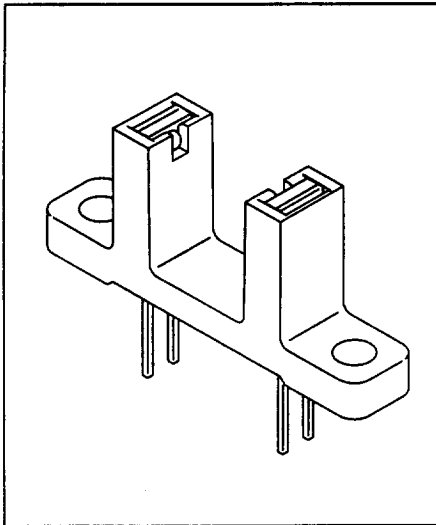


# Deep Gap Slotted Optical Switch Type OPB815L



### Features

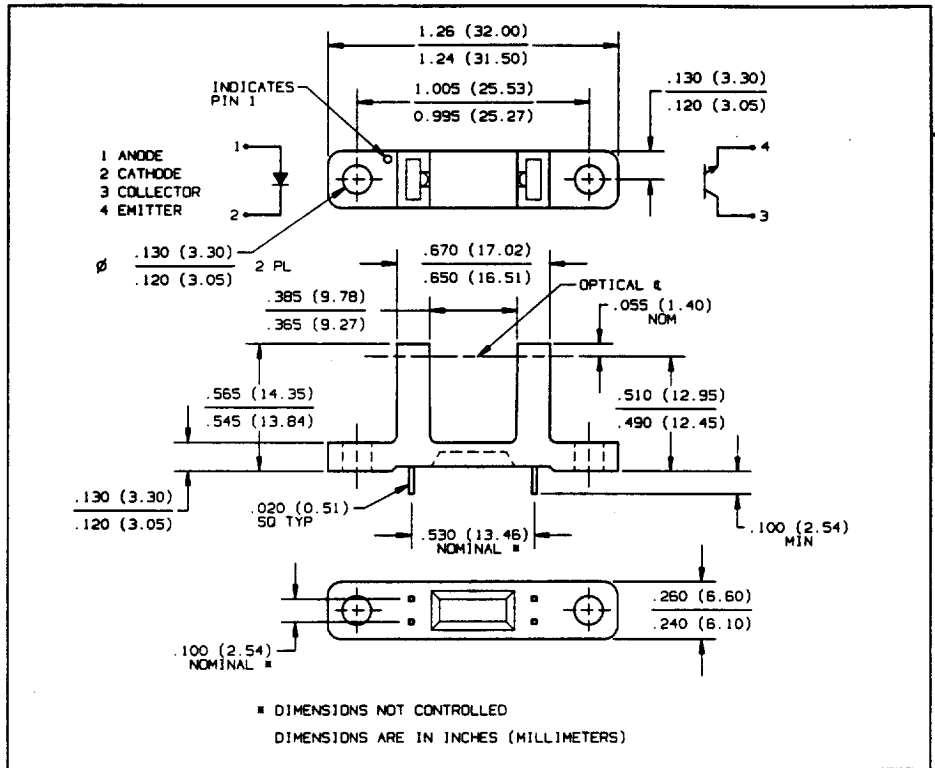
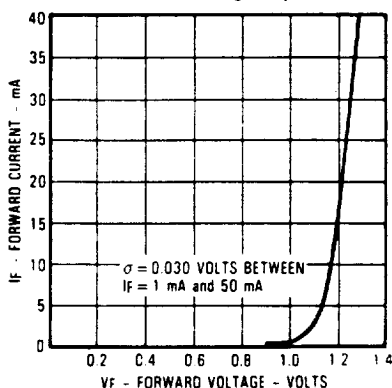
- Non-contact switching
- Printed circuit board mounting
- 0.375" wide slot
- 0.555" deep slot

### 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, 0.555" (14.10 mm) deep slot. Phototransistor switching takes place whenever an opaque object passes through the slot. Available with wire leads as OPB815W.

### Typical Performance Curves

Forward Current  
vs Forward Voltage Input Diode



### Absolute Maximum Ratings (T<sub>A</sub> = 25° C unless otherwise noted)

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

### Input Diode

Continuous Forward Current . . . . . 50 mA  
Peak Forward Current (1  $\mu$ s pulse width, 300 pps) . . . . . 3.0 A  
Reverse Voltage . . . . . 2.0 V  
Power Dissipation . . . . . 100 mW<sup>(2)</sup>

### Output Phototransistor

Collector-Emitter Voltage . . . . . 30 V  
Emitter-Collector Voltage . . . . . 5.0 V  
Power Dissipation . . . . . 100 mW<sup>(2)</sup>

