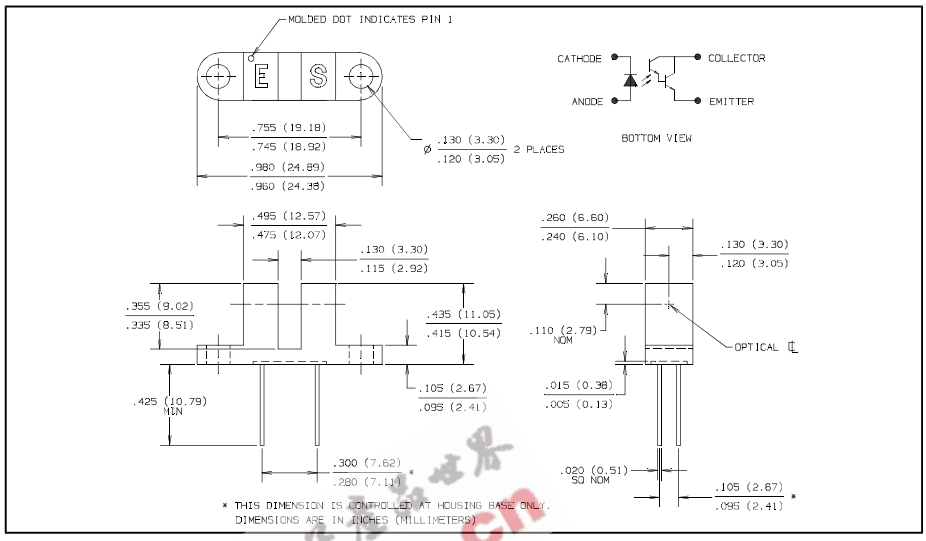
Product Bulletin OPB853A
July 1996

Slotted Optical Switches
Types OPB853A1, OPB853A2, OPB853A3



Features

- Inexpensive opaque plastic housing
- 0.125" (3.18 mm) wide slot
- 0.290" (7.37 mm) lead spacing
- Apertured for high resolution
- Photodarlington output

Description

The OPB853A series of slotted optical switches consist of an infrared emitting diode and an NPN silicon photodarlington. They are mounted on opposite sides of a 0.125" (3.18 mm) wide slot. The emitter has a 0.050" X 0.050" (1.27 mm X 1.27 mm) molded-in aperture while the photodarlington has a 0.010" X 0.050" (0.254 mm X 1.27 mm) molded-in aperture.

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

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

Input Diode

Forward DC Current ..... 40 mA
Peak Forward Current (1 µs pulse width, 300 pps) ..... 3.0 A
Reverse DC Voltage ..... 2.0 V
Power Dissipation ..... 100 mW(2)

Output Photodarlington

Collector-Emitter Voltage ..... 15 V
Emitter-Collector Voltage ..... 5.0 V
Power Dissipation ..... 100 mW(2)

Notes:
(1) RMA flux is recommended. Duration can be extended to 10 sec. max. when flow soldering.
(2) Derate linearly 1.67 mW/° C above 25° C.
(3) All parameters tested using pulse technique.
(4) Methanol and isopropanol are recommended as cleaning agents. Housings are soluble in chlorinated hydrocarbons and ketones. Highly activated, water soluble fluxes may attack housings in some situations.

Types OPB853A1, OPB853A2, OPB853A3

Electrical Characteristics (T_A = 25° C unless otherwise noted)

SYMBOL	PARAMETER		MIN	MAX	UNITS	TEST CONDITIONS
Input Diode						
V_F	Forward Voltage			1.7	V	I_F = 20 mA
I_R	Reverse Current			100	µA	V_R = 2 V
Output Phototransistor						
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage		15		V	I_C = 1 mA
$V_{(BR)ECO}$	Emitter-Collector Breakdown Voltage		5.0		V	I_E = 100 µA
I_{CEO}	Collector-Emitter Dark Current			100	nA	V_{CE} = 10 V
Coupled						
$V_{CE(SAT)}$	Saturation Voltage			1.0	V	I_C = 1.8 mA, I_F = 10 mA
$I_{C(ON)}$	On-State Collector Current	OPB853A1	2.5		mA	V_{CE} = 1.5 V, I_F = 5 mA
		OPB853A2	5.0		mA	V_{CE} = 1.5 V, I_F = 5 mA
		OPB853A3	10.0		mA	V_{CE} = 1.5 V, I_F = 5 mA