



## OPTO TECHNOLOGY

P-41-73

### PHOTO IC SWITCH

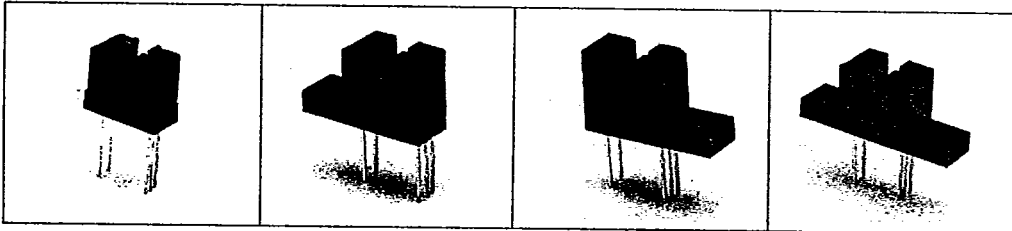
#### TYPE OTS 850 SERIES

##### Features

- .125 wide gap
- Choice of mounting configurations
- Visible or infrared emitter
- Photo IC output

##### Description

Opto Technology's OTS 850 series is intended to provide custom design capability in a standard part. This series includes photo IC with Schmitt trigger open collector output and the following options; visible or infrared emitter, transmissive polysulfone or slotted polycarbonate window, different aperture sizes for led and sensor, and different mounting configurations. All housings have a .125 wide slot between the emitter and detector. Special screening for these devices is also available. Consult the factory.



##### Absolute Maximum Ratings<sup>(4)</sup>

| INFRARED EMITTER 940nm           |       |     |    |
|----------------------------------|-------|-----|----|
| Power Dissipation <sup>(1)</sup> | $P_E$ | 100 | mW |
| Forward Current (Continuous)     | $I_F$ | 50  | mA |
| Reverse Voltage                  | $V_R$ | 6   | V  |

| VISIBLE EMITTER 660nm            |       |     |    |
|----------------------------------|-------|-----|----|
| Power Dissipation <sup>(2)</sup> | $P_E$ | 100 | mW |
| Forward Current (Continuous)     | $I_F$ | 40  | mA |
| Reverse Voltage                  | $V_R$ | 5   | V  |

##### Photo IC Sensor

|                          |                       |
|--------------------------|-----------------------|
| Supply Voltage           | 16 V                  |
| Low Level Output Current | 30 mA                 |
| Output Voltage           | 16 V                  |
| Power Dissipation        | 200 mW <sup>(3)</sup> |

##### Total Device

|                                          |                      |
|------------------------------------------|----------------------|
| Storage Temperature Range                | -40°C to +100°C      |
| Operating Temperature Range              | -25°C to +85°C       |
| Lead Soldering Temperature (5 sec. max.) | 260°C <sup>(5)</sup> |

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## Electrical Characteristics: (25°C)

| INFRARED EMITTING DIODE                           | SYMBOL | MIN. | TYP. | MAX. | UNITS |
|---------------------------------------------------|--------|------|------|------|-------|
| Forward Voltage $I_F = 20 \text{ mA}$             | $V_F$  |      |      | 1.7  | V     |
| Reverse Current $V_R = 5 \text{ V}$               | $I_R$  |      |      | 100  | nA    |
| Wavelength at Peak Emission $I_F = 20 \text{ mA}$ |        |      | 940  |      | nM    |

| VISIBLE EMITTING DIODE                            | SYMBOL | MIN. | TYP. | MAX. | UNITS         |
|---------------------------------------------------|--------|------|------|------|---------------|
| Forward Voltage $I_F = 20 \text{ mA}$             | $V_F$  |      | 1.8  | 2.2  | V             |
| Reverse Current $V_R = 5 \text{ V}$               | $I_R$  |      |      | 1.0  | $\mu\text{A}$ |
| Wavelength at Peak Emission $I_F = 20 \text{ mA}$ |        |      | 660  |      | nM            |

