IS900

MICROPROCESSOR COMPATIBLE SCHMITT TRIGGER OPTICALLY COUPLED ISOLATOR

APPROVALS

- UL recognised, File No. E91231

DESCRIPTION

The IS900 optically coupled isolator consists of a Gallium Arsenide infrared emitting diode and a Microprocessor Compatible Schmitt trigger output mounted in a standard 6 pin dual in line package.

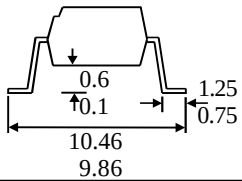
FEATURES

- 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

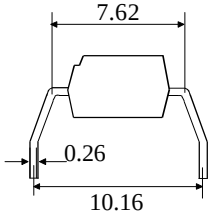
APPLICATIONS

- 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

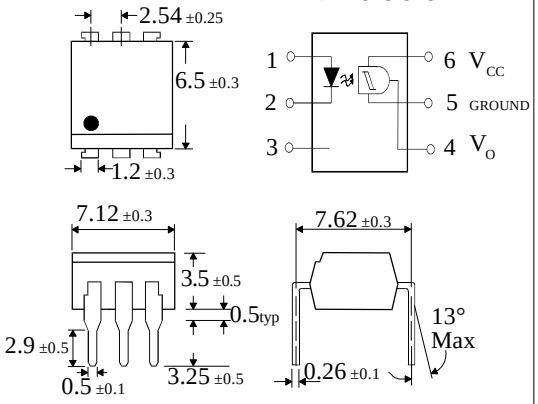
OPTION SM
SURFACE MOUNT



OPTION G



Dimensions in mm



ABSOLUTE MAXIMUM RATINGS (25°C unless otherwise specified)

Storage Temperature	-40°C to + 125°C
Operating Temperature	-25°C to + 85°C
Lead Soldering Temperature (1/16 inch (1.6mm) from case for 10 secs)	260°C

INPUT DIODE

Forward Current, I_F	50mA
Peak forward current (Pulse width ≤ 100uS, Duty ratio=0.001)	1A
Reverse Voltage, V_R	6V
Power Dissipation (derate linearly 1.41mW / °C above 25°C)	70mW

OUTPUT DETECTOR

Output Voltage, Vcc	16V
Supply Voltage, V_{OH}	16V
Output current, I_{OL}	50mA
Power Dissipation (derate linearly 2mW / °C above 25°C)	150mW

POWER DISSIPATION

Total Power Dissipation (derate linearly 2.94mW/ °C above 25°C)	170mW

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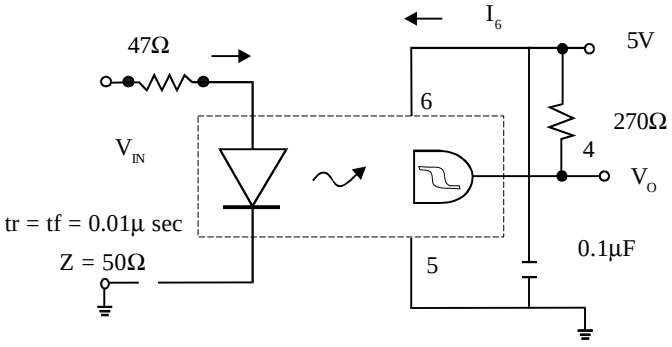
ELECTRICAL CHARACTERISTICS (T_A= 25°C Unless otherwise noted)

