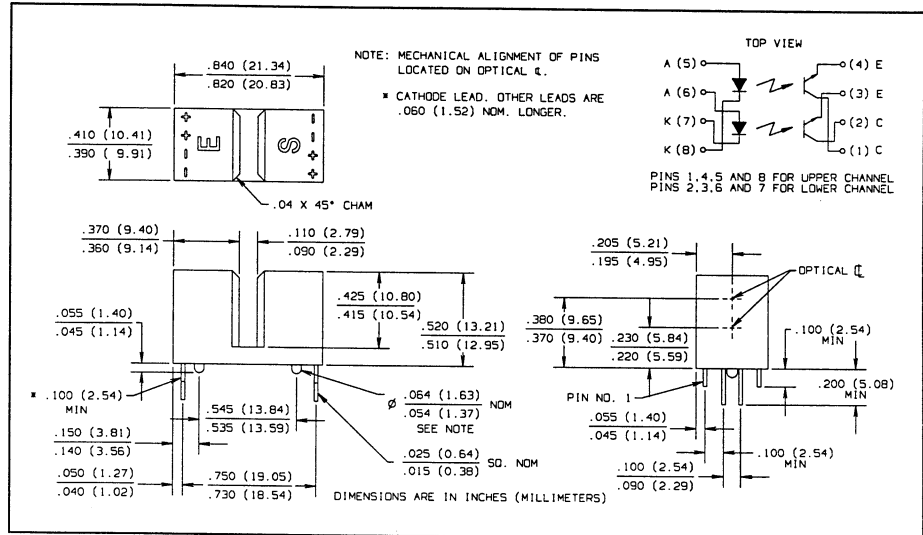
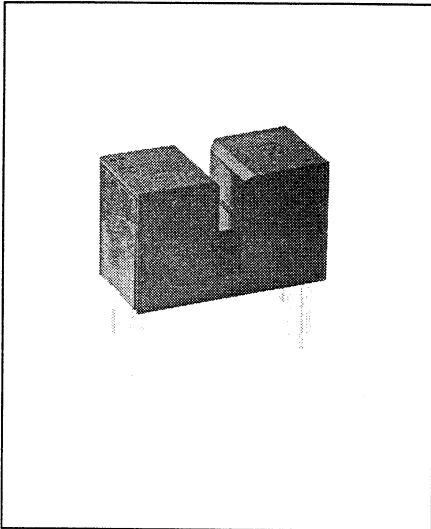


Dual Channel Slotted Optical Switches

Types OPB826S, OPB826SD



Features

- Dual channels over/under
- Direction of travel sensing
- Single or double apertures for high resolution
- 0.100" (2.54 mm) wide slot
- OPB826S (apertures on sensors only)
- OPB826SD (apertures on both emitters and sensors)

Description

The OPB826S and OPB826SD each consist of two infrared emitting diodes and two NPN silicon phototransistors mounted in an over/under configuration on opposite sides of a 0.100" (2.54 mm) wide slot. Phototransistor switching takes place when an opaque object passes through the slot. The OPB826S has 0.010" (0.25 mm) by 0.040" (1.02 mm) apertures in front of both phototransistors. The OPB826SD has the same sized apertures in front of both phototransistors and both emitters. Dual channels enable direction of travel sensing. The low cost IR transmissive plastic housing reduces possible interference from ambient light and provides dust and dirt protection.

Dual channel (side-by-side) configuration available as OPB822 series.

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

Storage and Operating Temperature -40°C to $+85^\circ\text{C}$
 Lead Soldering Temperature [1/16 inch (1.6 mm) from case for 5 sec. with soldering iron] $240^\circ\text{C}^{(1)}$

Input Diode

Continuous Forward Current 40 mA
 Peak Forward Current (1 μs pulse width, 300 pps) 3.0 A
 Reverse Voltage 2.0 V
 Power Dissipation $100\text{ mW}^{(2)}$

Output Phototransistor (s)

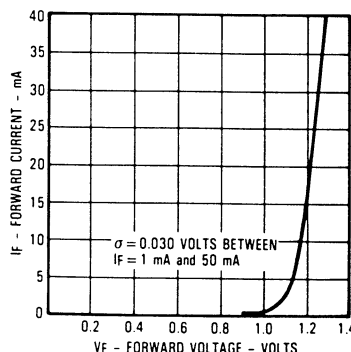
Collector-Emitter Voltage 30 V
 Emitter-Collector Voltage 5.0 V
 Power Dissipation $100\text{ mW}^{(2)}$

Notes:

- (1) RMA flux is recommended. Duration can be extended to 10 sec. max when flow soldering.
- (2) Derate linearly $1.67\text{ mW}/^\circ\text{C}$ above 25°C .
- (3) Methanol or isopropanol are recommended as cleaning agents. Plastic housing is soluble in chlorinated hydrocarbons and ketones.
- (4) All parameters tested using pulse technique.