| PHOTO I.C.                                                                                         | SYMBOL   | MIN. | TYP. | MAX. | UNITS |
|----------------------------------------------------------------------------------------------------|----------|------|------|------|-------|
| Supply Voltage                                                                                     | $V_{CC}$ | 4.5  | 5.0  | 16   | V     |
| Supply Current                                                                                     | $I_{CC}$ |      | 2    | 7    | mA    |
| Low Level Output Voltage<br>$I_{OL} = 16 \text{ mA}, V_{CC} = 5 \text{ V}, I_F = 0$                | $V_{OL}$ |      |      | .4   | V     |
| High Level Output Voltage<br>$V_{CC} = 5 \text{ V}, R_L = 10 \text{ k}\Omega, I_F = 10 \text{ mA}$ | $V_{OH}$ | 4    |      |      | V     |

PHOTO IC  
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## Coupled Electrical Characteristics: (25°C)

| PARAMETER                                                                 | SYMBOL            | MIN. | TYP. | MAX. | UNITS         |
|---------------------------------------------------------------------------|-------------------|------|------|------|---------------|
| LED L-H Threshold Current $V_{CC} = 5 \text{ V}$                          | $I_{FLH}$         |      | 3    | 10   | mA            |
| Hysteresis                                                                | $I_{FHL}/I_{FLH}$ |      | .75  |      |               |
| Propagation Delay Low to High                                             | $t_{PLH}$         |      | 2    |      | $\mu\text{s}$ |
| $V_{CC} = 5 \text{ V}, I_F = 10 \text{ mA}, R_1 = 280 \Omega$ High to Low | $t_{PHL}$         |      | 1    |      | $\mu\text{s}$ |

### Notes:

- (1) Derate 1.33 mW/°C above 25°C ambient.
- (2) Derate 1.50 mW/°C above 25°C ambient.
- (3) Derate 2.7 mW/°C above 25°C ambient.
- (4)  $T_a = 25^\circ\text{C}$  unless otherwise noted.
- (5) RMA flux is recommended. Duration can be extended to 10 sec. max. when wave soldering.
- (6) Methanol or isopropyl alcohols are recommended as cleaning agents.

Opto Technology reserves the right to make changes at any time to improve product design and reliability.



