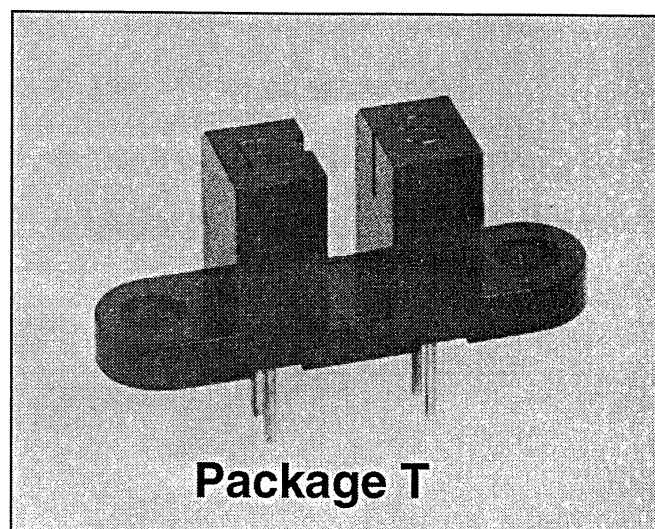
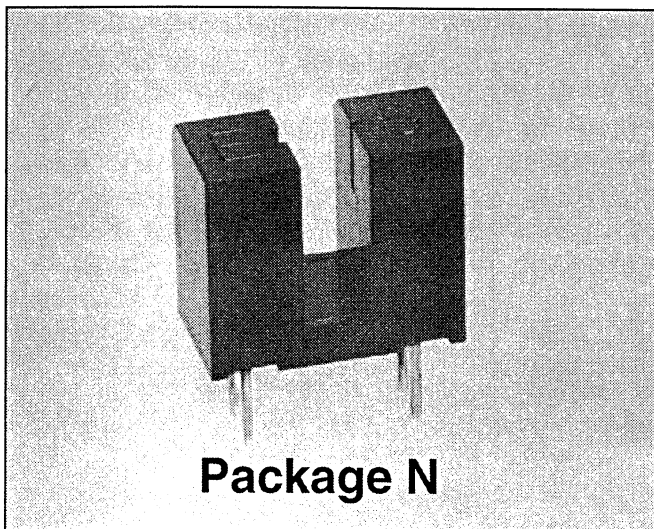


Slotted Optical Switch

Types OPB660N, OPB660T



Features

- Non-contact switching
- 0.125" (3.18 mm) Wide gap
- 0.320" (8.13 mm) Lead spacing
- N or T package
- Printed circuit board mounting
- Enhanced signal to noise ratio

Description

The OPB660 series consists of an NPN phototransistor and an infrared emitting diode mounted on opposite sides of a 0.125" (3.18 mm) wide slot. The emitter has a 0.050" x 0.060" molded aperture while the phototransistor has a 0.010" x 0.060" molded aperture. The phototransistor has an enhanced low current roll-off which improves contrast ratio and immunity to background irradiance.

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

Storage and Operating Temperature -40° C to +100° C
 Lead Soldering Temperature [1/16 inch (1.6 mm) from case for 5 sec with soldering iron] 260° C⁽¹⁾

