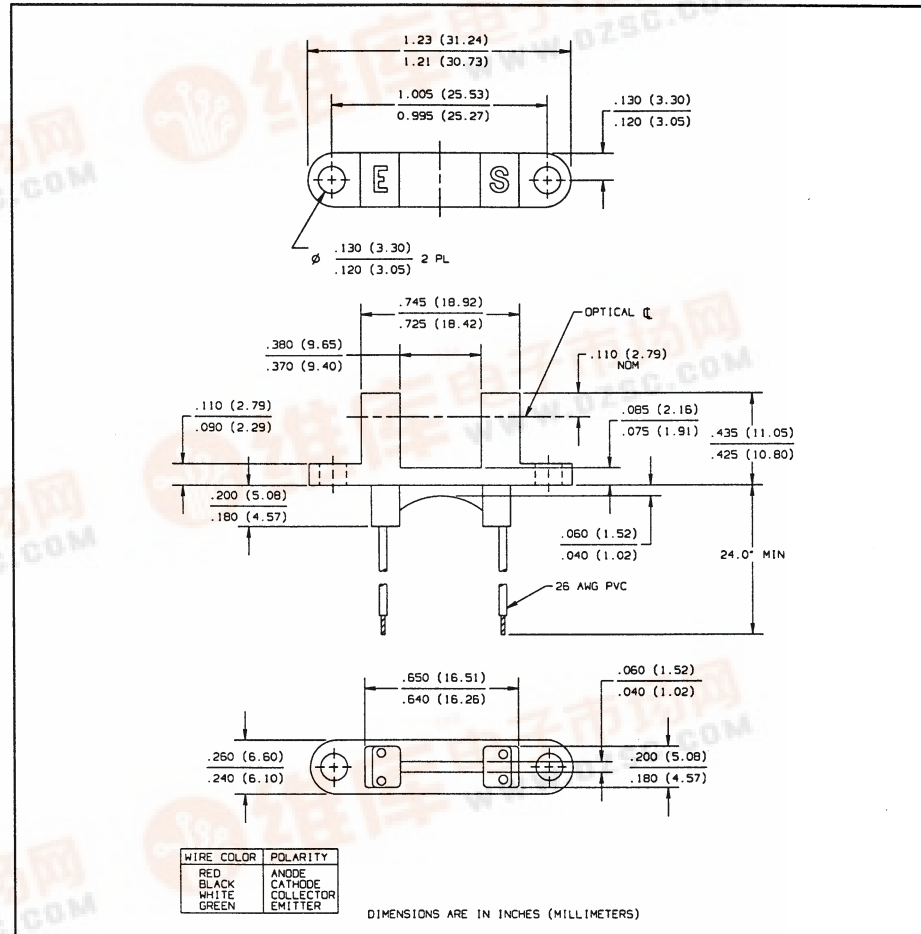
- Choice of aperture size
- Choice of minimum photocurrent
- Choice of opaque or IR transmissive shells
- 24" min 26 AWG PVC lead wires

Description

The OPB800W/OPB810W 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 PC board mountable leads as OPB800L/OPB810L.

Replaces

KT800W - KT810W series



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

Storage and Operating Temperature Range -40°C to $+80^\circ\text{C}$

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 1.82 mW/ $^\circ\text{C}$ above 25°C .
- (2) All parameters tested using pulse technique.
- (3) Wire terminations 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 functions and colors are:

RED - IRED Anode
BLACK - IRED Cathode

WHITE - Phototransistor Collector
GREEN - Phototransistor Emitter

Other wire lengths and/or colors differing from the standard series are available.



