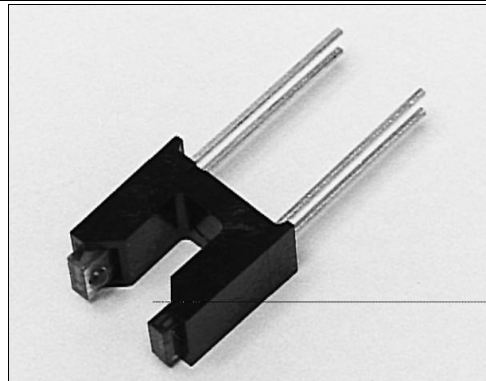


# HOA0825

## Transmissive Sensor

### FEATURES

- Phototransistor output
- Four mounting configurations
- 0.165 in.(4.2 mm) slot width



INFRA-52.TIF

### DESCRIPTION

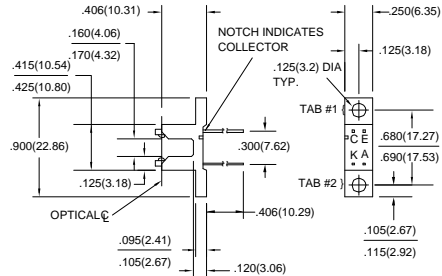
The HOA0825 series consists of an infrared emitting diode facing an NPN silicon phototransistor encased in a black thermoplastic housing. A slot in the housing between emitter and detector provides the means for mechanically interrupting the emitter beam. The phototransistor switching takes place whenever an opaque object passes through the slot between emitter and detector. The HOA0825 series employs plastic molded components. For additional component information see SEP8506 and SDP8406.

Housing material is polycarbonate. Housings are soluble in chlorinated hydrocarbons and ketones. Recommended cleaning agents are methanol and isopropanol.

### OUTLINE DIMENSIONS in inches (mm)

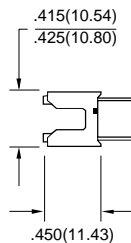
Tolerance 3 plc decimals ±0.010(0.25)  
2 plc decimals ±0.020(0.51)

#### HOA0825-003

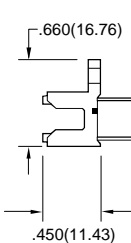


DIM\_040.ds4

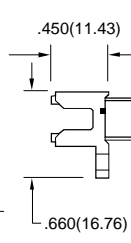
#### HOA0825-001



#### HOA0825-002



#### HOA0825-004



DIM\_40b.ds4

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# HOA0825

## Transmissive Sensor

### ELECTRICAL CHARACTERISTICS (25°C unless otherwise noted)

| PARAMETER   | SYMBOL        | MIN | TYP | MAX | UNITS         | TEST CONDITIONS  |
|---|---------------|-----|-----|-----|---------------|--|
| <b>IR EMITTER</b>   |               |     |     |     |               |  |
| Forward Voltage   | $V_F$         |     | 1.6 |     | V             | $I_F=20\text{ mA}$   |
| Reverse Leakage Current                                     | $I_R$         |     | 10  |     | $\mu\text{A}$ | $V_R=3\text{ V}$   |
| <b>DETECTOR</b>   |               |     |     |     |               |  |
| Collector-Emitter Breakdown Voltage                         | $V_{(BR)CEO}$ | 30  |     |     | V             | $I_C=100\ \mu\text{A}$                                     |
| Emitter-Collector Breakdown Voltage                         | $V_{(BR)ECO}$ | 5.0 |     |     | V             | $I_E=100\ \mu\text{A}$                                     |
| Collector Dark Current                                      | $I_{CEO}$     |     | 100 |     | nA            | $V_{CE}=10\text{ V}, I_F=0$                                |
| <b>COUPLED CHARACTERISTICS</b>                              |               |     |     |     |               |  |
| On-State Collector Current<br>HOA0825-001, -002, -003, -004 | $I_{C(ON)}$   | 0.5 |     |     | mA            | $V_{CE}=0.5\text{ V}$<br>$I_F=20\text{ mA}$                |
| Collector-Emitter Saturation Voltage                        | $V_{CE(SAT)}$ |     | 0.4 |     | V             | $I_F=20\text{ mA}$<br>$I_C=250\ \mu\text{A}$               |
| Rise And Fall Time  | $t_r, t_f$    |     | 15  |     | $\mu\text{s}$ | $V_{CC}=5\text{ V}, I_C=1\text{ mA}$<br>$R_L=1000\ \Omega$ |

### ABSOLUTE MAXIMUM RATINGS

(25°C Free-Air Temperature unless otherwise noted)

|                               |               |
|-------------------------------|---------------|
| Operating Temperature Range   | -40°C to 85°C |
| Storage Temperature Range     | -40°C to 85°C |
| Soldering Temperature (5 sec) | 240°C         |

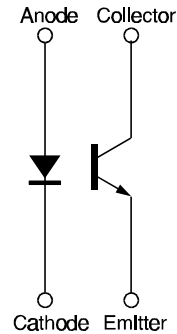
#### IR EMITTER

|                            |                       |
|----------------------------|-----------------------|
| Power Dissipation          | 100 mW <sup>(1)</sup> |
| Reverse Voltage            | 3 V                   |
| Continuous Forward Current | 50 mA                 |

#### DETECTOR

|                           |                       |
|---------------------------|-----------------------|
| Collector-Emitter Voltage | 30 V                  |
| Emitter-Collector Voltage | 5 V                   |
| Power Dissipation         | 100 mW <sup>(1)</sup> |
| Collector DC Current      | 30 mA                 |

### SCHEMATIC



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# HOA0825

## Transmissive Sensor

Fig. 1 IRED Forward Bias Characteristics

gra\_092.ds4

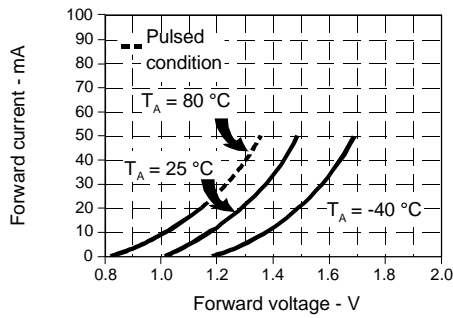


Fig. 2 Non-Saturated Switching Time vs Load Resistance

gra\_093.ds4

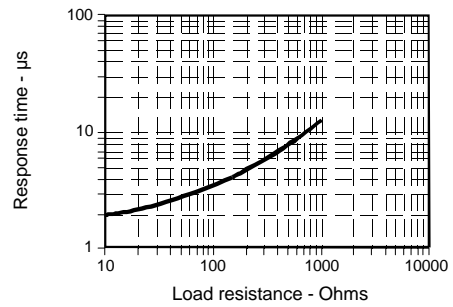


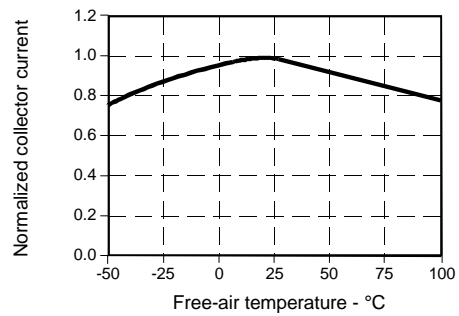
Fig. 3 Dark Current vs Temperature

gra\_301.cdr



Fig. 4 Collector Current vs Ambient Temperature

gra\_095.ds4



All Performance Curves Show Typical Values

**HOA0825**  
Transmissive Sensor

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273