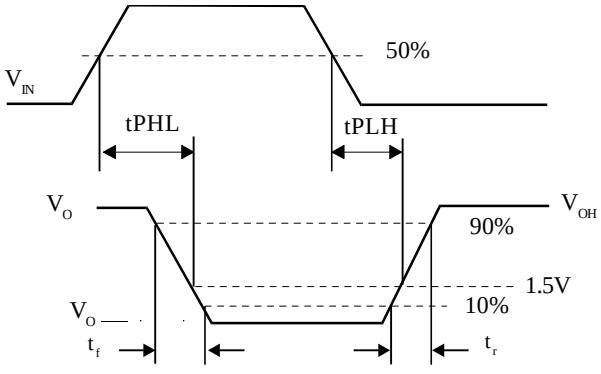
PARAMETER		MIN	TYP	MAX	UNITS	TEST CONDITION
Input	Forward Voltage (V_F)	0.7	1.0		V	I_F = 0.3mA
	Forward Voltage (V_F)		1.1	1.4	V	I_F = 4mA
	Reverse Current (I_R)			10	µA	V_R = 3V
	Reverse Breakdown Voltage(V_R)	3.0			V	I_R = 10 µA
Output	Operating Voltage Range (V_{CC})	3		15	V	
	Supply Current I_6 (off)			5	mA	I_F = 0mA, V_{CC} = 5V
	Output Current High (I_{OH})			100	µA	I_F=0mA,V_{CC}=V_O=15V
Coupled	Supply Current I_6 (on)			5	mA	I_F = 4mA, V_{CC} = 5V
	Output Voltage, Low (V_{OL})			0.4	V	I_{OL} = 16mA, I_F = 4mA, V_{CC} = 5V
	Turn-on Threshold Current I_F (on)		1.1	2.0	mA	R_L = 280Ω, V_{CC} = 5V, T_A = 25°C
				4.0	mA	R_L = 280Ω, V_{CC} = 5V
	Turn-off Threshold Current I_F (off)	0.3			mA	R_L = 270Ω, V_{CC} = 5V
	Hysteresis Ratio I_F (off) / I_F (on)	0.5		0.9		
	Input to Output Isolation Voltage V_{IS0}	5300			V_{RMS}	See note 1
		7500			V_{PK}	See note 1
	High to Low (tPHL)		1	3	µs	T_A = 25°C
	Fall Time (tf)			0.5	µs	V_{CC} = 5V
	Low to High (tPLH)		2	6	µs	I_F = 4mA
	Rise Time (tr)			0.5	µs	R_L = 280Ω

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.

