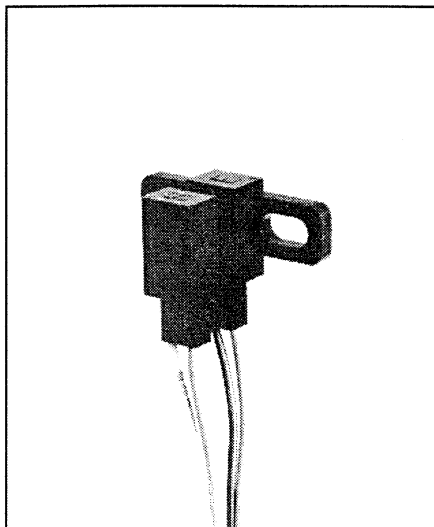


Slotted Optical Switches

Types OPB830W, OPB840W Series



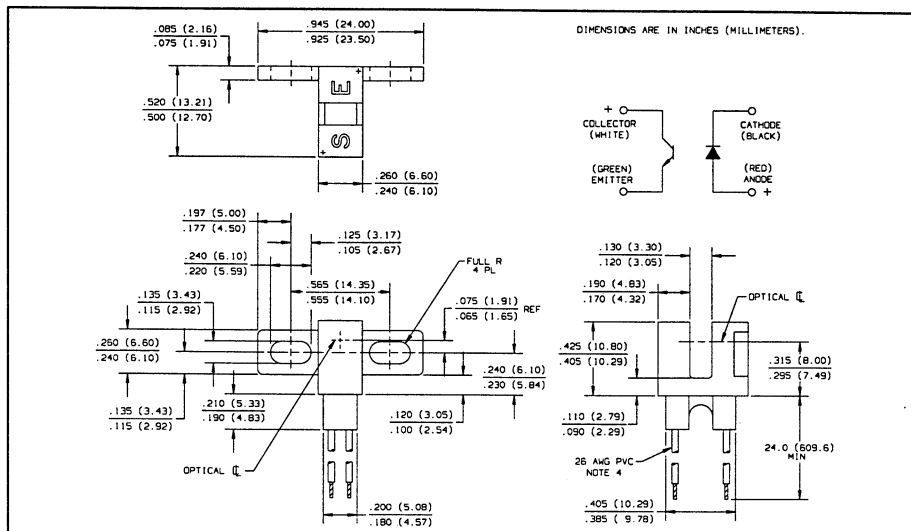
Features

- 0.125" (3.18 mm) wide slot
- Choice of aperture
- Choice of opaque or IR transmissive shell material
- Side mount configuration
- 24", 26AWG wire leads

Description

This 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 .125" (3.18 mm) wide slot, the user can specify (1) Electrical output parameters, (2) discrete shell material and (3) 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.



Absolute Maximum Ratings (TA = 25° C unless otherwise noted)

Storage and Operating Temperature Range -40° C to +80° C⁽¹⁾
Lead Soldering Temperature [1/16 inch (1.6 mm) from case for 5 sec. with soldering iron] 240° 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 1.82 mW/° C above 25° C. (Maximum storage and operating temperature, limited by the temperature rating of the lead wires)
- (2) RMA flux is recommended. Duration can be extended to 10 sec. max. when flow soldering.
- (3) All parameters tested using pulse technique.
- (4) The OPB830W/OPB840W 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 - RED Anode White - Phototransistor Collector
Black - Ired Cathode Green - Phototransistor Emitter

- Other wire and/or colors are available. Contact your local representative or call the factory.
(5) Methanol or isopropanol are recommended cleaning agents. Plastic housing may be soluble in chlorinated hydrocarbons and ketones.

Types OPB830W, OPB840W 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	$V_R = 2 \text{ V}$
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	$I_E = 100 \mu\text{A}$
I_{CEO}	Collector-Emitter Dark Current		100	nA	$V_{CE} = 10 \text{ V}$
Coupled					
$V_{CE(SAT)}$	Saturation Voltage: Parameter A	OPB830W/OPB840W	0.4	V	$I_C = 400 \mu\text{A}, I_F = 20 \text{ mA}$
	Parameter B	OPB831W/OPB841W	0.4	V	$I_C = 800 \mu\text{A}, I_F = 10 \text{ mA}$
	Parameter C	OPB832W/OPB842W	0.6	V	$I_C = 1800 \mu\text{A}, I_F = 20 \text{ mA}$
$I_{C(ON)}$	On-State Collector Current: Parameter A	OPB830W/OPB840W	500	μA	$V_{CE} = 10 \text{ V}, I_F = 20 \text{ mA}$
	Parameter B	OPB831W/OPB841W	1000	μA	$V_{CE} = 5 \text{ V}, I_F = 10 \text{ mA}$
	Parameter C	OPB832W/OPB842W	1800	μA	$V_{CE} = 0.6 \text{ V}, I_F = 20 \text{ mA}$

