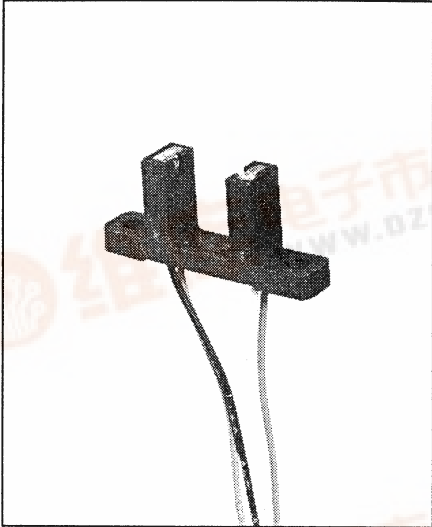


Product Bulletin OPB815W
July 1996

Deep Gap Slotted Optical Switch Type OPB815W

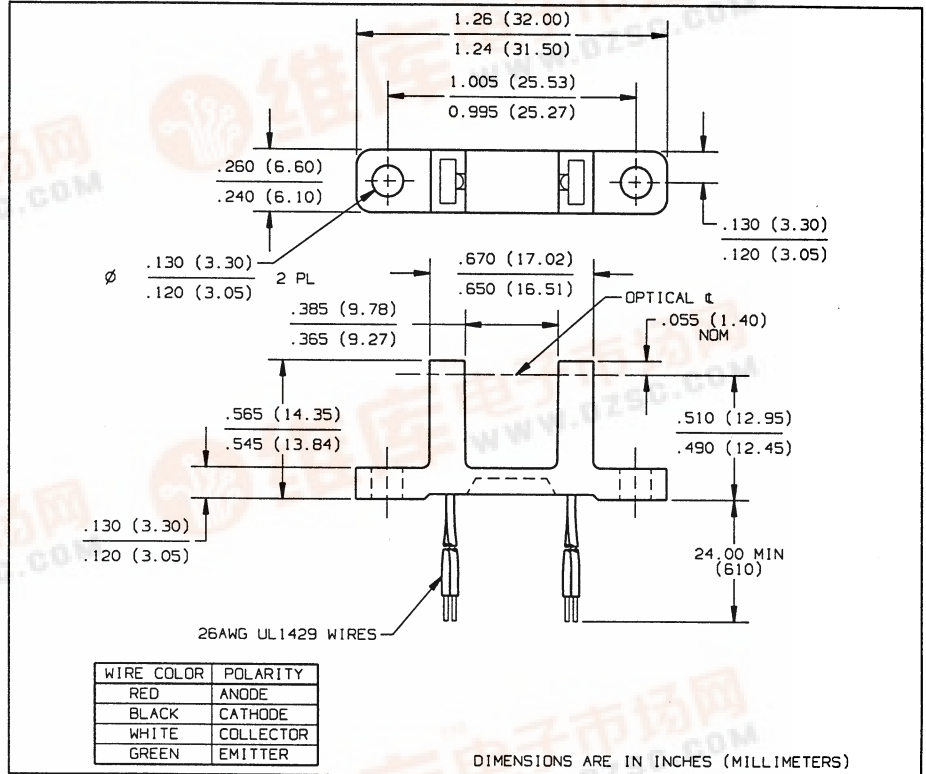


Features

- Non-contact switching
- 24" minimum, 26 AWG wire leads
- 0.375" (9.53 mm) wide slot
- 0.430" (10.92 mm) deep slot

Description

The OPB815W 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" (10.9 mm) deep slot. Phototransistor switching takes place whenever an opaque object passes through the slot. Available with PC board mountable leads as OPB815L.



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

Storage and Operating Temperature -40° C to +80° 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 OPB815W

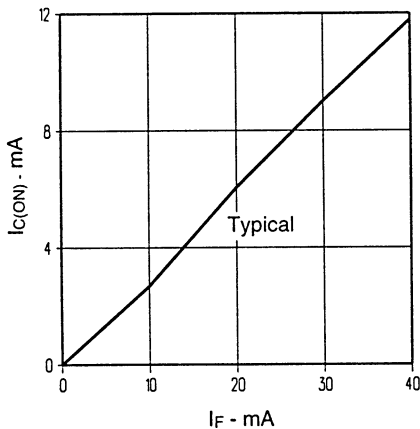
Electrical Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise noted)

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	$V_R = 2.0\text{ V}$
Output Phototransistor					
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	30		V	$I_C = 1.00\text{ mA}$
$V_{(BR)ECO}$	Emitter-Collector Breakdown Voltage	5.0		V	$I_E = 100\ \mu\text{A}$
I_{CEO}	Collector-Emitter Dark Current		100	nA	$V_{CE} = 10.0\text{ V}, I_F = 0, E_e = 0$
Coupled					
$V_{CE(SAT)}$	Collector-Emitter Saturation Voltage		0.40	V	$I_C = 500\ \mu\text{A}, I_F = 20\text{ mA}$
$I_{C(ON)}$	On-State Collector Current	1		mA	$V_{CE} = 10.0\text{ V}, I_F = 20\text{ mA}$

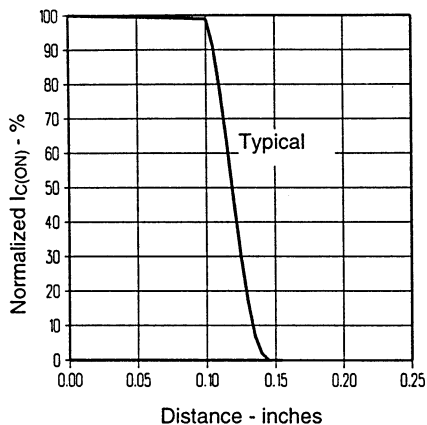
SLOTTED
OPTICAL
SWITCHES

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)

