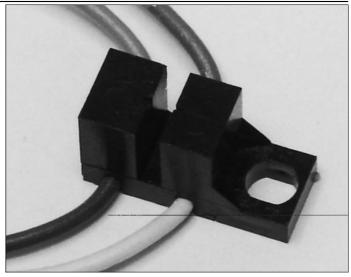
Transmissive Sensor

FEATURES

- Choice of phototransistor or photodarlington output
- Accurate position sensing
- 0.070 in.(1.78 mm) slot width
- 18.0 in.(457 mm) min. 22 AWG UL 1007 wire leads



INEDA...7 TIE

DESCRIPTION

The HOA1870 series consists of an infrared emitting diode facing an NPN silicon phototransistor (HOA1870-031) or photodarlington (HOA1870-033) encased in a black thermoplastic housing. Detector switching takes place whenever an opaque object passes through the slot between emitter and detector. A minimum of 18.0 in.(457 mm) lead wires provides alternate electrical connection when PC board mounting is not possible. This device is ideal for use in applications in which maximum position resolution is desired. Both emitter and detector have a 0.006 in.(0.152 mm) x 0.040 in.(1.02 mm) vertical aperture. The HOA1870 series employs plastic molded components. For additional component information see SEP8506, SDP8406 and SDP8106.

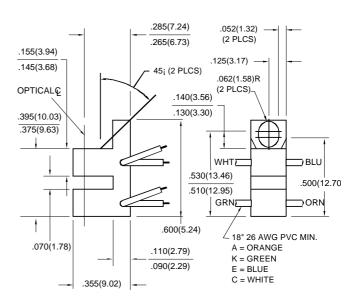
Housing material is polycarbonate. Housings are soluble in chlorinated hydrocarbons and ketones. Recommended cleaning agents are methanol and isopropanol.

Wire color code and functions are:

Orange - IRED Anode White - Detector Collector Green - IRED Cathode Blue - Detector Emitter

OUTLINE DIMENSIONS in inches (mm)

Tolerance 3 plc decimals $\pm 0.010(0.25)$ 2 plc decimals $\pm 0.020(0.51)$



DIM 043.ds4

Transmissive Sensor

ELECTRICAL CHARACTERISTICS (25°C unless otherwise noted)

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS
IR EMITTER Forward Voltage	VF			1.6	V	I _F =20 mA
Reverse Leakage Current	I _R			10	μA	V _R =3 V
DETECTOR Collector-Emitter Breakdown Voltage HOA1870-031 HOA1870-033	V _(BR) ceo	30 15			V	Ic=100 μA
Emitter-Collector Breakdown Voltage Collector Dark Current HOA1870-031 HOA1870-033	V _{(BR)ECO}	5.0		100 250	V nA	I _E =100 μA V _{CE} =10 V I _F =0
COUPLED CHARACTERISTICS On-State Collector Current HOA1870-031 HOA1870-033	I _C (ON)	0.3 2.0			mA	V _{CE} =5 V I _F =20 mA
Collector-Emitter Saturation Voltage HOA1870-031 HOA1870-033	VCE(SAT)			0.4 1.1	V	I _F =20 mA I _C =40 μΑ I _C =250 μΑ
Rise And Fall Time HOA1870-031 HOA1870-033	t _r , t _f		15 75		μs	Vcc=5 V, Ic=1 mA R_L =1000 Ω R_L =100 Ω

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

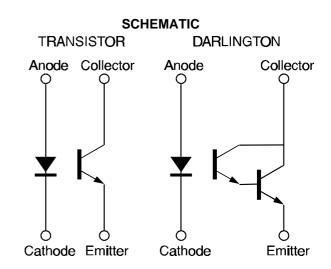
IR EMITTER

Power Dissipation 100 mW ⁽¹⁾
Reverse Voltage 3 V
Continuous Forward Current 50 mA

DETECTOR TRANS. DARLINGTON

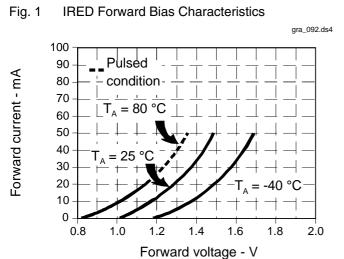
Collector-Emitter Voltage 30 V 15 V
Emitter-Collector Voltage 5 V 5 V
Power Dissipation 100 mW (1) 100 mW (1)

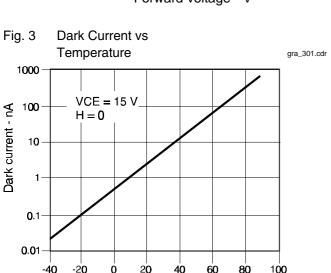
Collector DC Current 30 mA 30 mA





Transmissive Sensor





40

Free-air temperature - °C

60

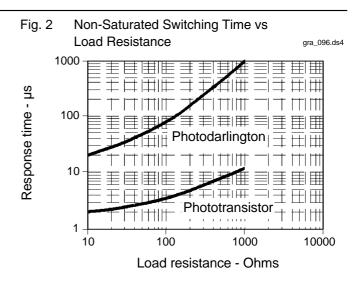
80

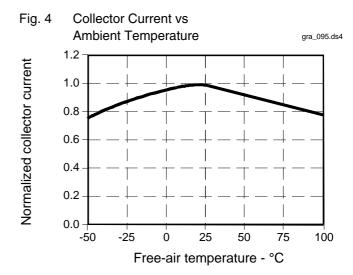
100

All Performance Curves Show Typical Values

-40

-20





Transmissive Sensor