Input Diode

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

Output Phototransistor

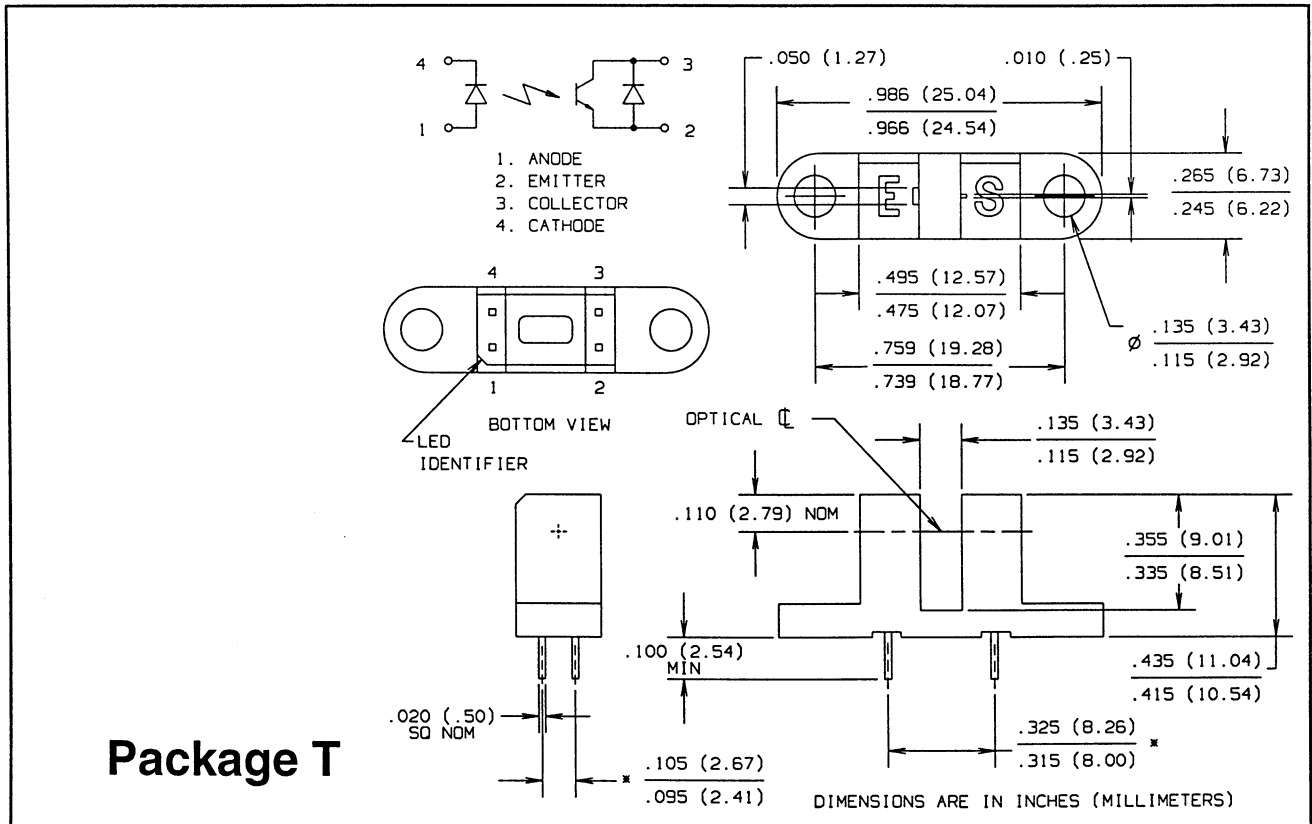
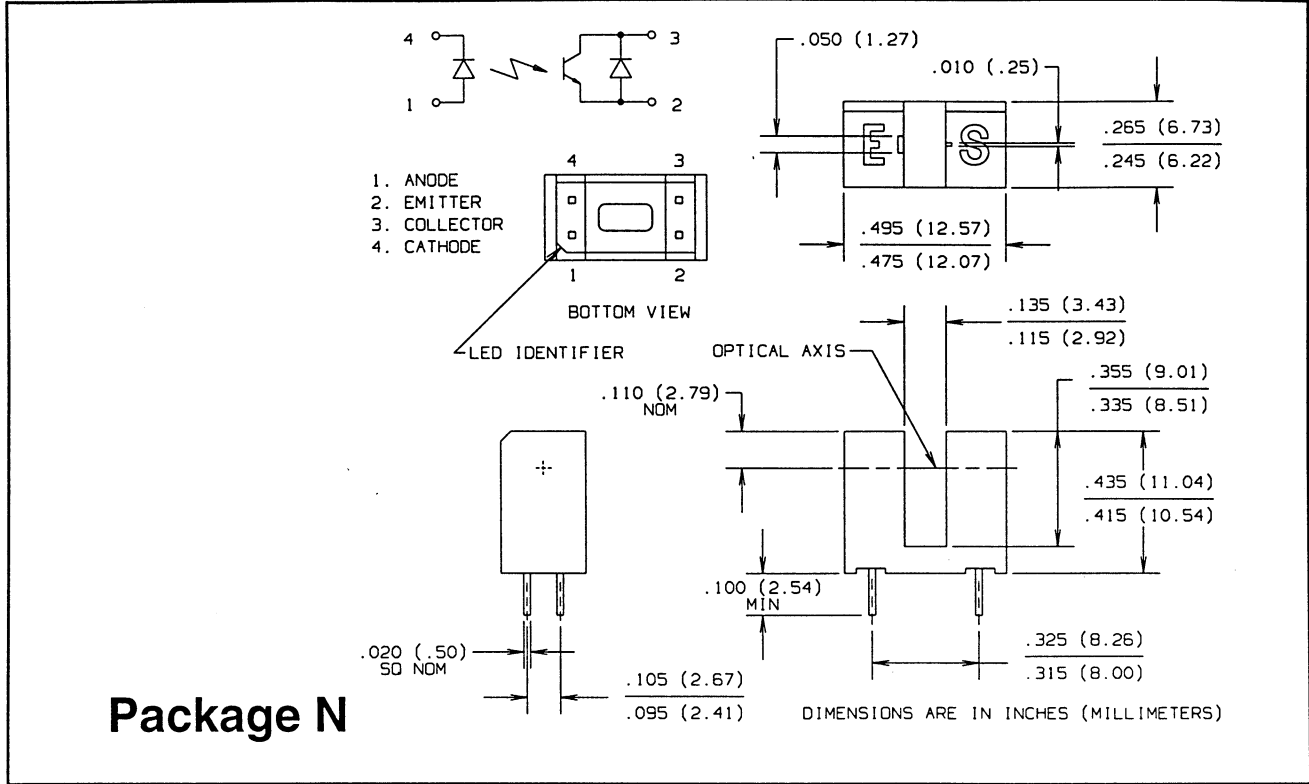
Collector-Emitter Voltage 30 V
 Emitter Reverse Current 10 mA
 Collector DC Current 30 mA
 Power Dissipation 200 mW⁽³⁾

