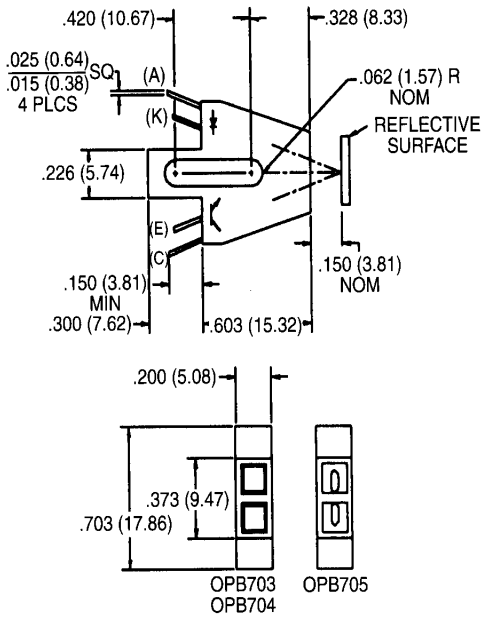
OPTOELECTRONICS

REFLECTIVE OBJECT SENSORS

OPB703/OPB704/OPB705

PACKAGE DIMENSIONS



(C) COLLECTOR
(E) EMITTER
(K) CATHODE
(A) ANODE

ST2154

NOTES:
1. CATHODE AND EMITTER LEADS ARE .050" NOM SHORTER THAN ANODE AND COLLECTOR LEADS.
2. DIMENSIONS ARE IN INCHES (mm).
3. TOLERANCE IS ±.010 (.25) UNLESS OTHERWISE SPECIFIED.

OPB703 - IR TRANSPARENT DUST COVER
OPB704 - IR TRANSPARENT DUST COVER
OPB705 - OFFSET LENS

DESCRIPTION

The OPB703, OPB704, and OPB705 consist of an infrared emitting diode and an NPN silicon phototransistor mounted side by side on a converging optical axis in a black plastic housing. The phototransistor responds to radiation from the emitting diode only when a reflective object passes within its field of view. The area of the optimum response approximates a circle .200" in diameter.

FEATURES

- Phototransistor output.
- High Sensitivity.
- Low cost plastic housing.
- OPB703/OPB704, dust cover; lens.
- OPB705, offset lens.

QT OPTOELECTRONICS

SLOTTED OPTICAL SWITCH

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C Unless Otherwise Specified)

Storage Temperature	−40°C to + 85°C
Operating Temperature	−40°C to + 85°C
Soldering:	
Lead Temperature (Iron)	240°C for 5 sec. [2,3,4]
Lead Temperature (Flow)	260°C for 10 sec. [2,3]
INPUT DIODE	
Continuous Forward Current	50 mA
Reverse Voltage	5.0 Volts
Power Dissipation	100 mW[1]
OUTPUT TRANSISTOR	
Collector-Emitter Voltage	30 Volts
Emitter-Collector Voltage	5.0 Volts
Collector Current	25 mA
Power Dissipation	100 mW[1]

ELECTRICAL CHARACTERISTICS (T_A = 25°C Unless Otherwise Specified)

PARAMETER	SYMBOL	MIN.	MAX.	UNITS	TEST CONDITIONS
INPUT DIODE					
Forward Voltage	V_F	—	1.70	V	I_F = 40 mA
Reverse Leakage Current	I_R	—	100	μA	V_R = 2.0 V
OUTPUT TRANSISTOR					
Emitter-Collector Breakdown	BV_{ECO}	5	—	V	I_E = 100 μA, Ee = 0
Collector-Emitter Breakdown	BV_{CEO}	30	—	V	I_C = 100 μA, Ee = 0
Collector-Emitter Leakage	I_{CEO}	—	100	nA	V_{CE} = 10.0 V, Ee = 0
COUPLED					
On-State Collector Current					
OPB703	$I_{C(ON)}$	200		μA	I_F = 40 mA, V_{CE} = 5 V, D = .150" [5,6]
OPB704	$I_{C(ON)}$	200		μA	I_F = 40 mA, V_{CE} = 5 V, D = .150" [5,6]
OPB705	$I_{C(ON)}$	100		μA	I_F = 40 mA, V_{CE} = 5 V, D = .150" [5,6]
Crosstalk	I_{CX}	—	20	μA	I_F = 40 mA, V_{CE} = 5V[7]

NOTES

1. *Derate power dissipation linearly 1.67 mW/°C above 25°C.*
2. *RMA flux is recommended.*
3. *Methanol or Isopropyl alcohols are recommended as cleaning agents.*
4. *Soldering iron tip 1/16" (1.6 mm) from housing.*
5. *D is the distance from the assembly face to the reflective surface.*
6. *Measured using Eastman Kodak neutral test card with 90% diffused reflecting surface.*
7. *Cross talk is the photocurrent measured with current to the input diode and no reflective surface.*