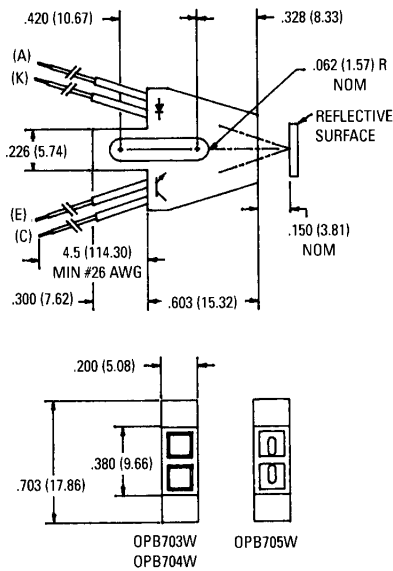




## REFLECTIVE OBJECT SENSORS

### OPB703W/OPB704W/OPB705W

#### PACKAGE DIMENSIONS



#### DESCRIPTION

The OPB703W, OPB704W, and OPB705W 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. Leads are 26 AWG, PVC insulation, 4.5" (114.3 mm) minimum length, stripped and tinned.

#### FEATURES

- Phototransistor output.
- High Sensitivity.
- Low cost plastic housing.
- Pre wired with 4.5 inch, 26 gauge leads.
- OPB703W/OPB704W, dust cover; lens.
- OPB705W, offset lens.

| FUNCTION      | WIRE COLOR |
|---------------|------------|
| (C) COLLECTOR | WHITE      |
| (E) EMITTER   | BLUE       |
| (K) CATHODE   | GREEN      |
| (A) ANODE     | ORANGE     |

#### NOTES

1. DIMENSIONS ARE IN INCHES (mm).
2. TOLERANCE IS  $\pm 0.10$  (.25)

OPB703W - IR TRANSPARENT DUST COVER  
 OPB704W - IR TRANSPARENT DUST COVER  
 OPB705W - OFFSET LENS

ST4018



## REFLECTIVE OBJECT SENSORS

| <b>ABSOLUTE MAXIMUM RATINGS</b> ( $T_A = 25^\circ\text{C}$ 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. <sup>(2,3,4)</sup> |
| Lead Temperature (Flow)  | 260°C for 10 sec. <sup>(2,3)</sup>  |
| <b>INPUT DIODE</b>   |                                     |
| Continuous Forward Current   | 50 mA                               |
| Reverse Voltage  | 5.0 Volts                           |
| Power Dissipation  | 100 mW <sup>(1)</sup>               |
| <b>OUTPUT TRANSISTOR</b>   |                                     |
| Collector-Emitter Voltage  | 30 Volts                            |
| Emitter-Collector Voltage  | 5.0 Volts                           |
| Collector Current  | 25 mA                               |
| Power Dissipation  | 100 mW <sup>(1)</sup>               |

| <b>ELECTRICAL CHARACTERISTICS</b> ( $T_A = 25^\circ\text{C}$ Unless Otherwise Specified) |             |      |      |               |  |
|--|-------------|------|------|---------------|--|
| PARAMETER  | SYMBOL      | MIN. | MAX. | UNITS         | TEST CONDITIONS  |
| <b>INPUT DIODE</b>   |             |      |      |               |  |
| Forward Voltage  | $V_F$       | —    | 1.70 | V             | $I_F = 40\text{ mA}$   |
| Reverse Leakage Current  | $I_R$       | —    | 100  | $\mu\text{A}$ | $V_R = 2.0\text{ V}$   |
| <b>OUTPUT TRANSISTOR</b>   |             |      |      |               |  |
| Emitter-Collector Breakdown  | $BV_{ECO}$  | 5    | —    | V             | $I_E = 100\ \mu\text{A}$ , $E_e = 0$   |
| Collector-Emitter Breakdown  | $BV_{CEO}$  | 30   | —    | V             | $I_C = 100\ \mu\text{A}$ , $E_e = 0$   |
| Collector-Emitter Leakage  | $I_{CEO}$   | —    | 100  | nA            | $V_{CE} = 10.0\text{ V}$ , $E_e = 0$   |
| <b>COUPLED</b>   |             |      |      |               |  |
| On-State Collector Current   |             |      |      |               |  |
| OPB703W  | $I_{C(ON)}$ | 200  | —    | $\mu\text{A}$ | $I_F = 40\text{ mA}$ , $V_{CE} = 5\text{ V}$ , $D = .150''$ <sup>(5,6)</sup> |
| OPB704W  | $I_{C(ON)}$ | 200  | —    | $\mu\text{A}$ | $I_F = 40\text{ mA}$ , $V_{CE} = 5\text{ V}$ , $D = .150''$ <sup>(5,6)</sup> |
| OPB705W  | $I_{C(ON)}$ | 100  | —    | $\mu\text{A}$ | $I_F = 40\text{ mA}$ , $V_{CE} = 5\text{ V}$ , $D = .150''$ <sup>(5,6)</sup> |
| Crosstalk  | $I_{CX}$    | —    | 20   | $\mu\text{A}$ | $I_F = 40\text{ mA}$ , $V_{CE} = 5\text{ V}$ <sup>(7)</sup>                  |

| <b>NOTES</b>  |
|---|
| 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. |