

H11L1X, H11L2X, H11L3X, H11L4X
H11L1, H11L2, H11L3, H11L4



**MICROPROCESSOR COMPATIBLE
SCHMITT TRIGGER OPTICALLY
COUPLED ISOLATOR**

APPROVALS

- UL recognised, File No. E91231
- 'X' SPECIFICATION APPROVALS
 - VDE 0884 in 2 available lead forms : -
 - STD
 - G form

DESCRIPTION

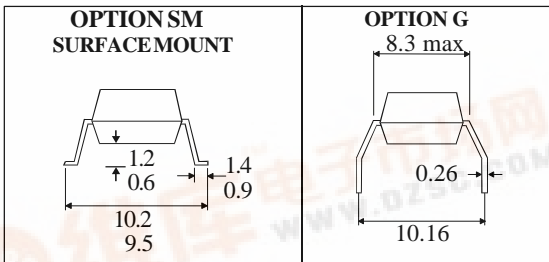
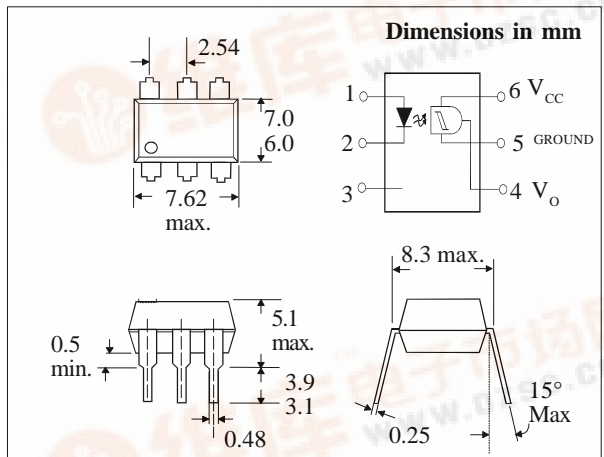
The H11L1, 2, 3, 4 series are optically coupled isolators consisting of a Gallium Arsenide infrared emitting diode and a Microprocessor Compatible Schmitt trigger output mounted in a standard 6 pin dual in line package.

FEATURES

- Options :-
 - 10mm lead spread - add G after part no.
 - Surface mount - add SM after part no.
 - Tape&reel - add SMT&R after part no.
- High data rate, 1MHz typical (NRZ)
- Microprocessor compatible drive
- Logic compatible output sinks 16 milliamperes at 0.4 volts maximum
- High Isolation Voltage (5.3kV_{RMS}, 7.5kV_{PK})
- High common mode rejection ratio
- Fast switching : t_{rise} , t_{fall} = 100ns typical
- Wide supply voltage capability, compatible with all popular logic systems
- Guaranteed On / Off threshold hysteresis

APPLICATIONS

- Logic to logic isolator
- Line receiver-eliminates noise and transient problems
- Programmable current level sensor
- AC to TTL conversion - square wave shaping
- Digital programming of power supplies
- Interfaces computers with peripherals



**ABSOLUTE MAXIMUM RATINGS
(25°C unless otherwise specified)**

Storage Temperature _____ -55°C to + 150°C
Operating Temperature _____ -55°C to + 100°C
Lead Soldering Temperature
(1/16 inch (1.6mm) from case for 10 secs) 260°C

INPUT DIODE

Forward Current _____ 60mA
Reverse Voltage _____ 6V
Power Dissipation
(derate linearly 1.33mW / °C above 25°C) _____ 105mW

OUTPUT DETECTOR

V₄₅ allowed range _____ 0 to 16V
V₆₅ allowed range _____ 0 to 16V
I₄ output current _____ 50mA
Power Dissipation
(derate linearly 2mW / °C above 25°C) _____ 150mW

POWER DISSIPATION

Total Power Dissipation
(derate linearly 2.27mW / °C above 25°C) _____ 170mW

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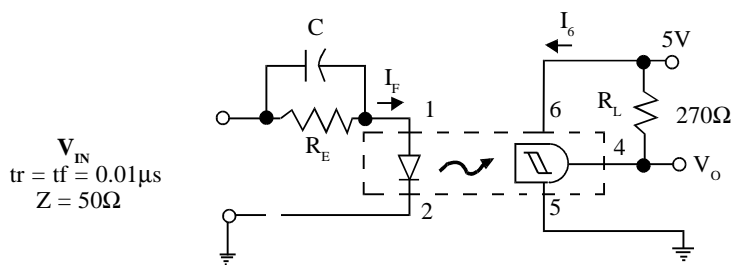
ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ Unless otherwise noted)

