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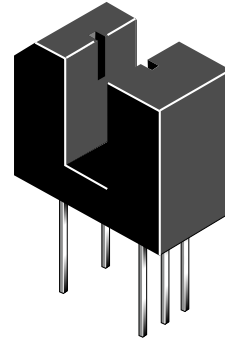
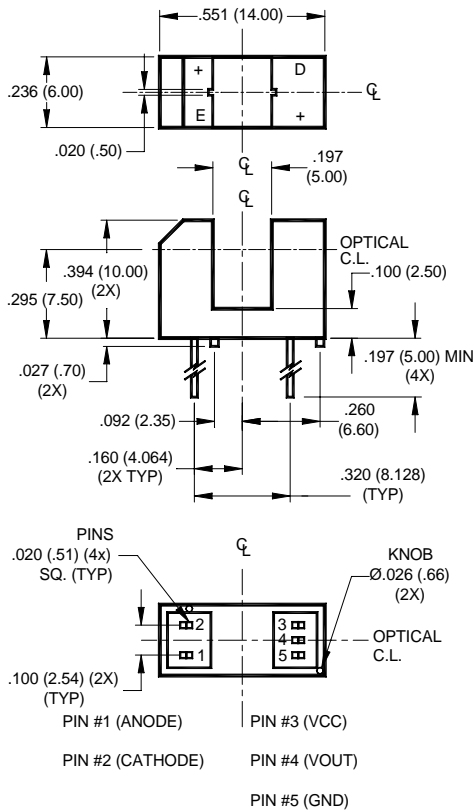
For any questions, you can email us directly:

sales@integrated-circuit.com

QVE00120

OPTOLOGIC® OPTICAL INTERRUPTER SWITCH

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

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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

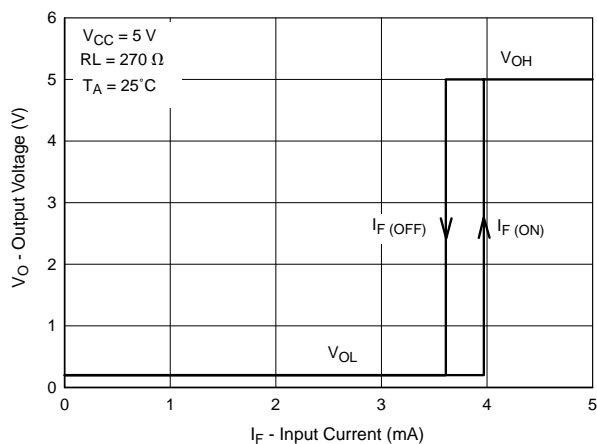
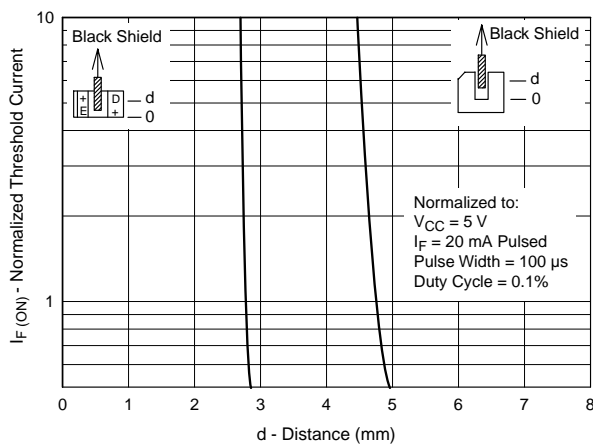


Fig. 2 Normalized Threshold Current vs. Shield Distance



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Fig. 3 Normalized Threshold Current vs. Supply Voltage