SLOTTED
OPTICAL
SWITCHES

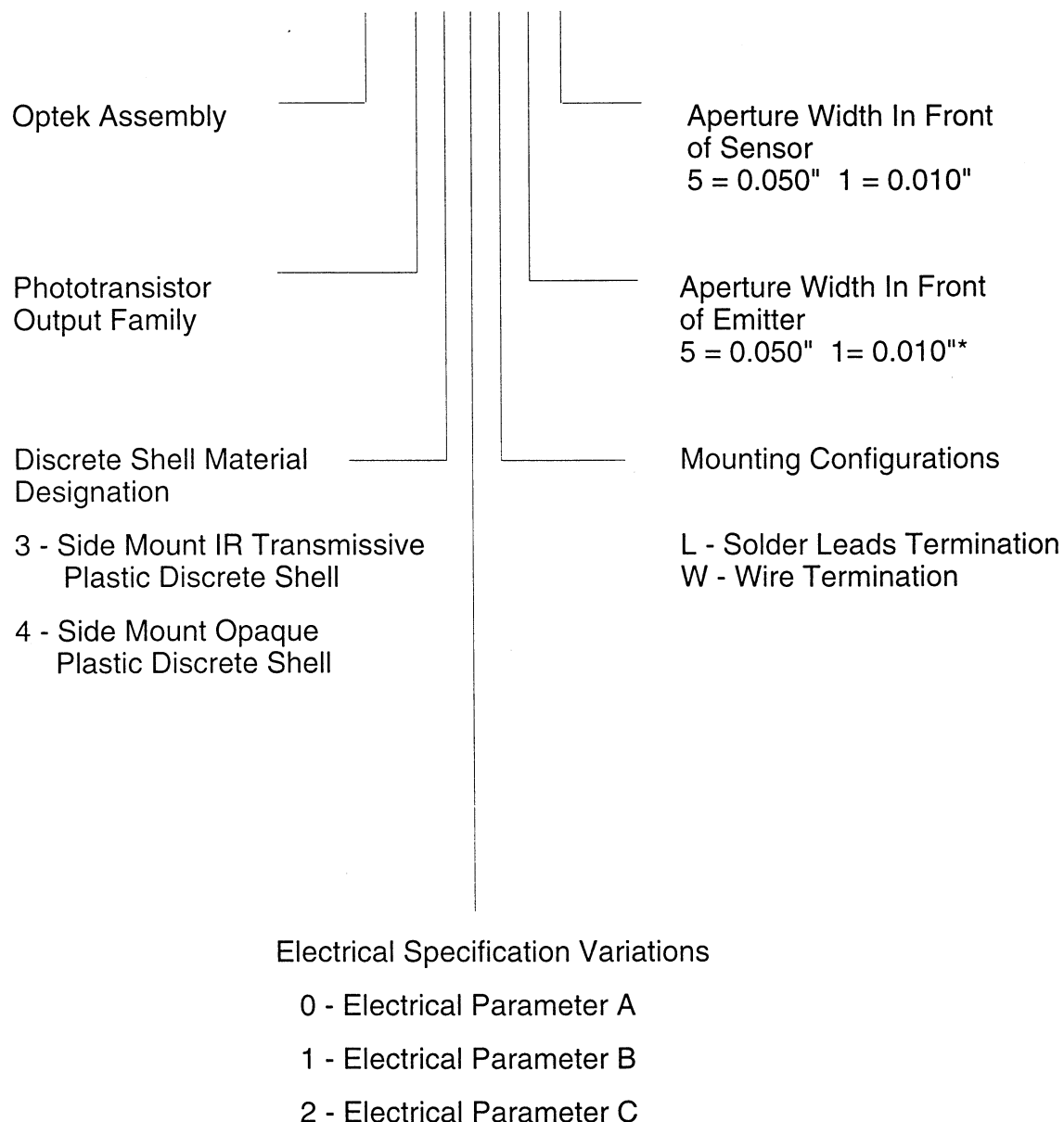
Optek reserves the right to make changes at any time in order to improve design and to supply the best product possible.

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Types OPB830W, OPB840W Series

PART NUMBER GUIDE

OPB 8 X X X X X

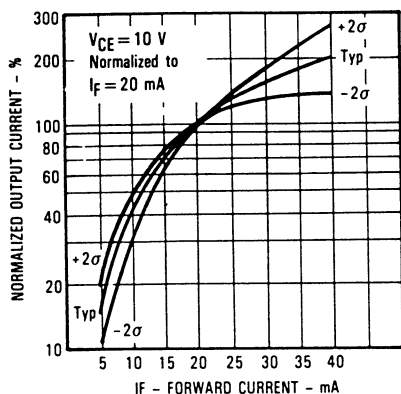


*Assemblies with dual 0.010" apertures are currently available with electrical parameter "A" only.

