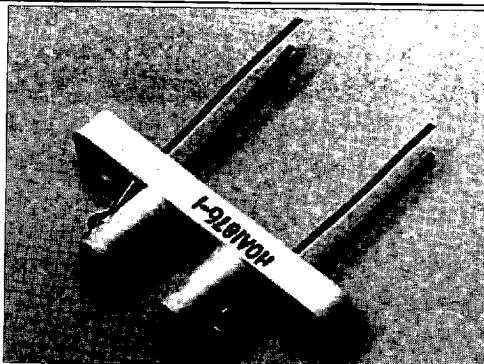


HOA1876

Transmissive Sensor

FEATURES

- Choice of phototransistor or photodarlington output
- Wide lead spacing
- Wide operating temperature range (-55°C to +100°C)
- 0.200 in.(5.08 mm) slot width



INFRA-30.TIF

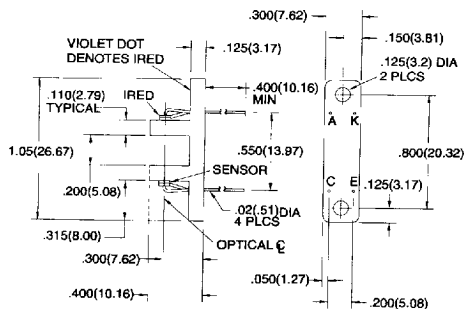
DESCRIPTION

The HOA1876 series consists of an infrared emitting diode facing an NPN silicon phototransistor (HOA1876-001, -002) or photodarlington (HOA1876-003) encased in a white thermoplastic housing. Detector switching takes place whenever an opaque object passes through the slot between emitter and detector. The HOA1876 series has a 0.050 in.(1.27 mm) dia. detector aperture and employs metal can packaged components. For additional component information see SE1450, SD1440, and SD1410.

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 $\pm 0.010(0.25)$
 2 plc decimals $\pm 0.020(0.51)$



DIM_048.cdr

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HOA1876

Transmissive Sensor

ELECTRICAL CHARACTERISTIC (25°C unless otherwise noted)

| PARAMETER | SYMBOL | MIN | TYP | MAX | UNITS | TEST CONDITIONS |
|---|---------------|--------------------|----------|-------------------|---------------|--|
| IR EMITTER | | | | | | |
| Forward Voltage | V_F | | | 1.6 | V | $I_F=20\text{ mA}$ |
| Reverse Leakage Current | I_R | | | 10 | μA | $V_R=3\text{ V}$ |
| DETECTOR | | | | | | |
| Collector-Emitter Breakdown Voltage HOA1876-001, -002 HOA1876-003 | $V_{(BR)CEO}$ | 30 15 | | | V | $I_C=100\text{ }\mu\text{A}$ |
| Emitter-Collector Breakdown Voltage | $V_{(BR)ECO}$ | 5.0 | | | V | $I_E=100\text{ }\mu\text{A}$ |
| Collector Dark Current HOA1876-001, -002 HOA1876-003 | I_{CEO} | | | 100 250 | nA | $V_{CE}=10\text{ V}$ $I_F=0$ |
| COUPLED CHARACTERISTICS | | | | | | |
| On-State Collector Current HOA1876-001 HOA1876-002 HOA1876-003 | $I_{C(ON)}$ | 0.15 0.6 1.8 | | | mA | $V_{CE}=5\text{ V}$ $I_F=30\text{ mA}$ |
| Collector-Emitter Saturation Voltage HOA1876-001 HOA1876-002 HOA1876-003 | $V_{CE(SAT)}$ | | | 0.4 0.4 1.1 | V | $I_F=30\text{ mA}$ $I_C=20\text{ }\mu\text{A}$ $I_C=80\text{ }\mu\text{A}$ $I_C=230\text{ }\mu\text{A}$ |
| Rise And Fall Time HOA1876-001, -002 HOA1876-003 | t_r, t_f | | 15 75 | | μs | $V_{CC}=5\text{ V}, I_C=1\text{ mA}$ $R_L=1000\text{ }\Omega$ $R_L=100\text{ }\Omega$ |

ABSOLUTE MAXIMUM RATINGS

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

Operating Temperature Range -55°C to 100°C

Storage Temperature Range -55°C to 125°C

Soldering Temperature (10 sec) 260°C

IR EMITTER

Power Dissipation 75 mW ⁽¹⁾

Reverse Voltage 3 V

Continuous Forward Current 50 mA

DETECTOR

Collector-Emitter Voltage 30 V TRANS. DARLINGTON 15 V

Emitter-Collector Voltage 5 V 5 V

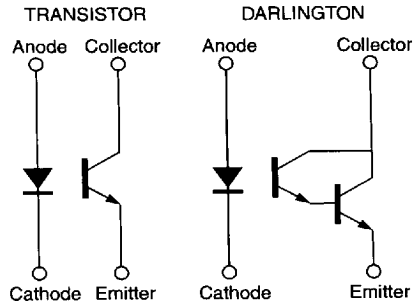
Power Dissipation 75 mW ⁽¹⁾ 75 mW ⁽¹⁾

Collector DC Current 30 mA 30 mA

Notes

1. Derate linearly at 0.71 mW/°C above 25°C.

SCHEMATIC



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HOA1876

Transmissive Sensor

Fig. 1 IRED Forward Bias Characteristics

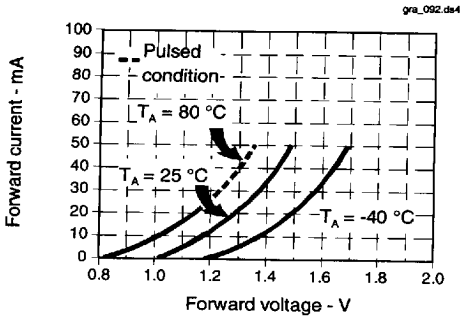


Fig. 2 Non-Saturated Switching Time vs Load Resistance

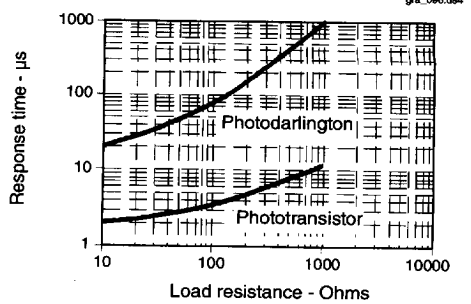


Fig. 3 Dark Current vs Temperature

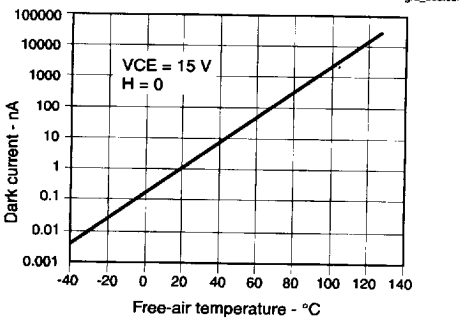
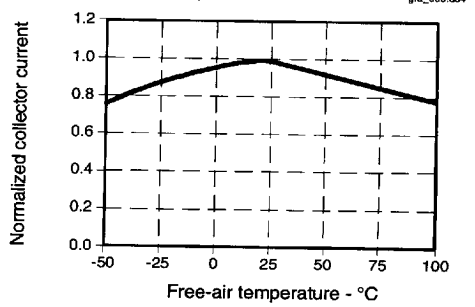


Fig. 4 Collector Current vs Ambient Temperature



All Performance Curves Show Typical Values

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