

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.

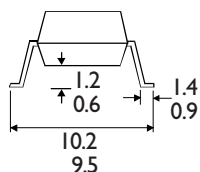
FEATURES

- 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 switching : $t_{rise}, t_{fall} = 100ns$ typical
- Wide supply voltage capability, compatible with all popular logic systems
- Guaranteed On / Off threshold hysteresis

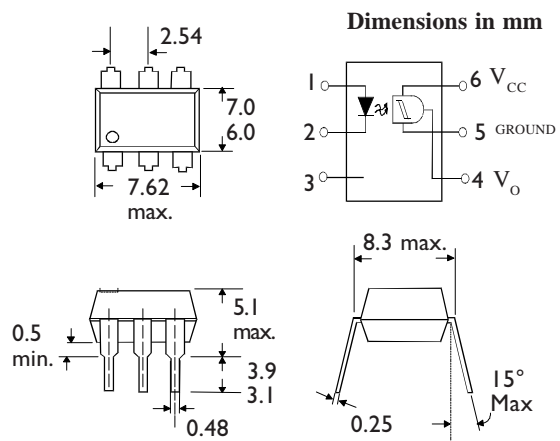
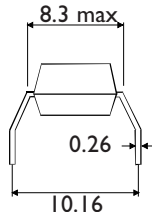
APPLICATIONS

- 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



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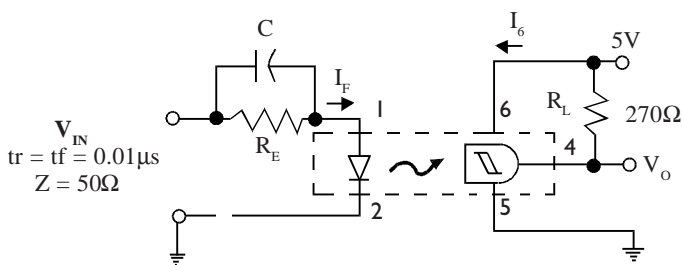
ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ Unless otherwise noted)

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		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_o (off)		1	5	mA	
	Output Current High (I_{OH})			100	μA	
Coupled	Supply Current I_o (on)		1.6	5	mA	$I_F = 10\text{mA}, V_{CC} = 5\text{V}$ $R_L = 270\Omega, V_{CC} = 5\text{V}$
	Output Voltage, Low (V_{OL})			0.4	V	
	Turn-on Threshold Current I_F (on)			1	mA	$R_L = 270\Omega, V_{CC} = 5\text{V}$ $R_L = 270\Omega, V_{CC} = 5\text{V}$
	Turn-off Threshold Current I_F (off)	0.3			mA	
	Hysteresis Ratio I_F (off) / I_F (on)	0.5		0.9		$R_L = 270\Omega, V_{CC} = 5\text{V}$
	Input to Output Isolation Voltage V_{ISO}	5300 7500				V_{RMS} V_{PK} See note 1 See note 1
	Turn-on Time	t_{on}		0.57	μs	$R_E = 1200\Omega$ $C = 270\text{pF}$ $f \leq 100\text{kHz}$ $t_p = 1\mu\text{s}$ or greater
	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



SWITCHING TEST CIRCUIT

