

# OPB 740

## Series Reflective Object Sensors

### Description

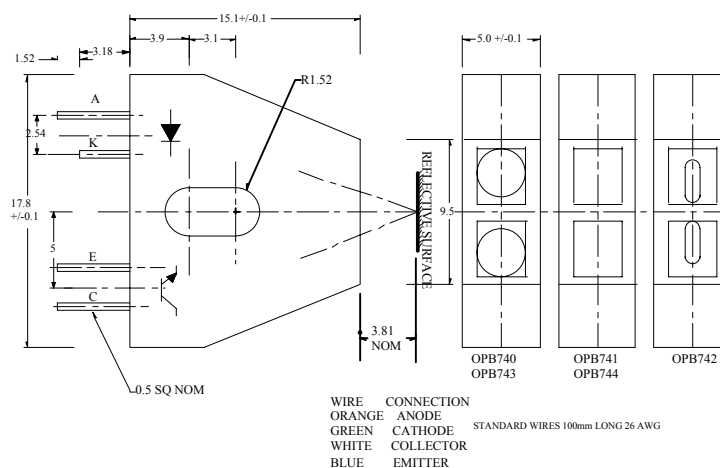
The OPB740 through OPB744 series of reflective object sensors each consist of an infrared emitting diode and an NPN silicon phototransistor mounted side by side on converging optical axes in a black plastic housing. Various options include choice of no windows, blue polysulfone windows for dust protection or opaque windows with offset openings for improved resolution. Available with wires as OPB740W / OPB744W series.

The OPB 745 reflective object sensor consists of an infrared emitting diode and an NPN silicon photodarlington .



|         |                  |
|---------|------------------|
| OPB 740 | = NO WINDOWS     |
| OPB 741 | = BLUE WINDOWS   |
| OPB 742 | = OFFSET WINDOWS |
| OPB 743 | = NO WINDOWS     |
| OPB 744 | = BLUE WINDOWS   |
| OPB 745 | = OFFSET WINDOWS |

### MECHANICAL DATA



### NOTES

- 1 RMA Flux is recommended. Duration can be extended to 10sec. max. when flow soldering.
- 2 Derate Linearly 1.82mW/°C above 26°C
- 3 d is distance from the assembly face to the reflective surface.
- 4 Reflective surface is Eastam Kodak neutral white test card with 90% diffuse reflectance as a reflective surface.
- 5 Crosstalk is the photocurrent measured with current to the input diode & no reflecting surface
- 6 All parameters tested using pulse technique.

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Iss B 10.4.03

|                                                                                                       |                            |
|-------------------------------------------------------------------------------------------------------|----------------------------|
| INPUT DIODE<br>FORWARD DC CURRENT<br>REVERSE DC VOLTAGE<br>POWER DISSIPATION                          | 40mA<br>2.0V<br>100mW (2)  |
| OUTPUT SENSOR<br>COLLECTOR-EMITTER VOLTAGE<br>EMITTER-COLLECTOR VOLTAGE<br>POWER DISSIPATION          | 30V<br>5.0V<br>100mW (2)   |
| OUTPUT PHOTODARLINGTON<br>COLLECTOR-EMITTER VOLTAGE<br>EMITTER-COLLECTOR VOLTAGE<br>POWER DISSIPATION | 15.0V<br>5.0V<br>100mW (2) |
| OPERATING TEMP                                                                                        | -40 C TO +80°C             |
| STORAGE TEMP                                                                                          | -40 C TO +80°C             |
| LEAD SOLDERING TEMP                                                                                   | 240°C (1)                  |

OPTO ELECTRONIC DATA(Ta=25°C)

| PARAMETERS                                                                   | SYMBOL        | MIN             | MAX             | UNITS          | TEST CONDITIONS               |
|------------------------------------------------------------------------------|---------------|-----------------|-----------------|----------------|-------------------------------|
| INPUT DIODE                                                                  |               |                 |                 |                |                               |
| Forward Voltage                                                              | VF            |                 | 1.70            | V              | If = 40mA                     |
| Reverse Current                                                              | IR            |                 | 100             | µA             | Vr = 2.0V                     |
| OUTPUT PHOTOTRANSISTOR                                                       |               |                 |                 |                |                               |
| Collector-Emitter Breakdown                                                  | V(BR)CEO      | 30.0            |                 | V              | Ic = 100µA                    |
| Emitter-Collector Breakdown                                                  | V(BR)ECO      | 5.0             |                 | V              | Ie = 100µA                    |
| Collector-Emitter Dark Current                                               | ICEO          |                 | 100             | nA             | Vce= 10.0V, If = 0, Ee = 0    |
| COUPLED CHARACTERISTICS                                                      |               |                 |                 |                |                               |
| On state Collector Current<br>OPB740/OPB741/W<br>OPB742/W<br>OPB743/OPB744/W | IC(ON) (3)(4) | 50<br>10<br>200 |                 | µA<br>µA<br>µA | Vce=5.0V, If=40mA,<br>d=3.8mm |
| Crosstalk<br>OPB740/OPB741/W<br>OPB742/W<br>OPB743/OPB744/W                  | ICX (5)       |                 | 10<br>100<br>20 | µA<br>nA<br>µA | Vce=5V, If=40mA,              |
| Output Photodarlington OPB745. OPB745W                                       |               |                 |                 |                |                               |
| Collector-Emitter Breakdown Voltage                                          | V(BR)CEO      | 15.0            |                 | V              | Ic = 100µA                    |
| Emitter-Collector Breakdown Voltage                                          | V(BR)ECO      | 5.0             |                 | V              | Ie = 100µA                    |
| Collector Dark Current                                                       | ICEO          |                 | 250             | nA             | Vce =10V, If = 0, Ee = 0      |
| COUPLED                                                                      |               |                 |                 |                |                               |
| On-state Collector Current                                                   | IC(ON) (3)(4) | 1.00            |                 | mA             | Vce=5.0V, If=40mA,<br>d=3.8mm |
| Crosstalk                                                                    | ICX (5)       |                 | 250             | nA             | Vcc=5V, If=40mA               |