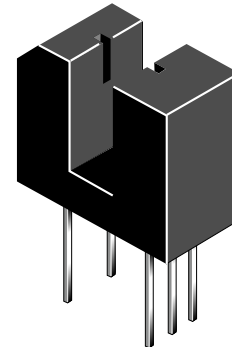
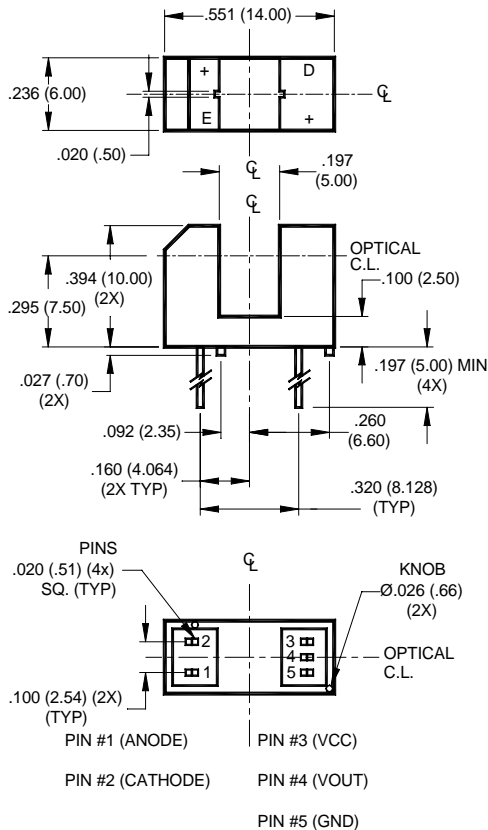


PACKAGE DIMENSIONS



FEATURES

- No contact switching
- 5.0 mm wide slot
- 0.5 mm aperture width
- Opaque black plastic housing
- Output configuration: Buffer open-collector
- TTL/CMOS compatible output
- Locating knobs on housing base for accurate mounting

NOTES (Applies to Max Ratings and Characteristics Tables.)

1. Derate power dissipation linearly 1.67 mW/°C above 25°C.
2. Derate power dissipation linearly 2.50 mW/°C above 25°C.
3. RMA flux is recommended.
4. Methanol or isopropyl alcohols are recommended as cleaning agents.
5. Soldering iron 1/16" (1.6mm) from housing.
6. As long as leads are not under any stress or spring tension.

NOTES:

1. Dimensions for all drawings are in inches (millimeters).
2. Tolerance of $\pm .010$ (.25) on all non-nominal dimensions unless otherwise specified.

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise specified)

| Parameter | Symbol | Rating | Units |
|---|-------------|----------------|-------|
| Operating Temperature | T_{OPR} | -40 to +85 | °C |
| Storage Temperature | T_{STG} | -40 to +85 | °C |
| Lead Temperature (Solder Iron) ^(3,4,5,6) | T_{SOL-I} | 240 for 5 sec | °C |
| Lead Temperature (Solder Flow) ^(3,4,5,6) | T_{SOL-F} | 260 for 10 sec | °C |
| EMITTER | | | |
| Continuous Forward Current | I_F | 50 | mA |
| Reverse Voltage | V_R | 5 | V |
| Power Dissipation ⁽¹⁾ | P_D | 100 | mW |
| SENSOR | | | |
| Output Current | I_O | 50 | mA |
| Supply Voltage | V_{CC} | 16 | V |
| Output Voltage | V_O | 30 | V |
| Power Dissipation ⁽²⁾ | P_D | 150 | mW |