Typical Performance Curves

Forward Current vs Forward Voltage Input Diode



Types OPB826S, OPB826SD

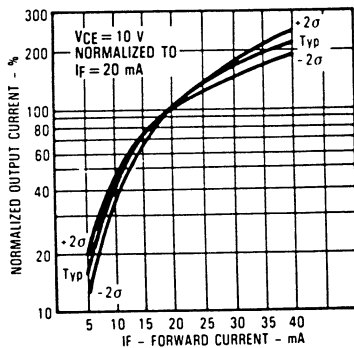
Electrical Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise noted)

SYMBOL	PARAMETER	MIN	MAX	UNITS	TEST CONDITIONS
Input Diode					
V_F	Forward Voltage		1.70	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	$V_{CE} = 10\text{ V}, I_F = 0, E_e = 0$
Coupled					
$V_{CE(SAT)}$	Collector-Emitter Saturation Voltage	OPB826S OPB826SD	0.40 0.40	V V	$I_C = 125\ \mu\text{A}, I_F = 20\text{ mA}$ $I_C = 50\ \mu\text{A}, I_F = 20\text{ mA}$
$I_{C(ON)}$	On-State Collector Current	OPB826S OPB826SD	250 100	μA μA	$V_{CE} = 10\text{ V}, I_F = 20\text{ mA}$ $V_{CE} = 10\text{ V}, I_F = 20\text{ mA}$
I_{CX1}	Crosstalk	OPB826S OPB826SD	20 10	μA μA	$I_{F1} = 0\text{ mA}, I_{F2} = 20\text{ mA}, V_{CE} = 10\text{ V}$ $I_{F1} = 0\text{ mA}, I_{F2} = 20\text{ mA}, V_{CE} = 10\text{ V}$
I_{CX2}	Crosstalk	OPB826S OPB826SD	20 10	μA μA	$I_{F1} = 20\text{ mA}, I_{F2} = 0\text{ mA}, V_{CE} = 10\text{ V}$ $I_{F1} = 20\text{ mA}, I_{F2} = 0\text{ mA}, V_{CE} = 10\text{ V}$

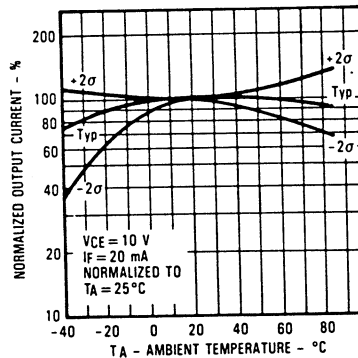
SLOTTED OPTICAL SWITCHES

Typical Performance Curves

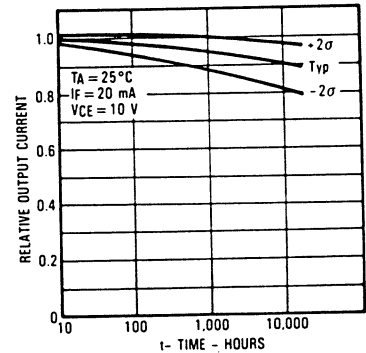
Normalized Output Current vs Input Current



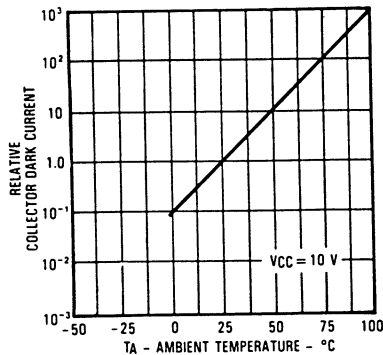
Normalized Output Current vs Ambient Temperature



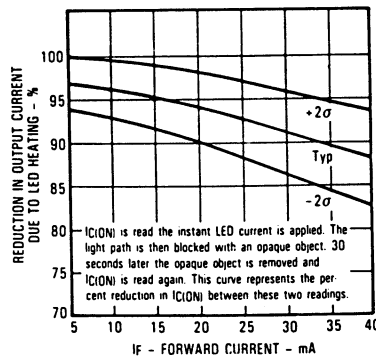
Relative Output Current vs Time



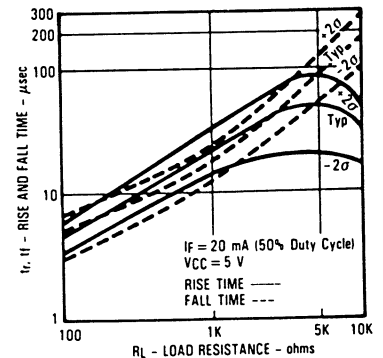
Relative Collector Dark Current vs Ambient Temperature



Reduction in Output Current Due to LED Heating vs Forward 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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