



# HOA086X/087X

## 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              | $I_{C(ON)}$   |     |     |     | mA            |  |
| Parameter A<br>(HOA0860/0865/0870/0875) |               | 0.5 |     |     |               | $V_{CE}=10, I_F=20\text{ mA}$                              |
| Parameter B<br>(HOA0861/0866/0871/0876) |               | 1.0 |     |     |               | $V_{CE}=5\text{ V}, I_F=10\text{ mA}$                      |
| Parameter C<br>(HOA0862/0867/0872/0877) |               | 1.8 |     |     |               | $V_{CE}=0.6, I_F=20\text{ mA}$                             |
| Collector-Emitter Saturation Voltage    | $V_{CE(SAT)}$ |     |     |     | V             |  |
| Parameter A<br>(HOA0860/0865/0870/0875) |               |     | 0.4 |     |               | $I_C=0.4\text{ mA}, I_F=20\text{ mA}$                      |
| Parameter B<br>(HOA0860/0866/0871/0876) |               |     | 0.4 |     |               | $I_C=0.8\text{ mA}, I_F=10\text{ mA}$                      |
| Parameter C<br>(HOA0862/0867/0872/0877) |               |     | 0.6 |     |               | $I_C=1.8\text{ mA}, I_F=20\text{ mA}$                      |
| 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         |

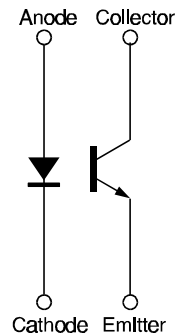
#### IR EMITTER

|                            |                       |
|----------------------------|-----------------------|
| 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



Honeywell reserves the right to make changes in order to improve design and supply the best products possible.

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## Transmissive Sensor

Fig. 1 IRED Forward Bias Characteristics

gra\_092.ds4

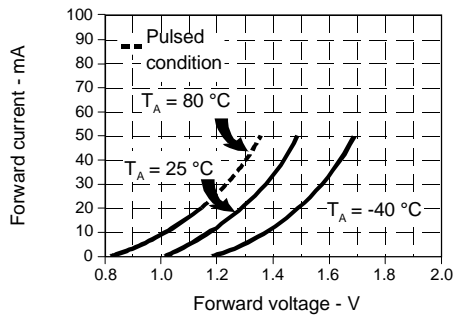


Fig. 2 Non-Saturated Switching Time vs Load Resistance

gra\_093.ds4

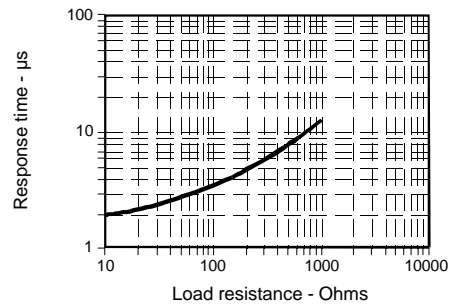


Fig. 3 Dark Current vs Temperature

gra\_301.cdr

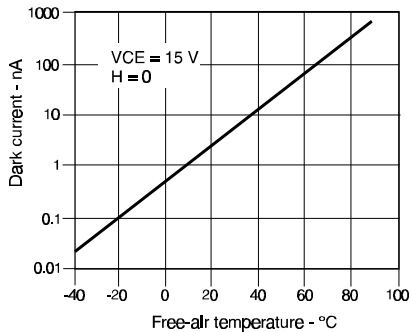
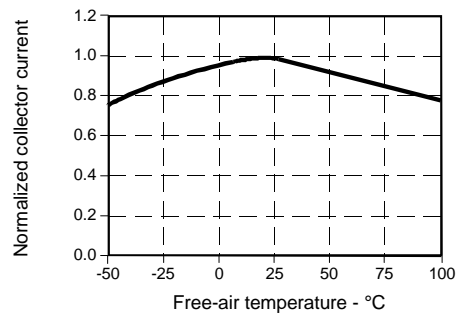


Fig. 4 Collector Current vs Ambient Temperature

gra\_095.ds4



All Performance Curves Show Typical Values

### PART NUMBER GUIDE

### HOA08XX-XXX

#### Housing Material

- 6 = Polysulfone, IR transmissive
- 7 = Polysulfone, opaque

#### Mechanical and Electrical Specifications

- 0 = Electrical Parameter A/lead spacing .320 in. (8.13 mm)
- 1 = Electrical Parameter B/lead spacing .320 in. (8.13 mm)
- 2 = Electrical Parameter C/lead spacing .320 in. (8.13 mm)
- 5 = Electrical Parameter A/lead spacing .220 in. (5.59 mm)
- 6 = Electrical Parameter B/lead spacing .220 in. (5.59 mm)
- 7 = Electrical Parameter C/lead spacing .220 in. (5.59 mm)

\*0.010 in. (.25 mm) aperture available with electrical Parameter A only

#### Aperture Width In Front Of Detector

- \*1 = 0.010 in. (0.25 mm)
  - 5 = 0.050 in. (1.27 mm)
- Aperture length is 0.060 in. (1.52 mm)

#### Aperture Width In Front Of IRED

- 5 = 0.050 in. (1.27 mm)
- Aperture length is 0.060 in. (1.52 mm)

#### Mounting Configuration

- L = Single mounting tab, emitter side
- N = No mounting tabs
- P = Single mounting tab, detector side
- T = Two mounting tabs

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