| ELECTRICAL / OPTICAL CHARACTERISTICS (T _A =25°C) | | | | | | |
|---|---|---|------|------|------|-------|
| PARAMETER | TEST CONDITIONS | SYMBOL | MIN. | TYP. | MAX. | UNITS |
| Operating Supply Voltage | | V _{CC} | 4.5 | | 16 | V |
| INPUT DIODE | | | | | | |
| Forward Voltage | I _F = 20 mA | V _F | — | | 1.7 | V |
| Reverse Leakage Current | V _R = 5 V | I _R | — | | 10 | μA |
| COUPLED | | | | | | |
| Operating Supply Current | I _F = 15 mA or 0 mA, V _{CC} = 16 V | I _{CC} | — | | 5 | mA |
| Low Level Output Voltage | I _F = 15 mA, V _{CC} = 5 V, R _L = 360 Ω | V _{OL} | — | | 0.4 | V |
| High Level Output Current | I _F = 0 mA, V _{CC} = 5 V, V _{OH} = 30 V | I _{OH} | — | | 100 | μA |
| Turn on Threshold Current | V _{CC} = 5 V, R _L = 360 Ω | I _F (+) | — | | 15 | mA |
| Turn off Threshold Current | V _{CC} = 5 V, R _L = 360 Ω | I _F (-) | 0.50 | | — | mA |
| Hysteresis Ratio | | I _F (+) / I _F (-) | | 1.2 | | |
| Propagation Delay | V _{CC} = 5 V, R _L = 360 Ω | t _{PLH} , t _{PHL} | | 5 | | μs |
| Output Rise and Fall Time | V _{CC} = 5 V, R _L = 360 Ω | t _r , t _f | | 70 | | ns |