Types OPB800W, OPB810W Series

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

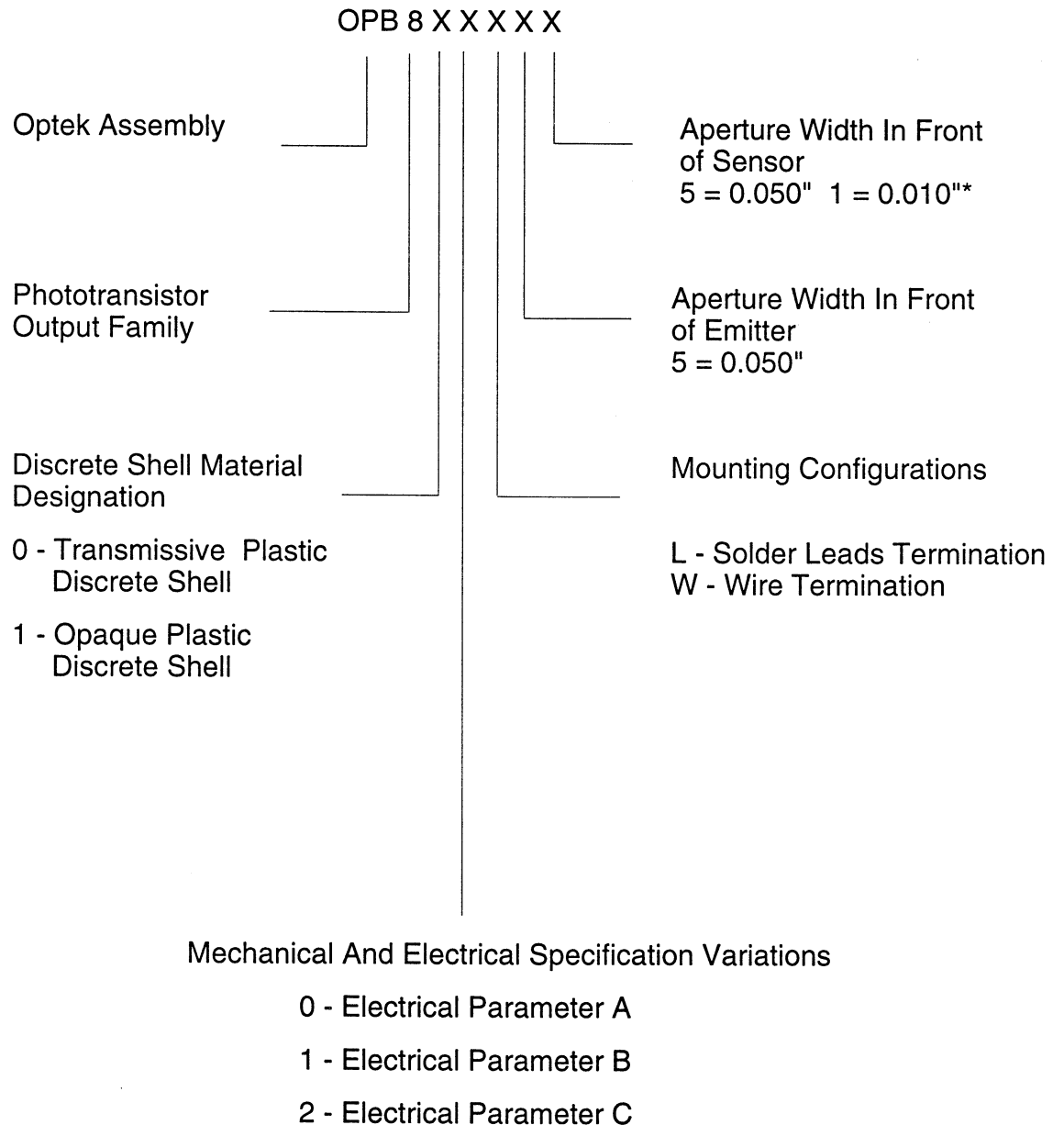
SYMBOL	PARAMETER	MIN	MAX	UNITS	TEST CONDITIONS
Input Diode					
V_F	Forward Voltage		1.7	V	$I_F = 20 \text{ mA}$
I_R	Reverse Current		100	μA	$V_R = 2.0 \text{ V}$
Output Phototransistor					
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	30		V	$I_C = 1.0 \text{ mA}$
$V_{(BR)ECO}$	Emitter-Collector Breakdown Voltage	5.0		V	$I_E = 100 \mu\text{A}$
I_{CEO}	Collector Dark Current		100	nA	$V_{CE} = 10 \text{ V}$
Coupled					
$V_{CE(SAT)}$	Collector-Emitter Saturation Voltage				
	Parameter A	OPB800W/OPB810W	0.4	V	$I_C = 250 \mu\text{A}, I_F = 20 \text{ mA}$
	Parameter B	OPB801W/OPB811W	0.4	V	$I_C = 500 \mu\text{A}, I_F = 10 \text{ mA}$
	Parameter C	OPB802W/OPB812W	0.6	V	$I_C = 1800 \mu\text{A}, I_F = 20 \text{ mA}$
$I_{C(ON)}$	On-State Collector Current				
	Parameter A	OPB800W/OPB810W	500	μA	$V_{CE} = 10 \text{ V}, I_F = 20 \text{ mA}$
	Parameter B	OPB801W/OPB811W	1000	μA	$V_{CE} = 5 \text{ V}, I_F = 10 \text{ mA}$
	Parameter C	OPB802W/OPB812W	1800	μA	$V_{CE} = 0.6 \text{ V}, I_F = 20 \text{ mA}$

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

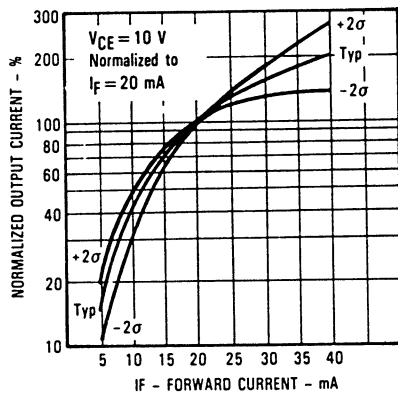


*Assemblies with 0.010" apertures are currently available with electrical parameter "A" only.

