Hutton Close, Crowther Ind Est, Washington, Tyne & Wear NE38 0AH, England
mailto:sales@isocom.uk.com - Tel: +44 (0)191 4166546 - Fax: +44 (0)191 4155055

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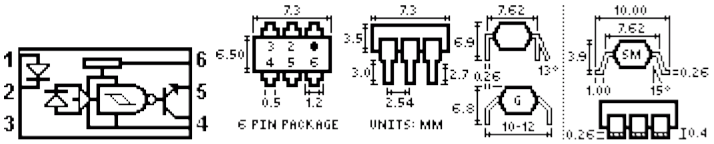
IS609, H11L1, H11L2
Optically Coupled Isolator, Schmitt Trigger

Circuit



Features

High Data Rate, Typ 1 MHz (NRZ)
Microporcessor Compatible Drive
Logic Compatible Output Sinks 16 mA at 0.4 V Max
High Isolation between Input and Output
Guaranteed On/Off Threshold Hysteresis
High Common Mode Rejection Ratio
Fast Switching: Typically t rise = t fall = 100 ns
Wide Supply Voltage Capability, compatible with all popular logic systems

Description

The IS609, H11L1 and H11L2 are optically coupled isolators consisting of a Gallium Arsenide infrared emitting diode and a Microprocessor Compatible Schmitt Trigger mounted in a standard 6-pin dual-in-line package. Surface Mount Option Available.
All electrical parameters are 100% tested. Specifications are guaranteed to a cumulative 0.65% AQL.

Absolute Maximum Ratings: (Ta=25°C)

Storage Temperature: -55°C to +150°C
Operating Temperature: -55°C to +100°C
Lead Soldering: 260°C for 10s, 1.6mm from case
Input-to-Output Isolation Voltage: ±1500V

Input Diode

Forward DC Current: 60mA
Reverse DC Voltage: 6V
Peak Forward Current: 0.5A (1µs p.w. 300pps)
Power Dissipation: 100mW
Derate Linearly: 1.33mW/°C above 25°C

Output Transistor

V45 Allowed Range: 0 to 16V
V65 Allowed Range: 0 to 16V
I4 Output Current: 50mA
Power Dissipation: 150mW
Derate Linearly: 2.00mW/°C above 25°C

Package

Total Power Dissipation: 250mW
Derate Linearly: 3.3mW/°C above 25°C

Electro-optical Characteristics (Ta=25°C)

INPUT	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
V_F	Forward Voltage	I_F=0.3mA	0.75			V
		I_F=10mA			1.5	V
I_R	Reverse Current	V_R=3.0V			10	µA
V_R	Reverse Breakdown Voltage	I_R=10µA	3.0			V
OUTPUT	**PARAMETER**	**CONDITIONS**	**MIN**	**TYP**	**MAX**	**UNIT**
V_{CC}	Operating Voltage Range		3		15	V
$I_{6\ OFF}$	Supply Current	I_F=0, V_{CC}=5V			5.0	mA
I_{OH}	Output Current High	I_F=0, V_{CC}=V_O=15V			100	µA
COUPLED	**PARAMETER**	**CONDITIONS**	**MIN**	**TYP**	**MAX**	**UNIT**
$I_{6\ ON}$	Supply Current	I_F=5mA, V_{CC}=5V			5.0	mA
V_{OL}	Output Voltage Low				0.4	V

$I_{F\ ON}$	Turn-On Threshold Current	R_L=270ohm, V_{CC}=5V				
	IS609				1.6	mA
	H11L1				1.6	mA
	H11L2				10	mA
$I_{F\ OFF}$	Turn-Off Threshold Current		0.3	0.9		mA
$I_{F\ OFF}/I_{F\ ON}$	Hysteresis Ratio		0.50		0.90	
t_{ON}	Turn-on Time	R_E=1200ohm		0.57		µs
t_F	Fall Time	C=270pF		0.09		µs
t_{OFF}	Turn-off Time	f<=100kHz		1.40		µs
t_R	Rise Time	t_P=1µs		0.05		µs

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