TYPICAL PERFORMANCE CURVES

Fig. 1 Output Voltage vs. Input Current

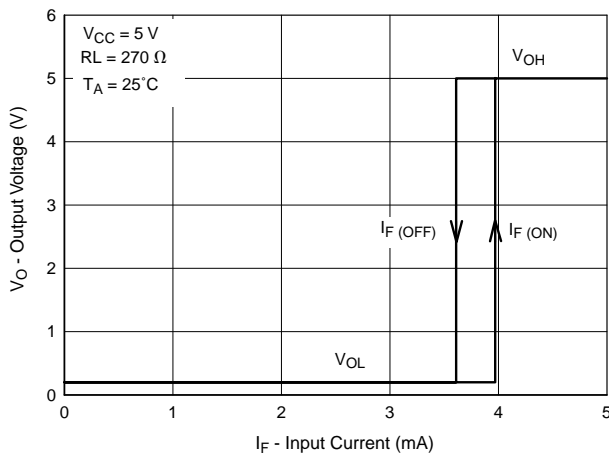


Fig. 2 Normalized Threshold Current vs. Shield Distance

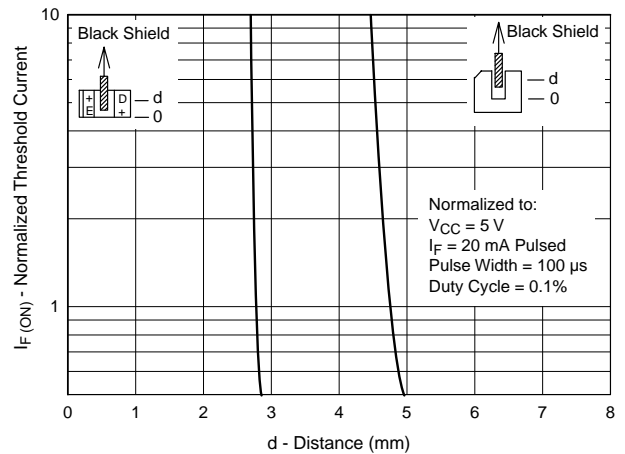


Fig. 3 Normalized Threshold Current vs. Supply Voltage

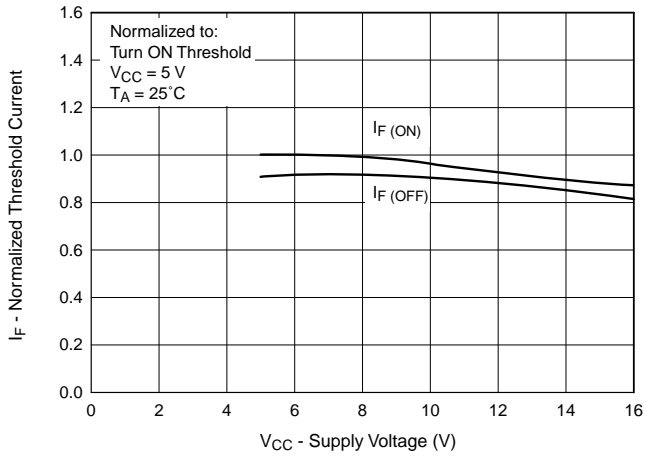


Fig. 4 Normalized Threshold Current vs. Ambient Temperature

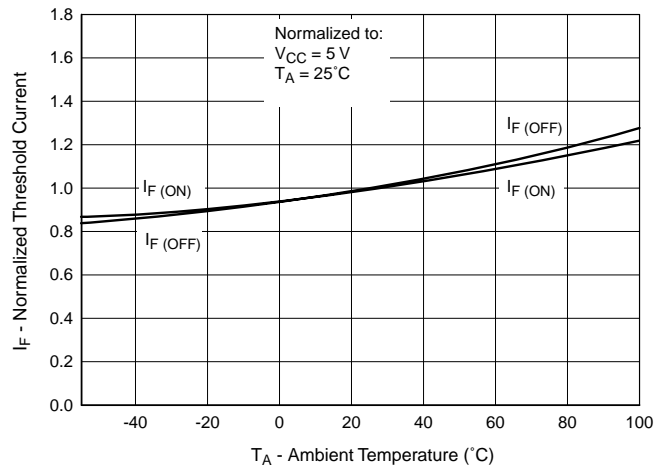


Fig. 5 Forward Current vs. Forward Voltage

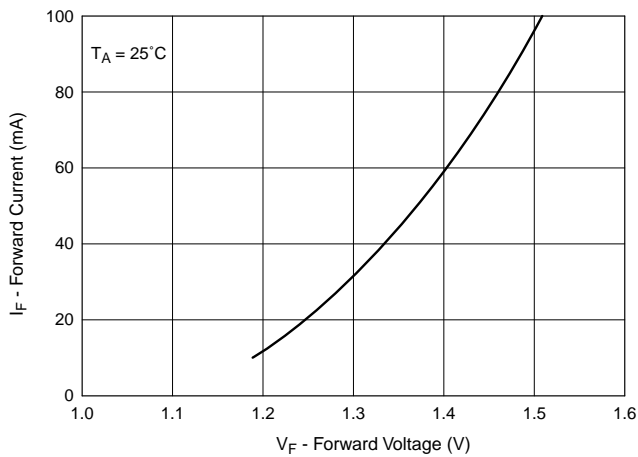


Fig. 6 Low Output Voltage vs. Output Current

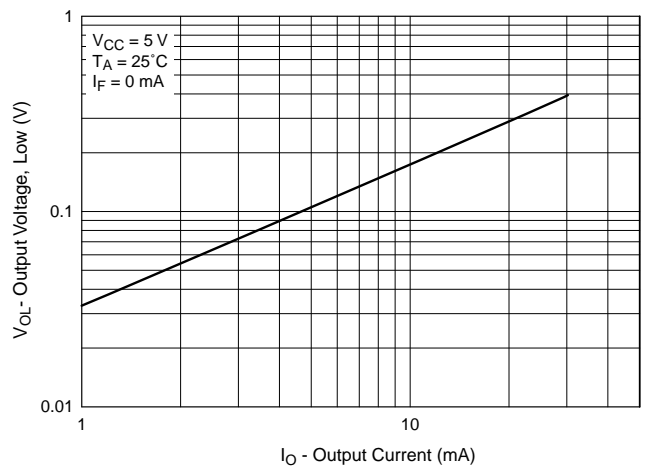


