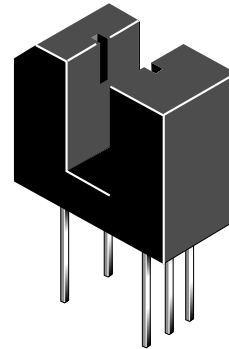
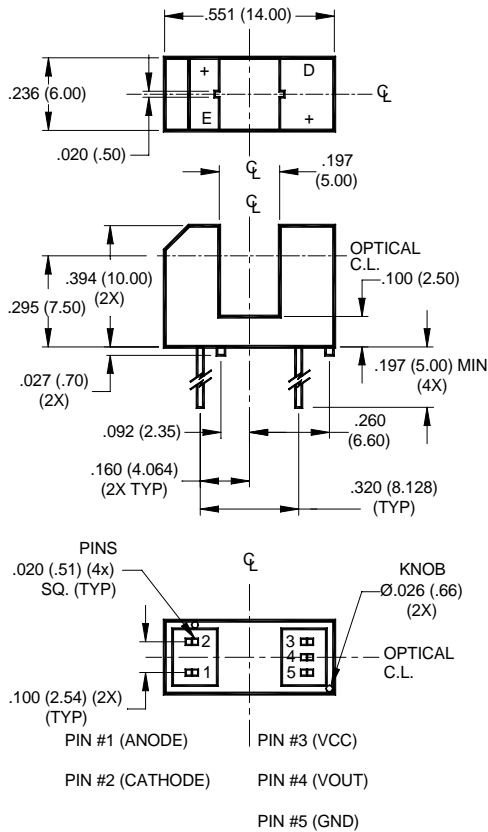


**PACKAGE DIMENSIONS**



**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.

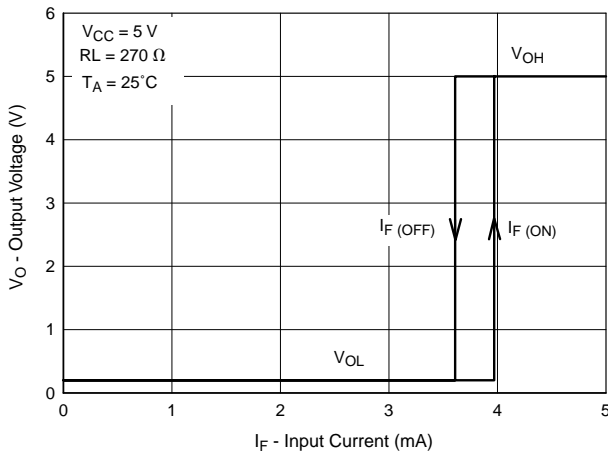
**ABSOLUTE MAXIMUM RATINGS** ( $T_A = 25^\circ\text{C}$  unless otherwise specified)

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

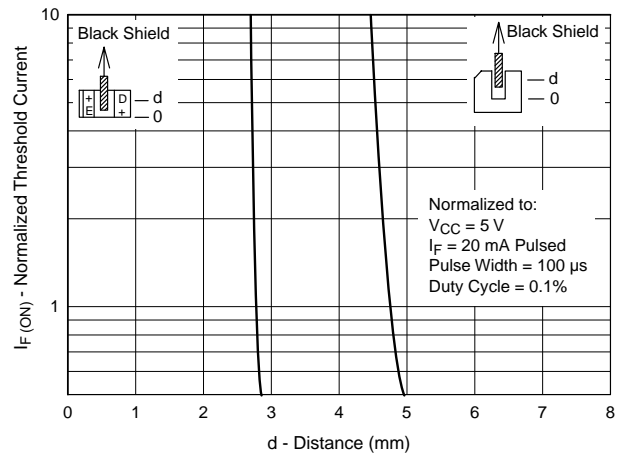
ELECTRICAL / OPTICAL CHARACTERISTICS (T <sub>A</sub> = 25°C)						
PARAMETER	TEST CONDITIONS	SYMBOL	MIN.	TYP.	MAX.	UNITS
Operating Supply Voltage		V <sub>CC</sub>	4.5		16	V
<b>INPUT DIODE</b>						
Forward Voltage	I <sub>F</sub> = 20 mA	V <sub>F</sub>	—		1.7	V
Reverse Leakage Current	V <sub>R</sub> =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

