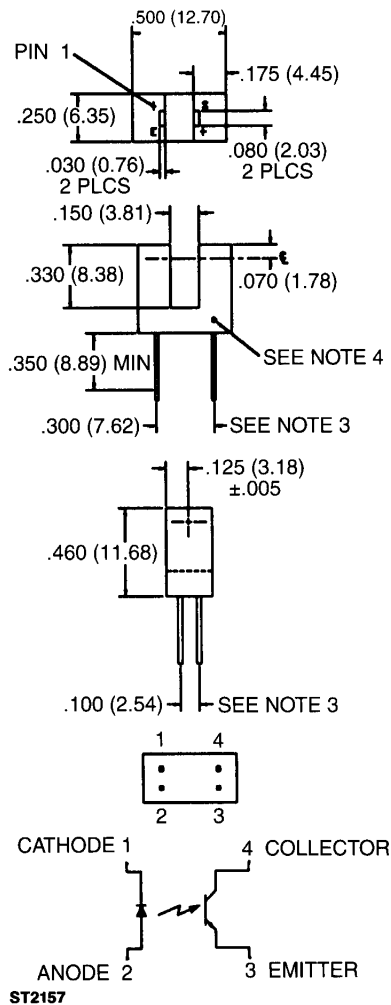


**PACKAGE DIMENSIONS**



**DESCRIPTION**

The OPB804 is an optical slotted switch that consists of an infrared emitting diode facing and NPN phototransistor across a .150" (3.81 mm) gap. Phototransistor switching takes place when an opaque object breaks the light path.

**FEATURES**

- .150" wide gap.
- .300" lead spacing.
- Printed circuit board mounting.
- Non contact switching.
- 2mm aperture width.

- NOTES:
1. DIMENSIONS ARE IN INCHES (mm.)
  2. TOLERANCE IS ± .010 (0.25) UNLESS OTHERWISE SPECIFIED.
  3. THIS DIMENSION IS CONTROLLED AT THE HOUSING SURFACE.
  4. WHITE DOT ADJACENT TO COLLECTOR LEAD.

<b>ABSOLUTE MAXIMUM RATINGS</b> ( $T_A = 25^\circ\text{C}$ Unless Otherwise Specified)	
Storage Temperature .....	$-40^\circ\text{C}$ to $+85^\circ\text{C}$
Operating Temperature .....	$-40^\circ\text{C}$ to $+85^\circ\text{C}$
Soldering:	
Lead Temperature (Iron) .....	$240^\circ\text{C}$ for 5 sec. <sup>(2,3,4)</sup>
Lead Temperature (Flow) .....	$260^\circ\text{C}$ for 10 sec. <sup>(2,3)</sup>
<b>INPUT DIODE</b>	
Continuous Forward Current .....	50 mA
Reverse Voltage .....	5.0 Volts
Power Dissipation .....	75 mW <sup>(1)</sup>
<b>OUTPUT TRANSISTOR</b>	
Collector-Emitter Voltage .....	30 Volts
Emitter-Collector Voltage .....	5.0 Volts
Power Dissipation .....	75 mW <sup>(1)</sup>

<b>ELECTRICAL CHARACTERISTICS</b> ( $T_A = 25^\circ\text{C}$ Unless Otherwise Specified) (All measurements made under pulse conditions.)						
PARAMETER	SYMBOL	MIN.	TYPE.	MAX.	UNITS	TEST CONDITIONS
<b>INPUT DIODE</b>						
Forward voltage	$V_F$	—		1.70	V	$I_F = 20\text{ mA}$
Reverse Leakage Current	$I_R$	—		100	$\mu\text{A}$	$V_R = 5.0\text{ V}$
<b>OUTPUT TRANSISTOR</b>						
Collector-Emitter Breakdown	$BV_{ECO}$	30		—	V	$I_C = 100\ \mu\text{A}$ , $E_e = 0$
Collector-Emitter Breakdown	$BV_{CEO}$	5		—	V	$I_E = 100\ \mu\text{A}$ , $E_e = 0$
Collector-Emitter Leakage	$I_{CEO}$	—		100	nA	$V_{CE} = 10.0\text{ V}$ , $E_e = 0$
<b>COUPLED</b>						
On-State Collector Current						
OPB706A	$I_{C(ON)}$	500		—	$\mu\text{A}$	$I_F = 20\text{ mA}$ , $V_{CC} = 5.0\text{ V}$ , $D = .050''$ <sup>(5,7)</sup>
OPB706B	$I_{C(ON)}$	350		—	$\mu\text{A}$	$I_F = 20\text{ mA}$ , $V_{CC} = 5.0\text{ V}$ , $D = .050''$ <sup>(5,7)</sup>
OPB706C	$I_{C(ON)}$	200		—	$\mu\text{A}$	$I_F = 20\text{ mA}$ , $V_{CC} = 5.0\text{ V}$ , $D = .050''$ <sup>(5,7)</sup>
Crosstalk	$I_{CX}$	—	200	—	nA	$I_F = 20\text{ mA}$ , $V_{CC} = 5.0\text{ V}$ , $E_e = 0$ <sup>(6)</sup>
Saturation Voltage	$V_{CE(SAT)}$	—		0.40	V	$I_F = 40\text{ mA}$ , $I_C = 100\ \mu\text{A}$ , $D = .050''$ <sup>(5,7)</sup>

<b>NOTES</b>
1. Derate power dissipation linearly 1.25 mW/ $^\circ\text{C}$ above $25^\circ\text{C}$ .
2. RMA flux is recommended.
3. Soldering iron tip $1/16''$ (1.6 mm) minimum from housing.
4. As long as leads are not under any stress or spring tension.
5. D is the distance from the sensor face to the reflective surface.
6. Crosstalk ( $I_{CX}$ ) is the collector current measured with the indicated current on the input diode and with no reflective surface.
7. Measured using Eastman Kodak neutral white test card with 90% diffused reflectance as a reflecting surface.



## SLOTTED OPTICAL SWITCH

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