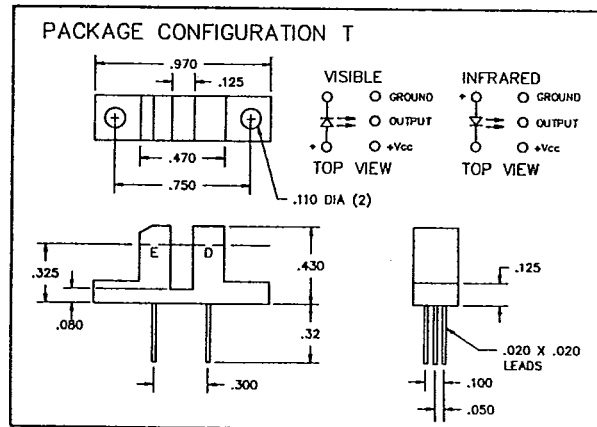
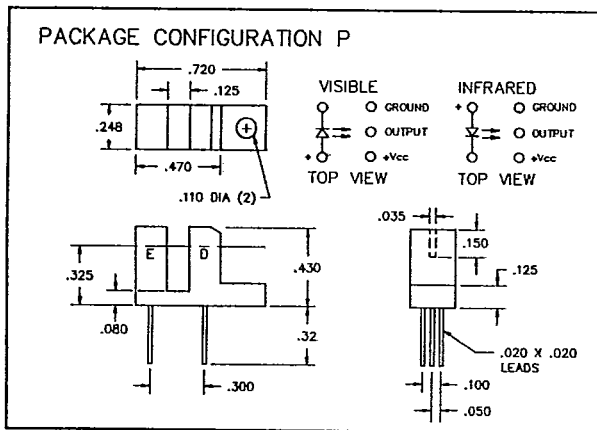
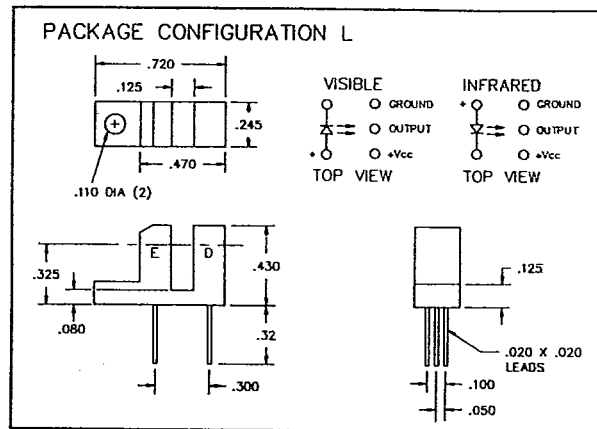
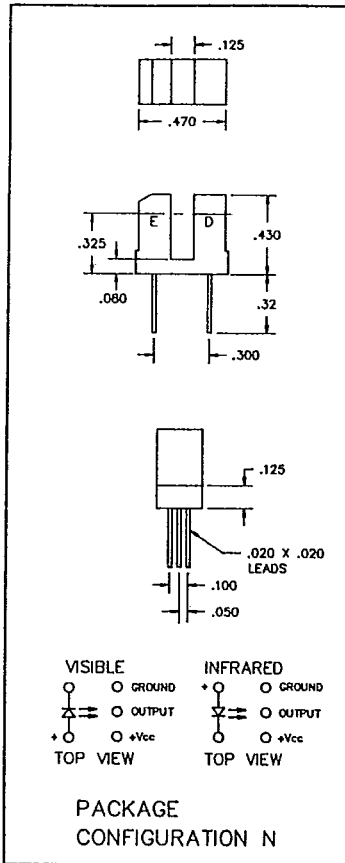
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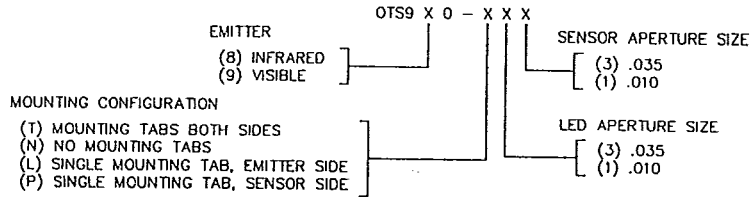
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TYPE OTS 850 SERIES

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ORDERING INFORMATION



ORDERING EXAMPLE

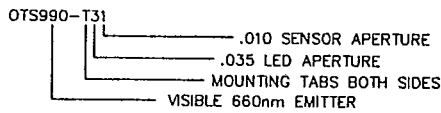
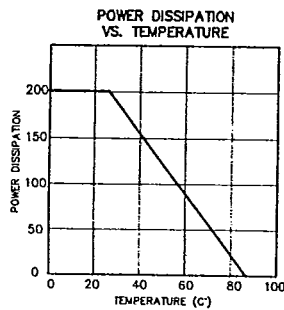
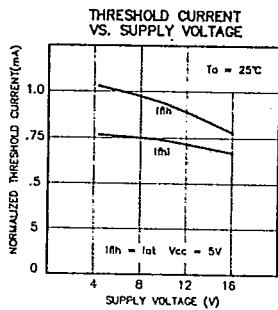
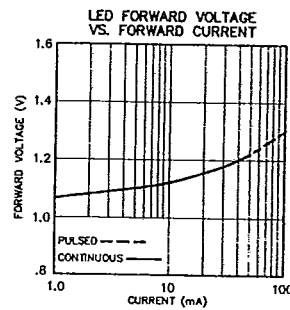
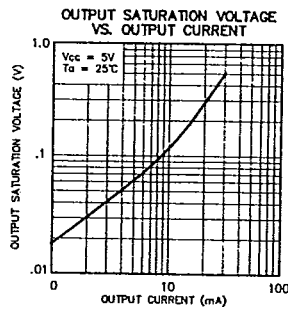
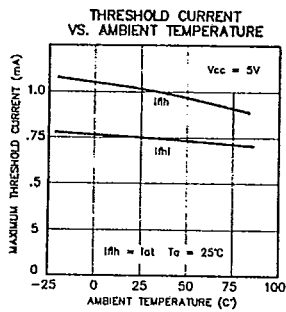


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TYPICAL PERFORMANCE CURVES



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