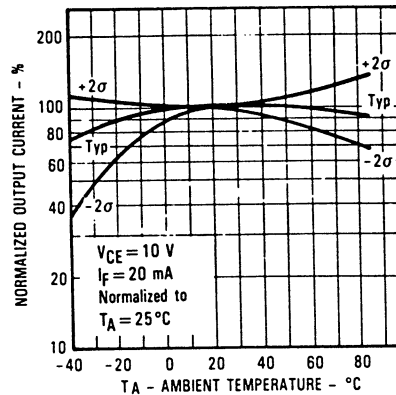
Types OPB800W, OPB810W Series

Typical Performance Curves

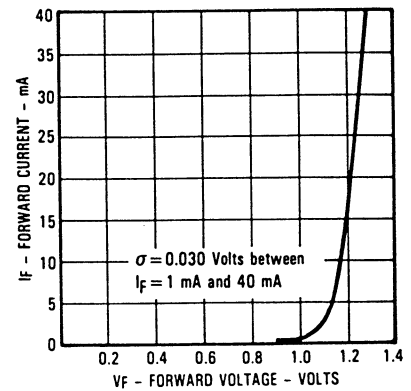
Normalized Output Current vs Forward Current



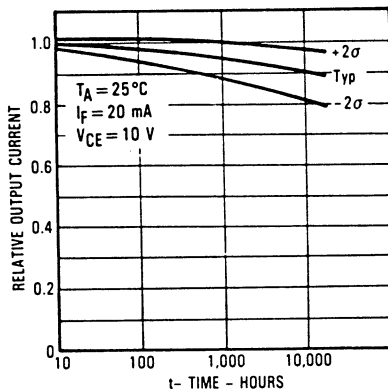
Normalized Output Current vs Ambient Temperature



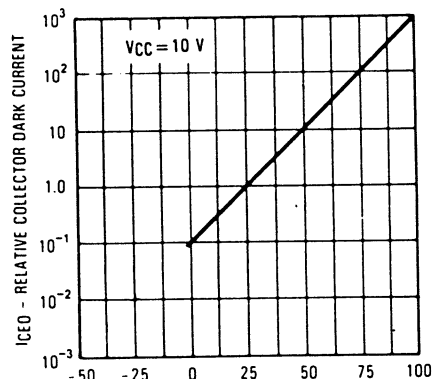
Forward Current vs Forward Voltage Input Diode



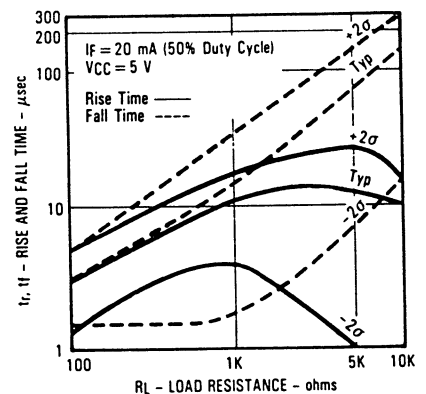
Relative Output Current vs Time



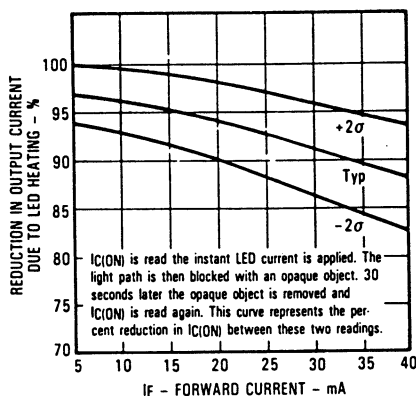
Collector Dark Current vs Ambient Temperature



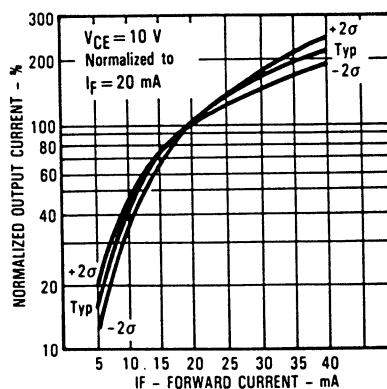
Rise and Fall Time vs Load Resistance



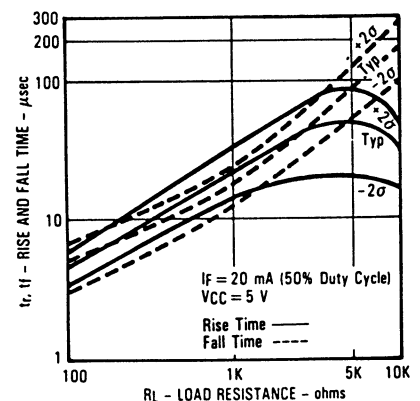
Reduction in Output Current Due to LED Heating vs Forward Current



Normalized Output Current vs Input Current



Rise and Fall Time vs Load Resistance



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