### 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.

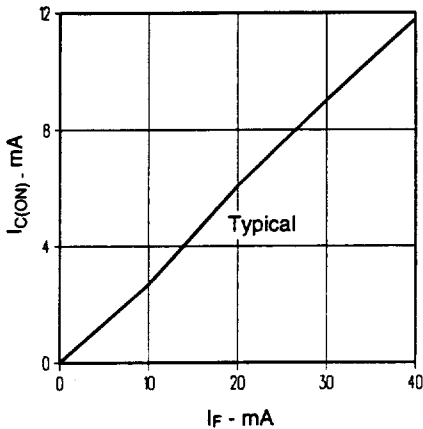
# Type OPB815L

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

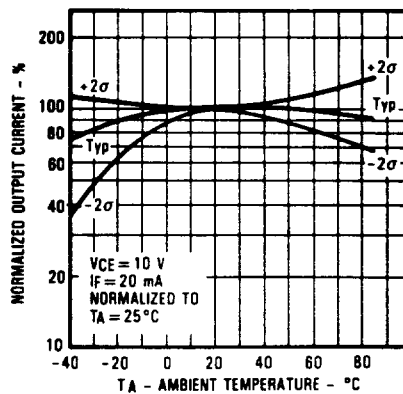
SYMBOL	PARAMETER	MIN	MAX	UNITS	TEST CONDITIONS
<b>Input Diode</b>					
$V_F$	Forward Voltage		1.70	V	$I_F = 20\text{ mA}$
$I_R$	Reverse Current		100	$\mu\text{A}$	$V_R = 2.0\text{ V}$
<b>Output Phototransistor</b>					
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	30		V	$I_C = 1.00\text{ mA}$
$V_{(BR)ECO}$	Emitter-Collector Breakdown Voltage	5.0		V	$I_E = 100\ \mu\text{A}$
$I_{CEO}$	Collector-Emitter Dark Current		100	nA	$V_{CE} = 10.0\text{ V}, I_F = 0, E_e = 0$
<b>Coupled</b>					
$V_{CE(SAT)}$	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	$V_{CE} = 10.0\text{ V}, I_F = 20\text{ mA}$

## Typical Performance Curves

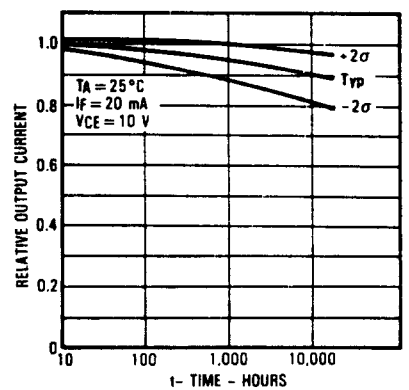
Collector Current vs LED Drive



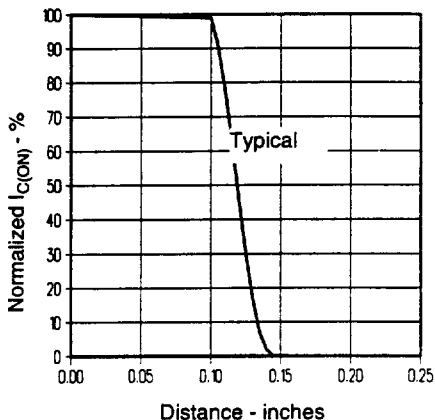
Normalized Output Current vs Ambient Temperature



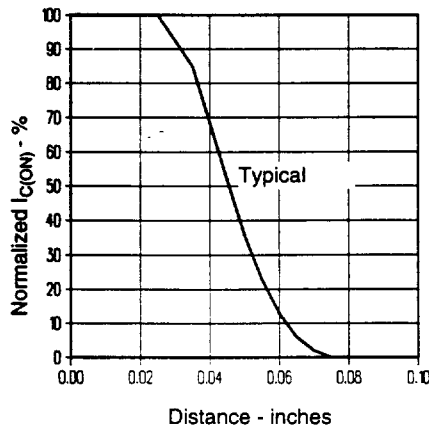
Relative Output Current vs Time



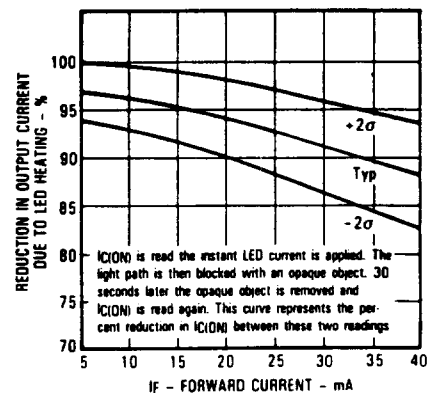
Normalized  $I_{C(ON)}$  vs Distance (X Axis Blocked)



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



Reduction in Output Current Due to LED Heating vs Forward Current



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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