PARAMETER		MIN	TYP	MAX	UNITS	TEST CONDITION	
Input	Forward Voltage (V_F)	0.75			V	$I_F = 0.3\text{mA}$ $I_F = 10\text{mA}$ $V_R = 3\text{V}$ $V = 0, f = 1\text{MHz}$	
	Forward Voltage (V_F)			1.5	V		
	Reverse Current (I_R)	10	μA				
	Capacitance (C_j)	100	pF				
Output	Operating Voltage Range (V_{CC})	3	1	15	V	$I_F = 0\text{mA}, V_{CC} = 5\text{V}$ $I_F = 0\text{mA}, V_{CC} = V_O = 15\text{V}$	
	Supply Current I_6 (off)			5	mA		
	Output Current High (I_{OH})			100	μA		
Coupled	Supply Current I_6 (on)	5300 7500	1.6	5	mA	$I_F = 10\text{mA}, V_{CC} = 5\text{V}$ $R_L = 270\Omega, V_{CC} = 5\text{V}$ $R_L = 270\Omega, V_{CC} = 5\text{V}$ $R_L = 270\Omega, V_{CC} = 5\text{V}$ $R_L = 270\Omega, V_{CC} = 5\text{V}$ $R_L = 270\Omega, V_{CC} = 5\text{V}$ $R_L = 270\Omega, V_{CC} = 5\text{V}$ $R_L = 270\Omega, V_{CC} = 5\text{V}$ See note 1 See note 1 $R_E = 1200\Omega$ $C = 270\text{pF}$ $f \leq 100\text{kHz}$ $t_p = 1\mu\text{s}$ or greater	
	Output Voltage, Low (V_{OL})			0.4	V		
	Turn-on Threshold Current I_F (on)						
	H11L1			1.6	mA		
	H11L2			10	mA		
	H11L3			5	mA		
	H11L4			2	mA		
	Turn-off Threshold Current I_F (off)			0.3	mA		
	Hysteresis Ratio I_F (off) / I_F (on)			0.5	0.9		
	Input to Output Isolation Voltage V_{ISO}						V_{RMS}
							V_{PK}
	Turn-on Time			t_{on}	0.57		μs
Fall Time	t_f	0.09	μs				
Turn-off Time	t_{off}	1.40	μs				
Rise Time	t_r	0.05	μs				

Note 1 Measured with input leads shorted together and output leads shorted together.

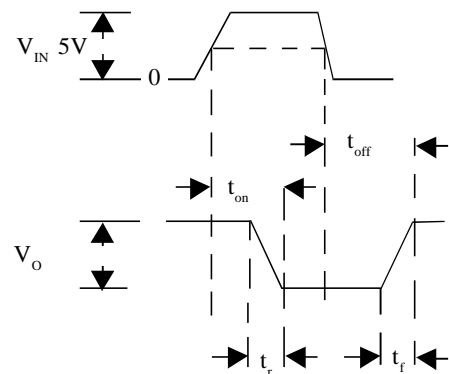
Note 2 Special Selections are available on request. Please consult the factory.