**TYPICAL PERFORMANCE CURVES**

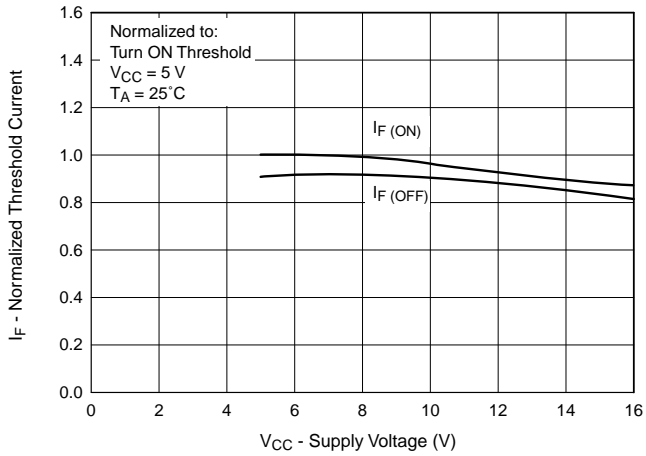
**Fig. 1 Output Voltage vs. Input Current**



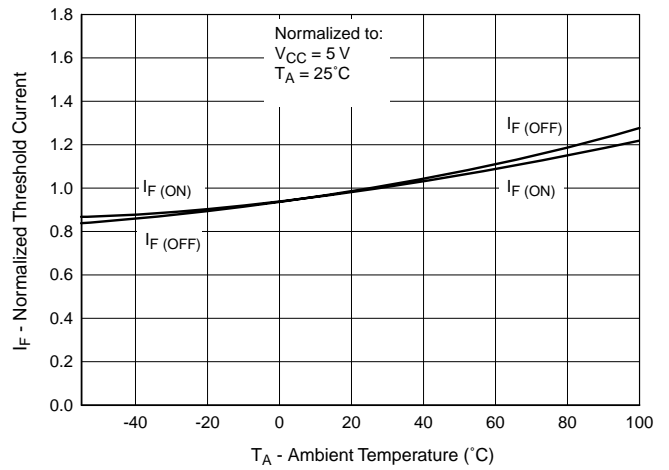
**Fig. 2 Normalized Threshold Current vs. Shield Distance**



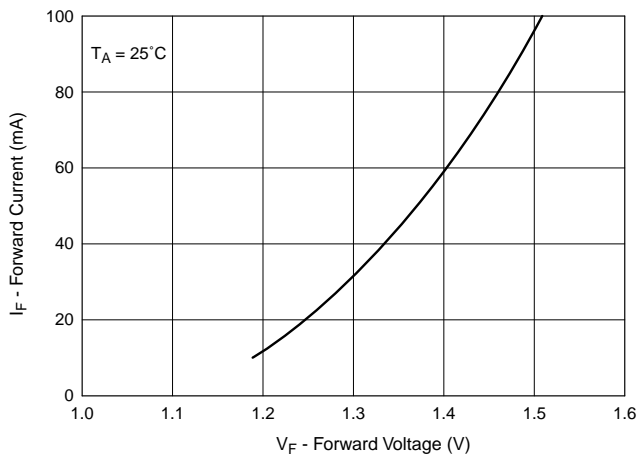
**Fig. 3 Normalized Threshold Current vs. Supply Voltage**



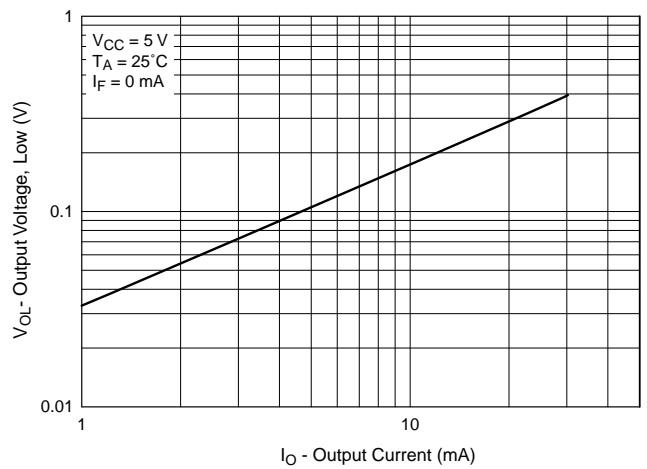
**Fig. 4 Normalized Threshold Current vs. Ambient Temperature**



