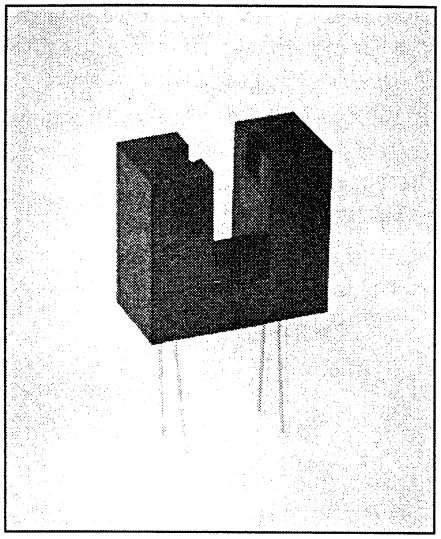
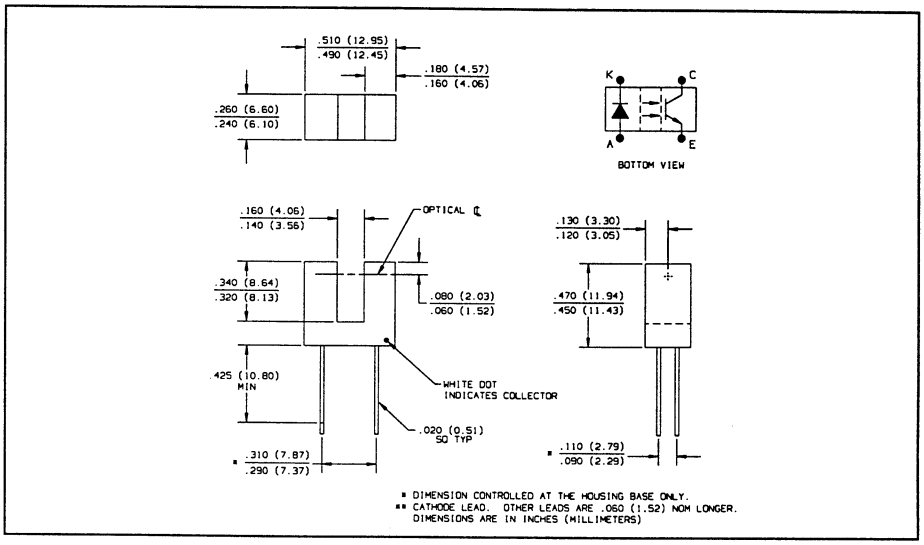
Slotted Optical Switch
Type OPB804





Features

- Non-contact switching
- Printed circuit board mounting
- 0.155" (3.94 mm) wide slot
- 0.300" (7.62 mm) lead spacing

Description

The OPB804 consists of an infrared emitting diode and an NPN silicon phototransistor mounted in a low cost plastic housing on opposite sides of a 0.155" (3.94mm) wide slot. Phototransistor switching takes place whenever an opaque object passes through the slot.

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)

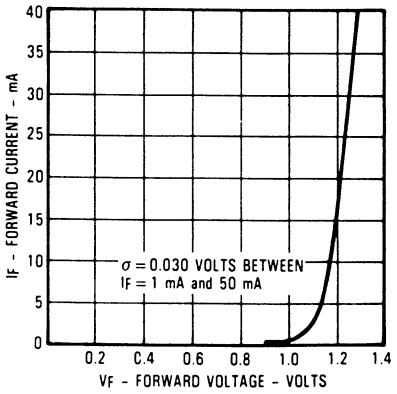
Output Phototransistor

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 alcohols are recommended as cleaning agents. Plastic housing is soluble in chlorinated hydrocarbons and ketones.
(4) All parameters tested using pulse technique.

Typical Performance Curves

Forward Current vs Forward Voltage Input Diode



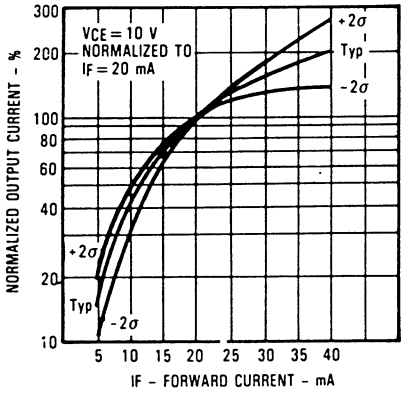
Type OPB804

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

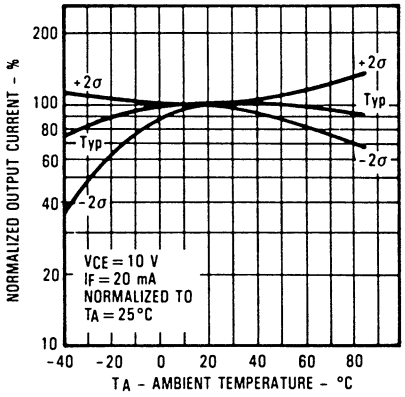
SYMBOL	PARAMETER	MIN	MAX	UNITS	TEST CONDITIONS
Input Diode					
V_F	Forward Voltage		1.70	V	I_F = 20 mA
I_R	Reverse Current		100	µA	V_R = 2.0 V
Output Phototransistor					
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	30		V	I_C = 1.00 mA
$V_{(BR)ECO}$	Emitter-Collector Breakdown Voltage	5.0		V	I_E = 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 = 250 µA, I_F = 20 mA
$I_{C(ON)}$	On-State Collector Current	500		µA	V_{CE} = 10.0 V, I_F = 20 mA

Typical Performance Curves

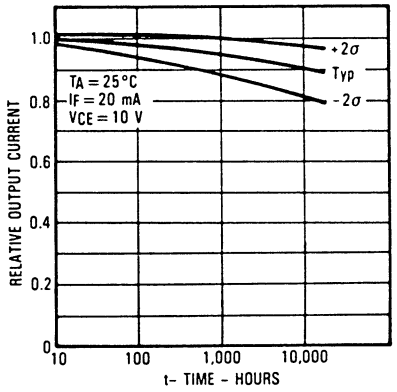
Normalized Output Current vs Forward Current



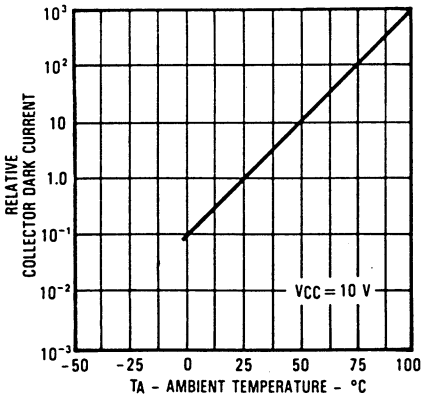
Normalized Output Current vs Ambient Temperature



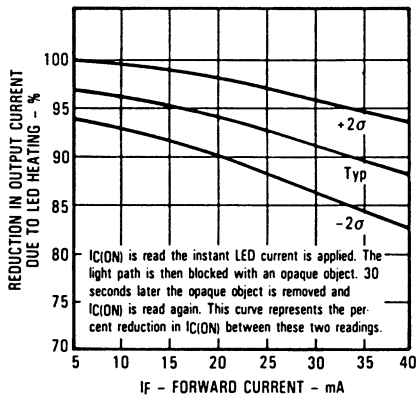
Relative Output Current vs Time



Relative Collector Dark Current vs Ambient Temperature



Reduction in Output Current Due to LED Heating vs Forward Current



Rise and Fall Time vs Load Resistance