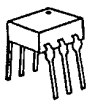
T-41-89

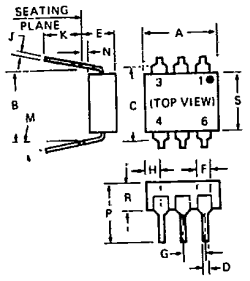
Photon Coupled Isolator MOC3009-MOC3012

Ga As Infrared Emitting Diode & Light Activated Triac Driver

The GE Solid State MOC3009-MOC3012 series consists of a gallium arsenide infrared emitting diode coupled with a light activated silicon bilateral switch, which functions like a triac, in a dual-in-line package.

These devices are especially designed for triggering power triacs while maintaining dielectric isolation from the trigger control circuit. They are mounted in dual-in-line packages. These devices are also available in Surface-Mount packaging.





absolute maximum ratings: (25° C)

INFRARED EMITTING DIODE		
Power Dissipation	*100	milliwatts
Forward Current (Continuous)	50	milliamps
Forward Current (Peak) (Pulse width 1 μsec. 300 pps)	3	amperes
Reverse Voltage	3	volts

*Derate 1.33mW/°C above 25°C ambient.

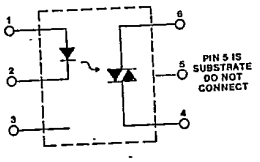
OUTPUT DRIVER		
Off-State Output Terminal Voltage	250	Volts
On-State RMS Current (Full Cycle Sine Wave, 50 to 60 Hz)	100	milliamps
Peak Nonrepetitive Surge Current (PW = 10 ms, DC = 10%)	1.2	amperes
Total Power Dissipation @ T_A = 25°C	**300	milliwatts

**Derate 4.0 mW/°C above 25°C ambient.

TOTAL DEVICE
Storage Temperature –55°C to +150°C
Operating Temperature –40°C to +100°C
Lead Soldering Time (at 260°C) 10 seconds
Isolation Surge Voltage: (Input to Output) 7500VAC (Peak AC Voltage, 60 Hz, 5 second duration)

SYMBOL	MILLIMETERS MIN.	MILLIMETERS MAX.	INCHES MIN.	INCHES MAX.	NOTES
A	8.38	8.89	.330	.350	
B	7.62 REF.		.300 REF.		1
C	—	8.64	—	.340	2
D	.406	.508	0.16	020	
E	—	5.08	—	.200	3
F	1.01	1.78	.040	.070	
G	2.28	2.80	.090	.110	
H	—	2.16	—	.085	4
J	.203	.305	008	012	
K	2.54	—	.100	—	
M	—	15°	—	15°	
N	.381	—	015	—	
P	—	9.53	—	.375	
R	2.92	3.43	.115	.135	
S	6.10	6.86	.240	.270	

NOTES
1. INSTALLED POSITION LEAD CENTERS
2. OVERALL INSTALLED DIMENSION
3. THESE MEASUREMENTS ARE MADE FROM THE SEATING PLANE.
4. FOUR PLACES.



Covered under U.L. component recognition program, reference file E51868

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individual electrical characteristics (25° C)

EMITTER	SYMBOL	TYP.	MAX.	UNITS
Forward Voltage (I_F = 10 mA)	V_F	1.2	1.5	volts
Reverse Current (V_R = 3V)	I_R	—	100	microamps
Capacitance (V = O, f = 1 MHz)	C_J	50	—	picofarads

DETECTOR See Note 1		SYMBOL	TYP.	MAX.	UNITS
Peak Off-State Current	V_{DRM} 250 V	I_{DRM}	—	100	nanoamps
Peak On-State Voltage	I_{TM} = 100 mA	V_{TM}	2.5	3.0	volts
Critical Rate-of-Rise of Off-State Voltage	T_A = 85°C	dv/dt	12.0	—	volts/μsec.

coupled electrical characteristics (25° C)

		SYMBOL	TYP.	MAX.	UNITS
IRED Trigger Current, Current Required to Latch Output	MOC3009	I_{FT}	—	30	milliamps
(Main Terminal Voltage = 3.0 V, R_L = 150 Ω	MOC3010	I_{FT}	—	15	milliamps
	MOC3011	I_{FT}	—	10	milliamps
	MOC3012	I_{FT}		5	milliamps
Holding Current, Either Direction		I_H	100	—	microamps

NOTE 1: Ratings apply to either polarity of Pin 6 — referenced to Pin 4. Voltages must be applied within dv/dt rating.

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