Fig. 7 Response Time vs. Forward Current

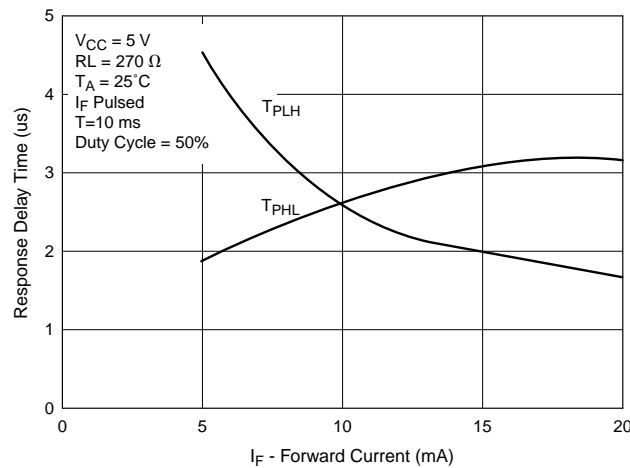
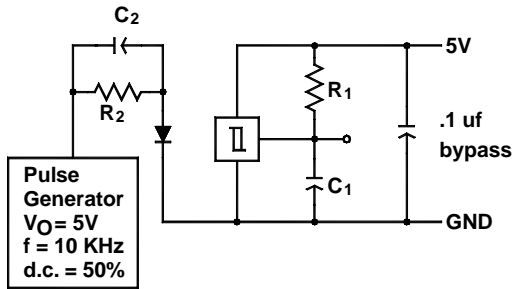


Fig. 8 Switching Speed Test Circuit



$R_1 = 270 \ \Omega$
 $R_2 = 360 \ \Omega$

$C_1 = 15 \text{ pf}$
 $C_2 = 20 \text{ pf}$

C_1 and C_2 include probe and
stray wire capacitance

Fig. 9 Typical Operating Circuit

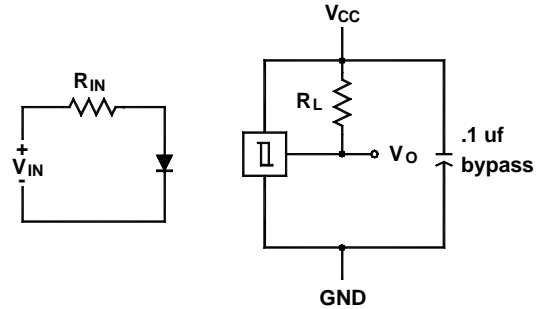


Fig. 10 Switching Test Curve for Buffers

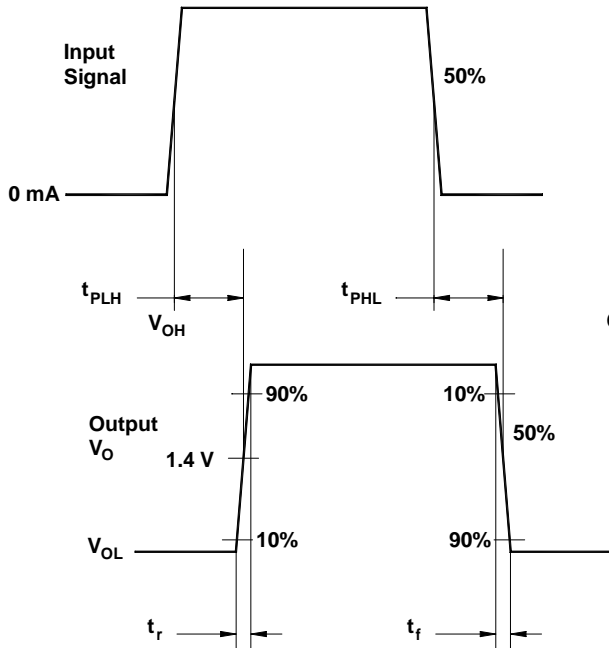
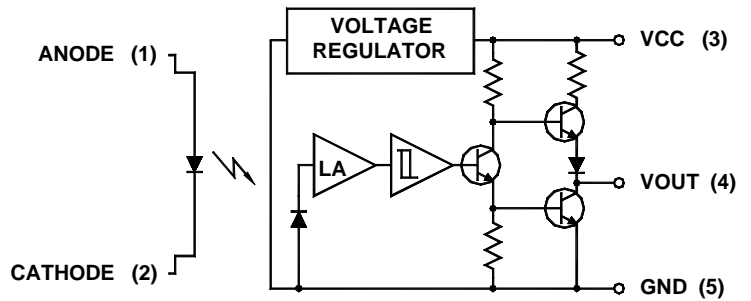


Fig. 11 Switching Test Curve for Inverters



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