**Fig. 5 Forward Current vs. Forward Voltage**



**Fig. 6 Low Output Voltage vs. Output Current**



**Fig. 7 Response Time vs. Forward Current**

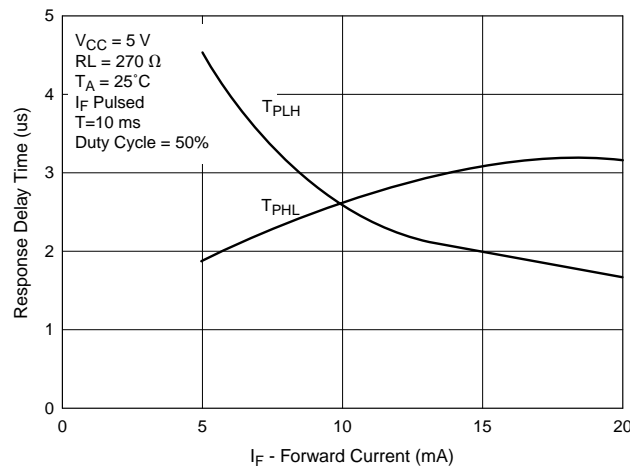
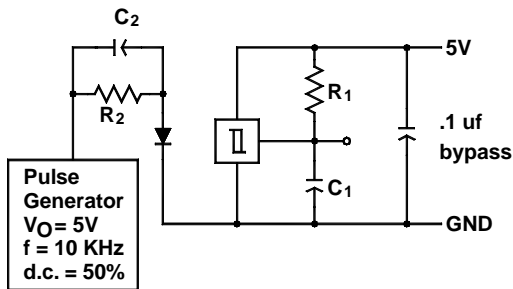


Fig. 8 Switching Speed Test Circuit



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

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

$C_1$  and  $C_2$  include probe and stray wire capacitance

Fig. 9 Typical Operating Circuit

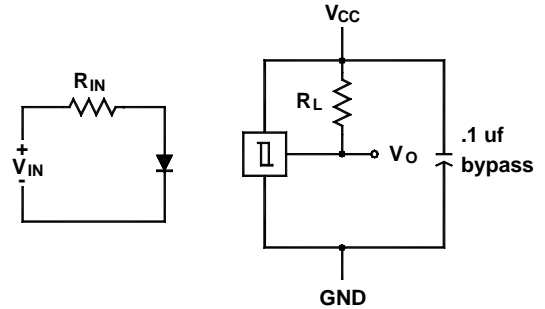


Fig. 10 Switching Test Curve for Buffers

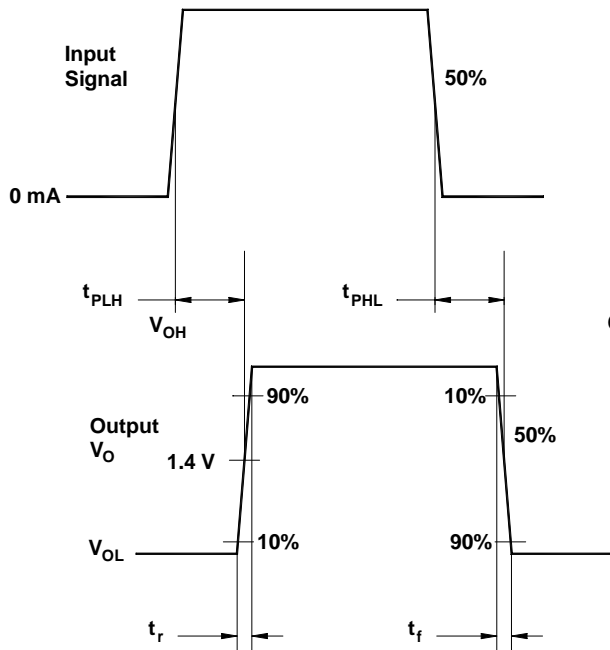
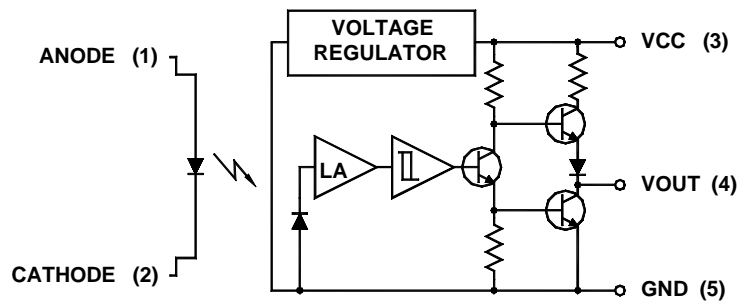


Fig. 11 Switching Test Curve for Inverters



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