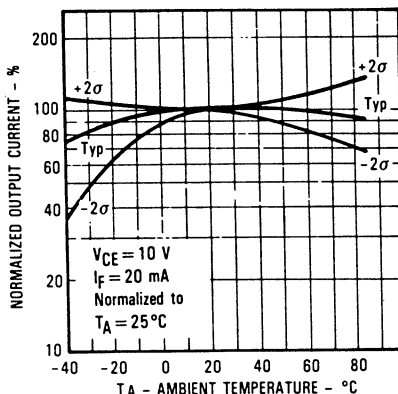
Types OPB830W, OPB840W Series

Typical Performance Curves

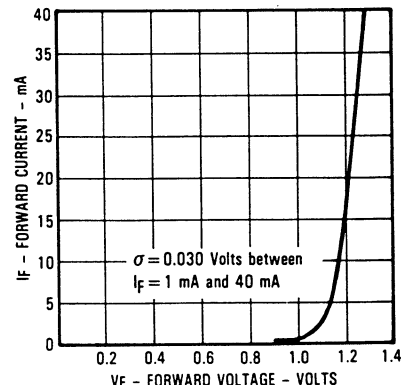
Normalized Output Current vs Forward Current



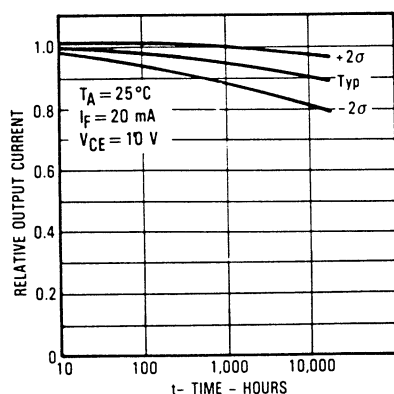
Normalized Output Current vs Ambient Temperature



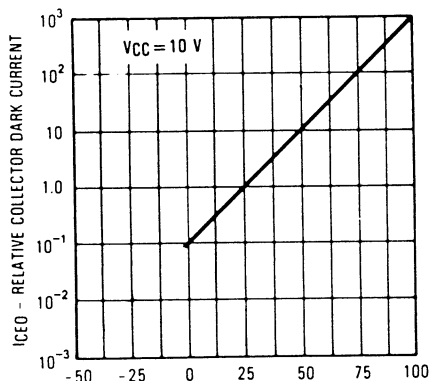
Forward Current vs Forward Voltage Input Diode



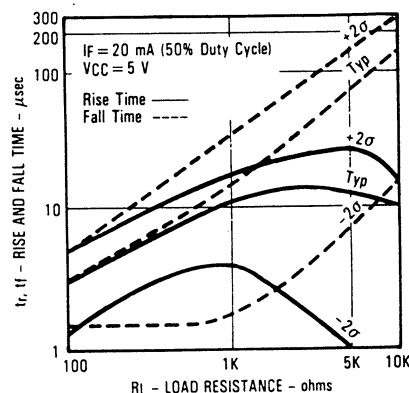
Relative Output Current vs Time



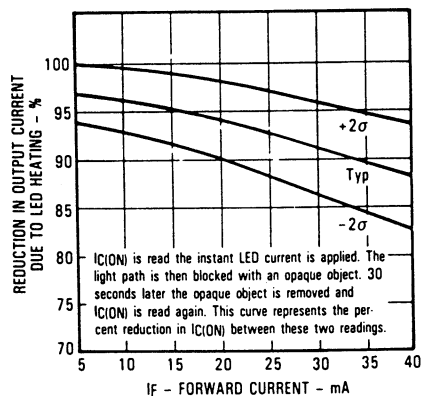
Collector Dark Current vs Ambient Temperature



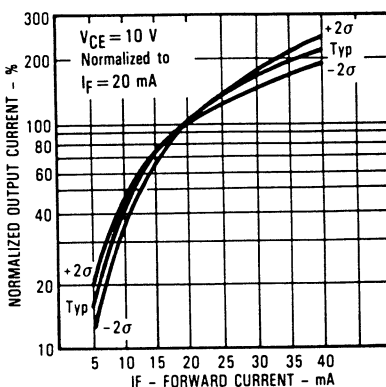
Rise and Fall Time vs Load Resistance



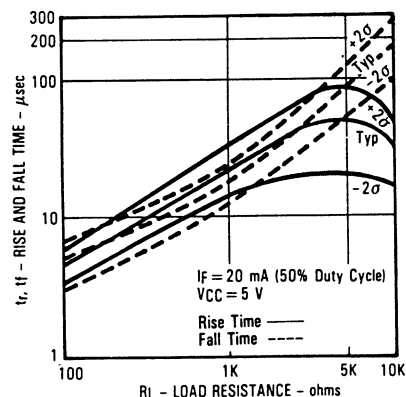
Reduction in Output Current Due to LED Heating vs Forward Current



Normalized Output Current vs Input Current



Rise and Fall Time vs Load Resistance



All Part Numbers Ending in "1"

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