Notes:

- (1) RMA flux is recommended. Duration can be extended to 10 sec. max. when flow soldering. Max. 20 grams force may be applied to leads when soldering.
- (2) Derate linearly 1.33 mW/° C above 25° C.
- (3) Derate linearly 2.0 mW/° C above 25° C.

Types OPB660N, OPB660T

SLOTTED OPTICAL SWITCHES



Types OPB660N, OPB660T

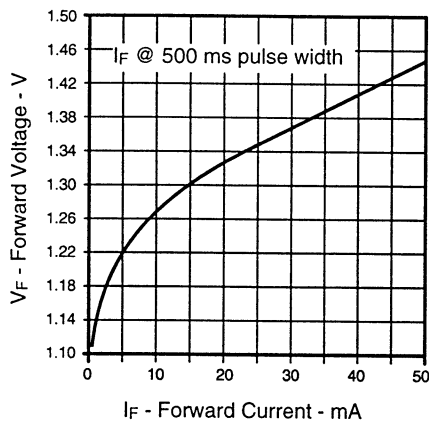


Electrical Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise noted)

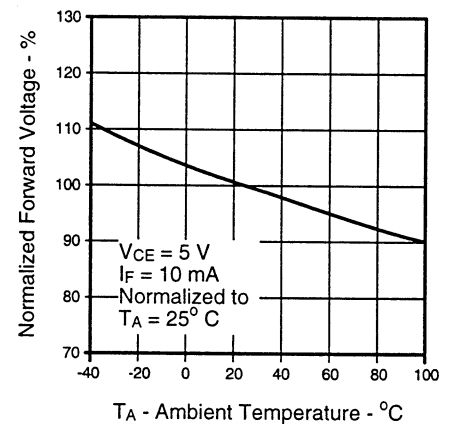
SYMBOL	PARAMETER	MIN	MAX	UNITS	TEST CONDITIONS
Input Diode					
V_F	Forward Voltage		1.60	V	$I_F = 10\text{ mA}$
I_R	Reverse Current		100	μA	$V_R = 3.0\text{ V}$
Output Phototransistor					
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	30		V	$I_C = 100\ \mu\text{A}$
I_{ECO}	Emitter Reverse Current		100	μA	$V_{EC} = 0.4\text{ V}$
I_{CEO}	Collector-Emitter Dark Current		100	nA	$V_{CE} = 5\text{ V}$
Coupled					
V_{SAT}	Saturation Voltage		0.40	V	$I_F = 10\text{ mA}$, $I_C = 100\ \mu\text{A}$, Gap unblocked
$I_{C(ON)}$	On-State Collector Current	600		μA	$I_F = 10\text{ mA}$, $V_{CE} = 5\text{ V}$