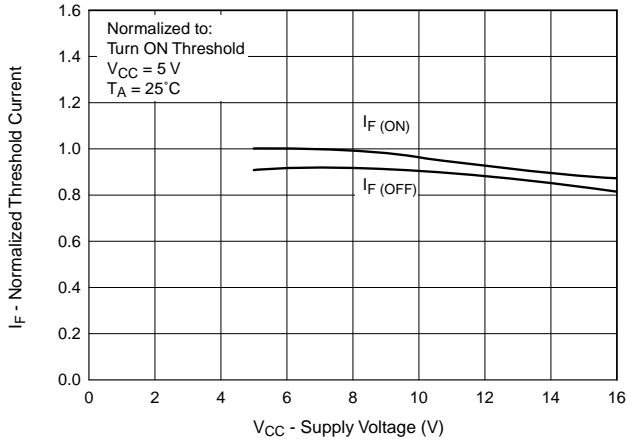


Fig. 4 Normalized Threshold Current vs. Ambient Temperature

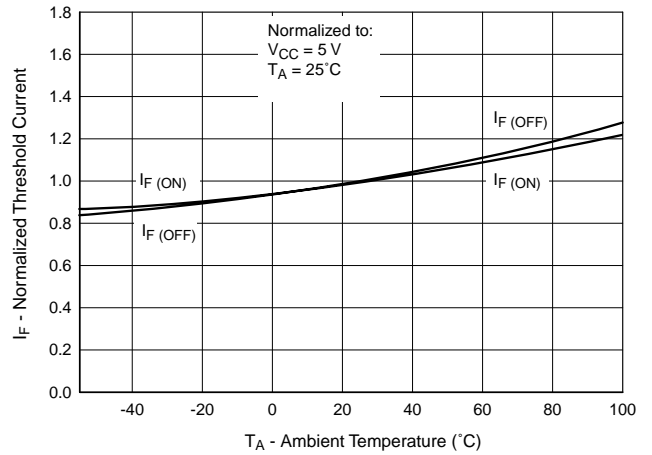


Fig. 5 Forward Current vs. Forward Voltage

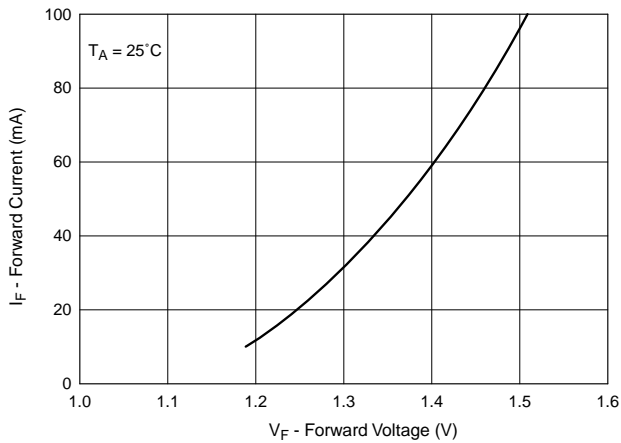


Fig. 6 Low Output Voltage vs. Output Current

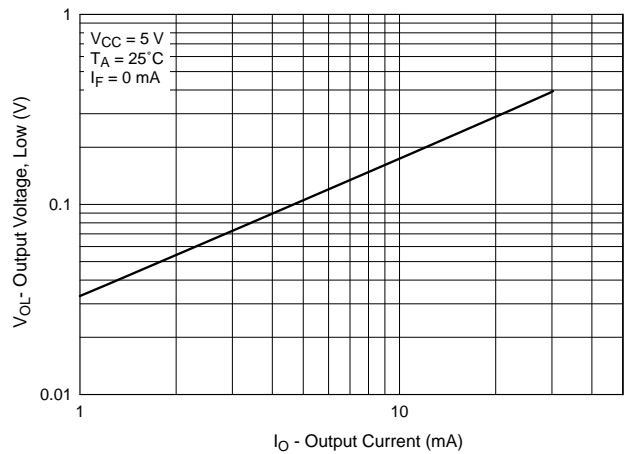
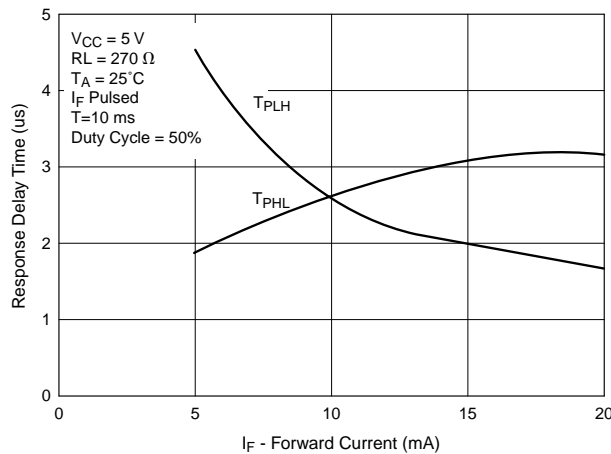


