IS6091

LOW INPUT CURRENT MICROPROCESSOR COMPATIBLE SCMITT TRIGGER OPTO-COUPLER

APPROVALS

- UL recognised, File No. E91231

DESCRIPTION

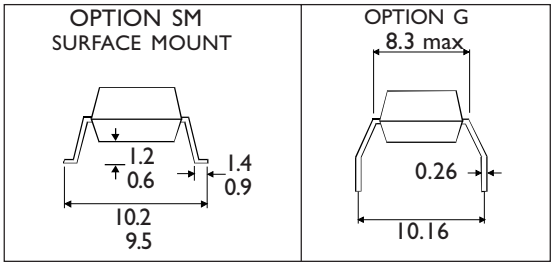
The IS6091 is an optically coupled isolator consisting of a Gallium Arsenide infrared emitting diode and a Microprocessor Compatible Schmitt trigger output mounted in a standard 6 pin dual in line package.

FEATURES

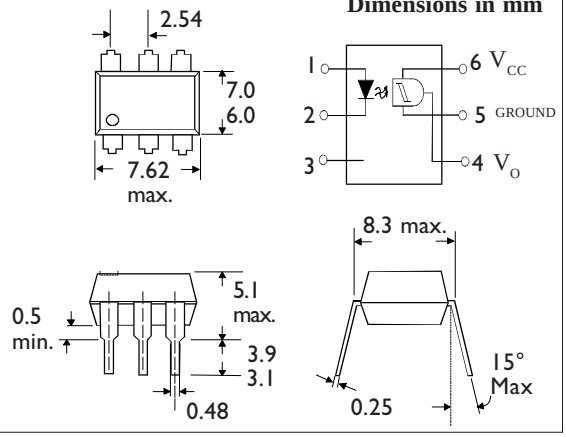
- Options :-
  10mm lead spread - add G after part no.
  Surface mount - add SM after part no.
  Tape&reel - add SMT&R after part no.
- High data rate, 1MHz typical (NRZ)
- Microprocessor compatible drive
- Logic compatible output sinks 16 milliamperes at 0.4 volts maximum
- High Isolation Voltage ($5.3kV_{RMS}$,$7.5kV_{PK}$)
- High common mode rejection ratio
- Fast swiching : 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



Dimensions in mm



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

V_{45} allowed range	0 to 16V
V_{65} allowed range	0 to 16V
I_4 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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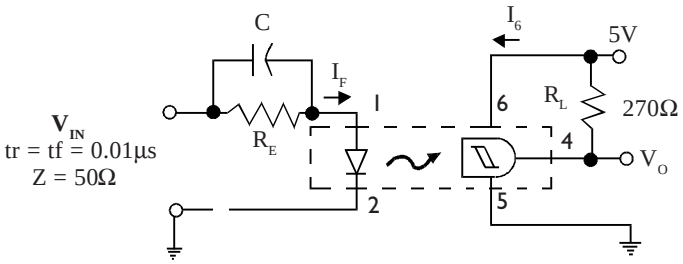
ELECTRICAL CHARACTERISTICS (T_A= 25°C Unless otherwise noted)

PARAMETER			MIN	TYP	MAX	UNITS	TEST CONDITION
Input	Forward Voltage (V_F)		0.75			V	I_F = 0.3mA
	Forward Voltage (V_F)				1.5	V	I_F = 10mA
	Reverse Current (I_R)				10	µA	V_R = 3V
	Capacitance (C_J)				100	pF	V = 0, f = 1MHz
Output	Operating Voltage Range (V_{CC})		3		15	V	
	Supply Current I_6 (off)			1	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)			1.6	5	mA	I_F = 10mA, V_{CC} = 5V
	Output Voltage, Low (V_{OL})				0.4	V	R_L = 270Ω, V_{CC} =5V
	Turn-on Threshold Current I_F (on)				1	mA	R_L = 270Ω, 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		R_L = 270Ω, V_{CC} =5V
	Input to Output Isolation Voltage V_{IS0}		5300			V_{RMS}	See note 1
			7500			V_{PK}	See note 1
	Turn-on Time	t_{on}		0.57		µs	R_E = 1200Ω
	Fall Time	t_f		0.09		µs	C =270pF
	Turn-off Time	t_{off}		1.40		µs	f ≤100kHz
	Rise Time	t_r		0.05		µs	tp = 1µs or greater

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