Typical Performance Curves

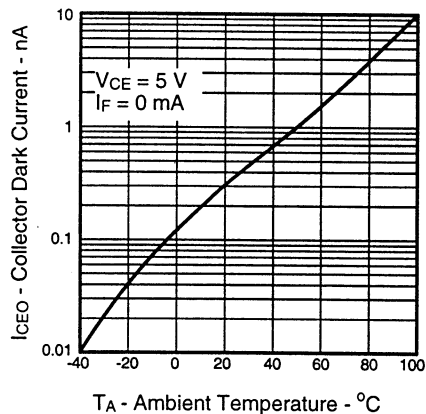
Forward Current vs Forward Voltage Input Diode



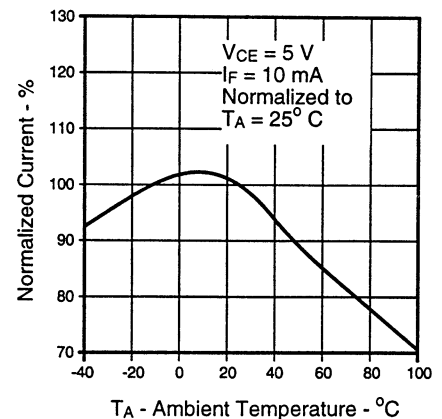
Normalized Forward Voltage vs Ambient Temperature



Collector Dark Current vs Ambient Temperature



Normalized Output Current vs Ambient Temperature

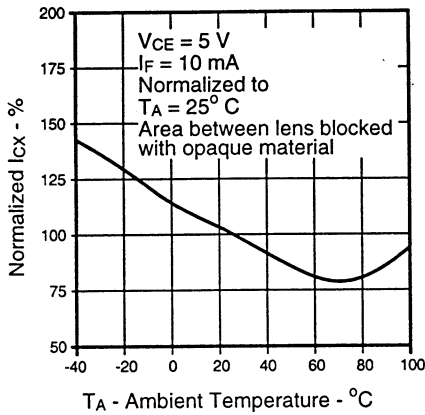


Types OPB660N, OPB660T

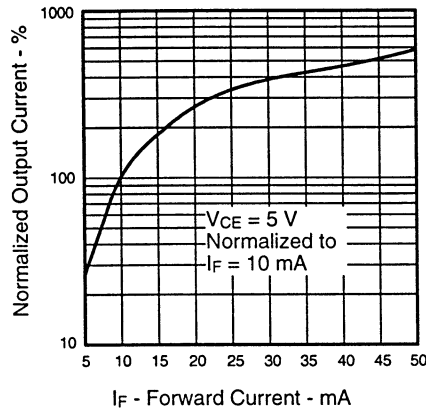
Typical Performance Curves

SLOTTED OPTICAL SWITCHES

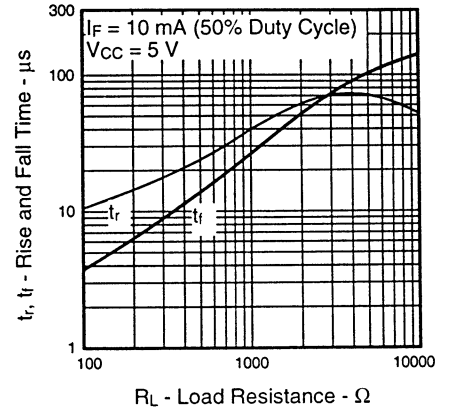
Normalized I_{CX} vs Ambient Temperature



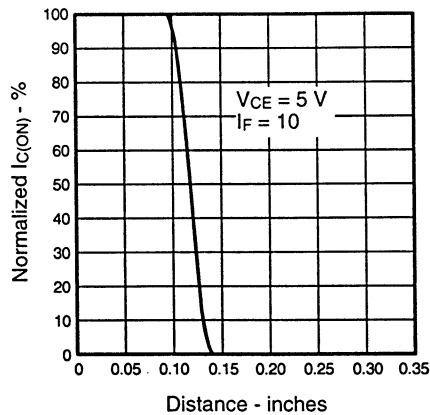
Normalized Output Current vs Forward Current



Rise and Fall Time vs Load Resistance



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



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