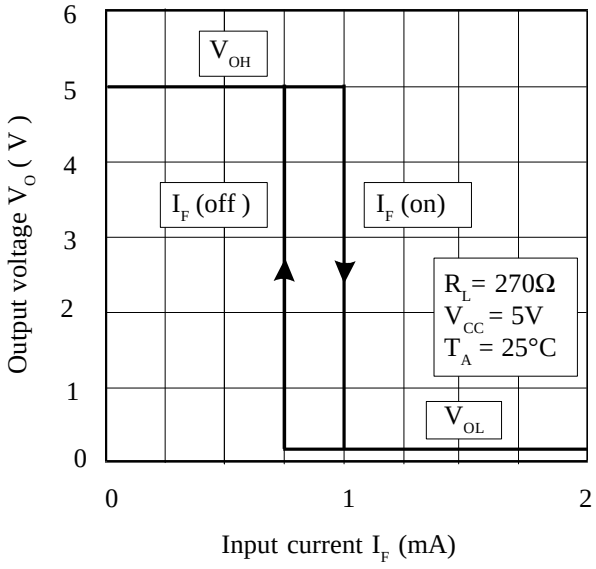
SWITCHING CHARACTERISTICS



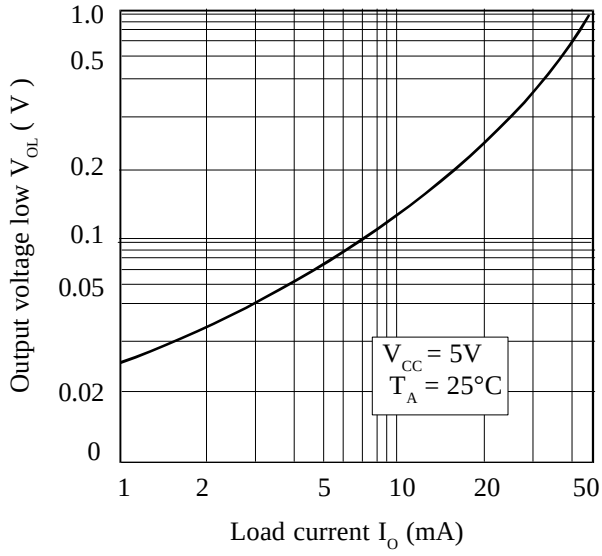
SWITCHING TEST CIRCUIT



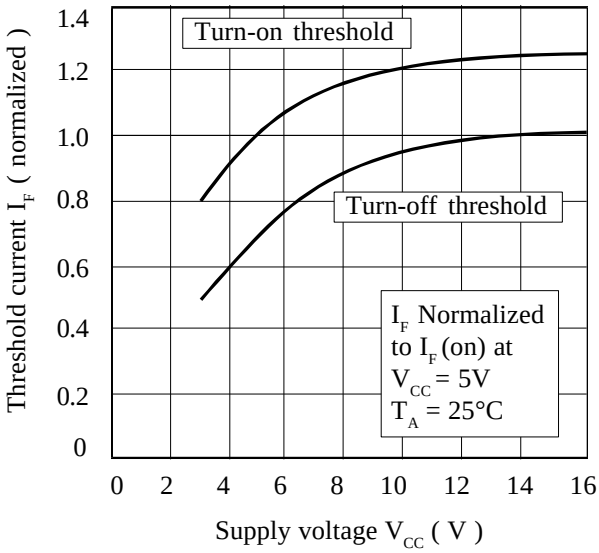
Transfer Characteristics



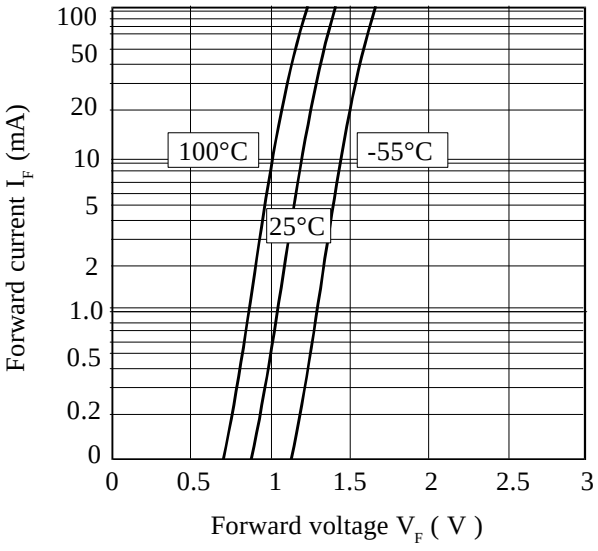
On Voltage vs. Load Current



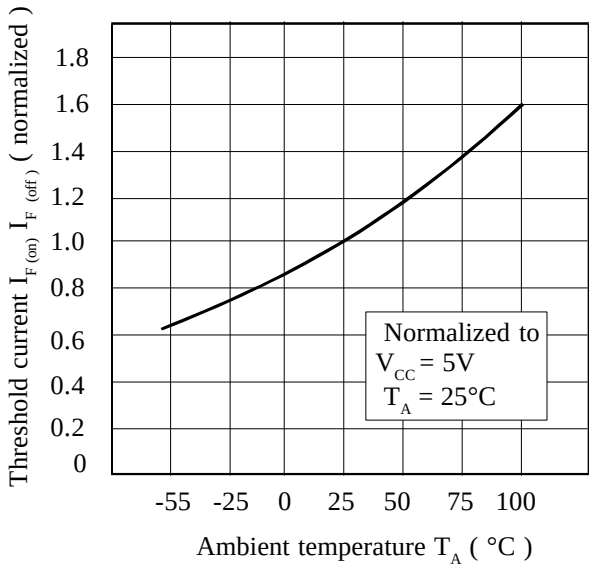
Threshold Current vs. Supply Voltage



Forward Voltage vs. Forward Current



Threshold Current vs. Ambient Temperature



Supply Current vs. Supply Voltage