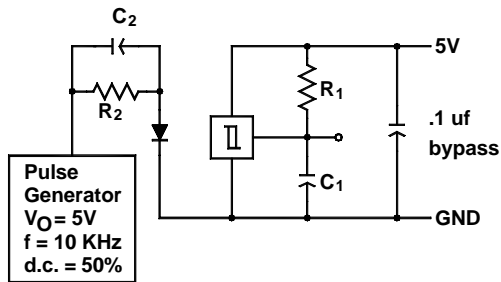
Fig. 7 Response Time vs. Forward Current



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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

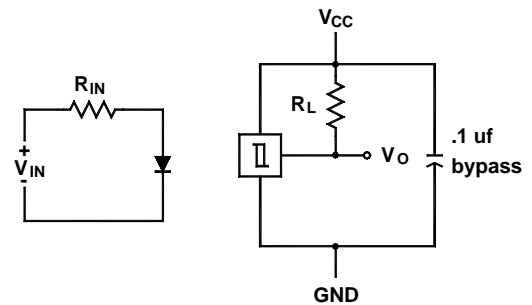


Fig. 10 Switching Test Curve for Buffers

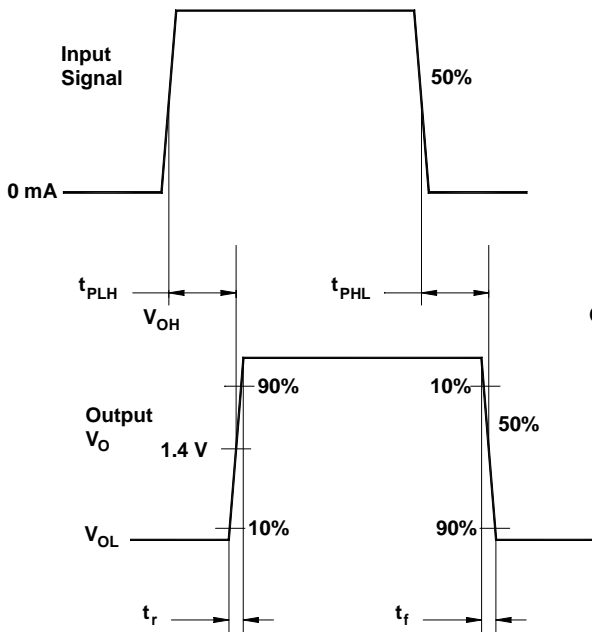
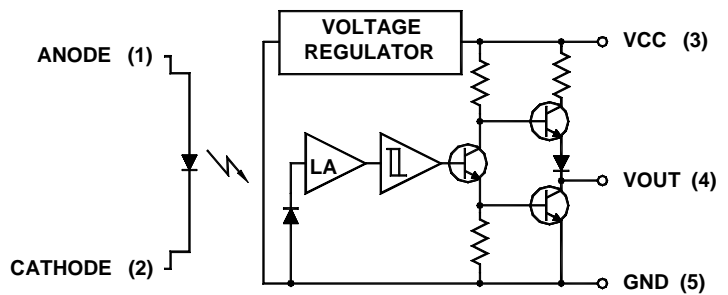


Fig. 11 Switching Test Curve for Inverters





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