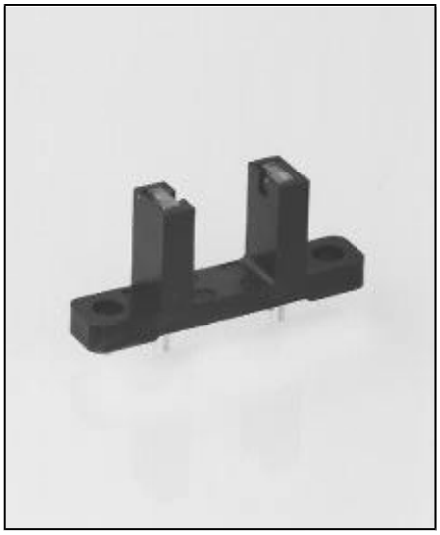
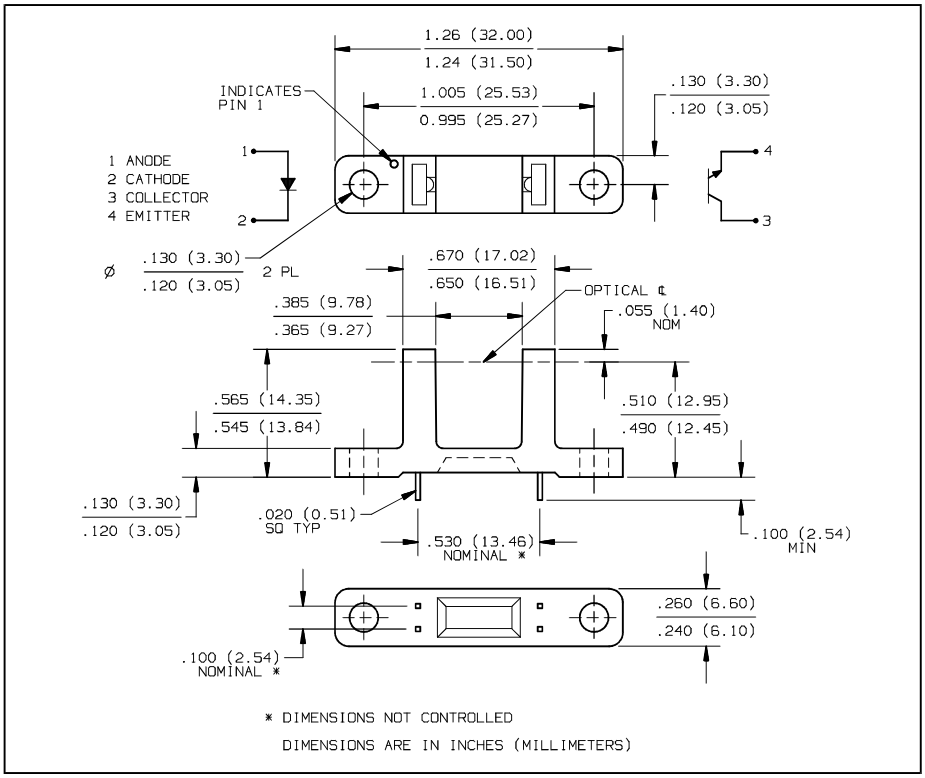
Deep Gap Slotted Optical Switch
Type OPB815L





Features

- Non-contact switching
- Printed circuit board mounting
- 0.375" (9.53 mm) wide slot
- 0.430" (10.92 mm) deep slot

Description

The OPB815L consists of an infrared emitting diode and an NPN silicon phototransistor mounted in a low cost plastic housing on opposite sides of a 0.375" (9.53 mm) wide, 0.430" (10.92 mm) deep slot. Phototransistor switching takes place whenever an opaque object passes through the slot. Available with wire leads as OPB815W.

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

Storage and Operating Temperature . . . . . -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

Continuous Forward Current . . . . . 50 mA
Peak Forward Current (1 µs pulse width, 300 pps) . . . . . 3.0 A
Reverse Voltage . . . . . 2.0 V
Power Dissipation . . . . . 100 mW(2)

Output Phototransistor

Collector-Emitter Voltage . . . . . 30 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) Methanol or isopropanol are recommended as cleaning agents. Plastic housing is soluble in chlorinated hydrocarbons and ketones.
(4) All parameters tested using pulse technique.

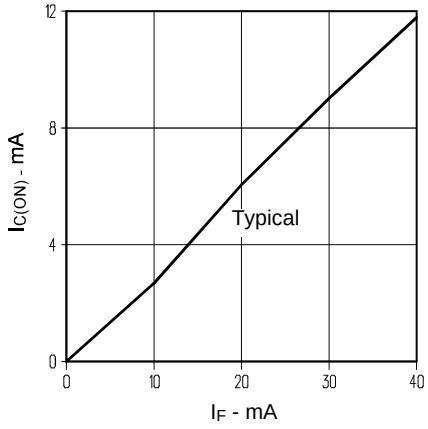
Type OPB815L

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

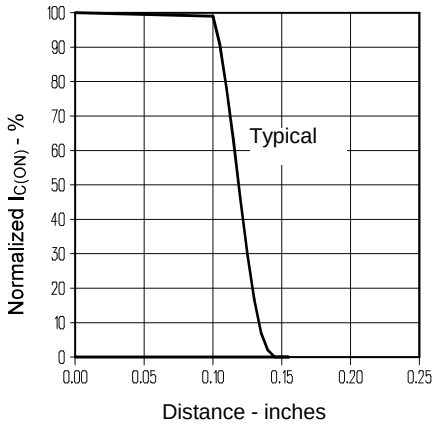
SYMBOL	PARAMETER	MIN	MAX	UNITS	TEST CONDITIONS
Input Diode					
V_F	Forward Voltage		1.70	V	I_F = 20 mA
I_R	Reverse Current		100	µA	V_R = 2.0 V
Output Phototransistor					
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	30		V	I_C = 1.00 mA
$V_{(BR)ECO}$	Emitter-Collector Breakdown Voltage	5.0		V	I_E = 100 µA
I_{CEO}	Collector-Emitter Dark Current		100	nA	V_{CE} = 10.0 V, I_F = 0, E_e = 0
Coupled					
$V_{CE(SAT)}$	Collector-Emitter Saturation Voltage		0.40	V	I_C = 500 µA, I_F = 20 mA
$I_{C(ON)}$	On-State Collector Current	3.5	16.0	mA	V_{CE} = 10.0 V, I_F = 20 mA

Typical Performance Curves

Collector Current vs LED Drive



Normalized $I_{C(ON)}$ vs Distance (X Axis Blocked)



Normalized $I_{C(ON)}$ vs Distance (Y Axis Blocked)