SWITCHING CHARACTERISTICS

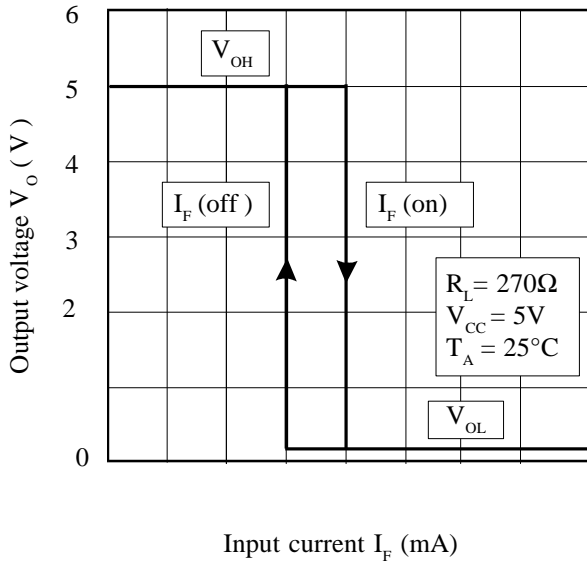


$V_{IN} = 5\text{V}$
 $t_r = t_f = 0.01\mu\text{s}$
 $Z = 50\Omega$

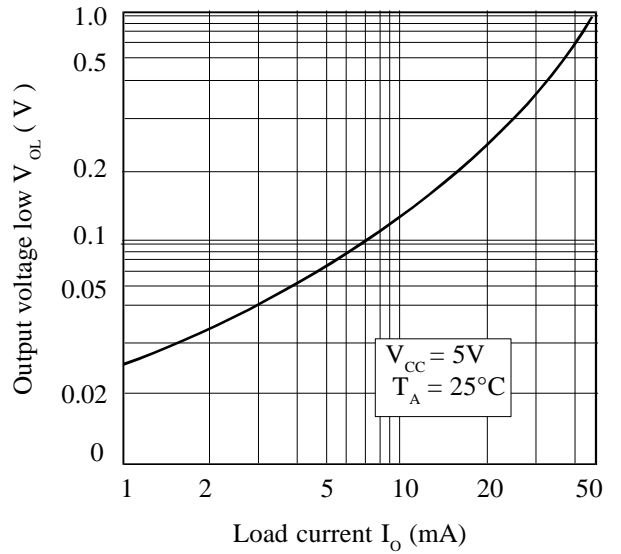
SWITCHING TEST CIRCUIT



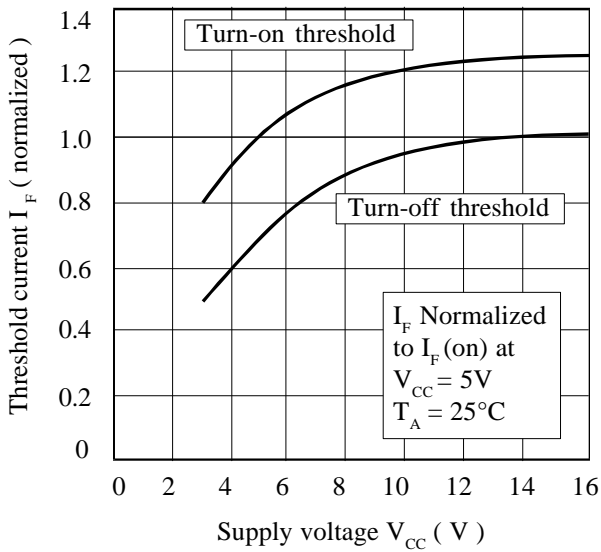
Transfer Characteristics



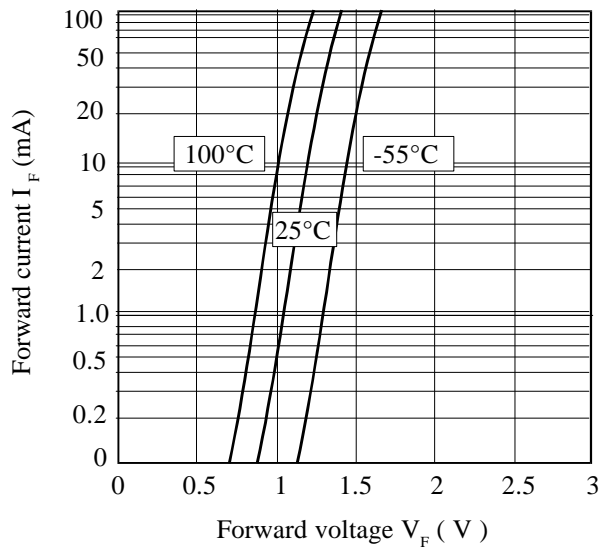
On Voltage vs. Load Current



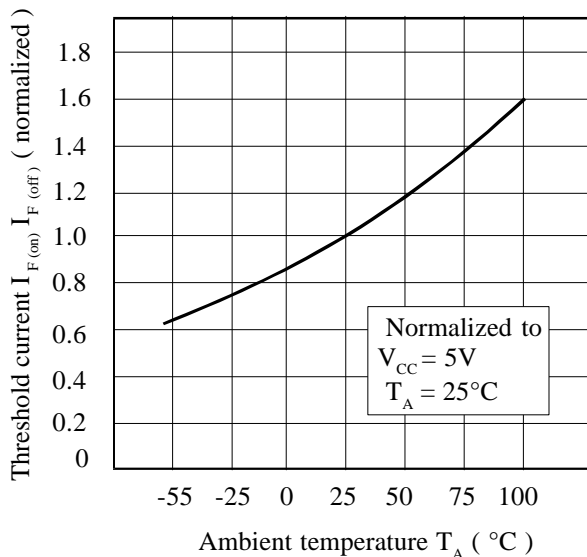
Threshold Current vs. Supply Voltage



Forward Voltage vs. Forward Current



Threshold Current vs. Ambient Temperature



Supply Current vs. Supply Voltage

