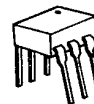


Photon Coupled Isolator GE3009-GE3012

Ga As Infrared Emitting Diode & Light Activated Triac Driver

The GE Solid State GE3009-GE3012 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 also available in Surface-Mount packaging.

These devices are especially designed for triggering power triacs while maintaining dielectric isolation from the trigger control circuit.



absolute maximum ratings: (25°C)

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

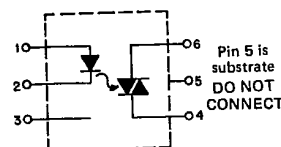
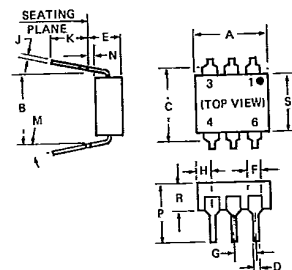
*Derate 1.33 mW/°C above 25°C ambient.

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

**Derate 4.0 mW/°C above 25°C.

TOTAL DEVICE	
Storage Temperature	-55°C to +150°C
Operating Temperature	-40°C to +100°C
Lead Soldering Time (at 260°C)	10 seconds
Surge Isolation Voltage (Input to Output)	
5656 V _(peak)	4000 V _(RMS)
Steady-State Isolation Voltage (Input to Output)	
5300 V _(peak)	3750 V _(RMS)

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



SYMBOL	MILLIMETERS		INCHES		NOTES
	MIN.	MAX.	MIN.	MAX.	
A	8.38	8.89	.330	.350	1
B	7.62 REF.		.300 REF.		2
C	—	8.64	—	.340	
D	.406	.508	.016	.020	3
E	—	5.08	—	.200	
F	1.01	1.78	.040	.070	
G	2.28	2.80	.090	.110	4
H	—	2.16	—	.085	
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.

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Individual electric characteristics (25°C)

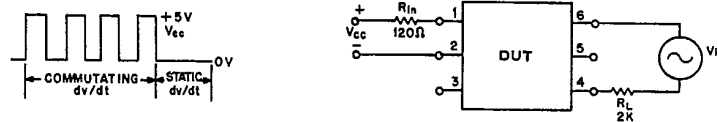
EMITTER	SYMBOL	TYP.	MAX.	UNITS
Forward Voltage ($I_F = 10 \text{ mA}$)	V_F	1.2	1.5	volts
Reverse Current ($V_R = 3 \text{ V}$)	I_R	—	100	microamps
Capacitance ($V = 0, f = 1 \text{ MHz}$)	C_j	50	—	picofarads

DETECTOR	See Note 1	SYMBOL	TYP.	MAX.	UNITS
Peak Off-State Current	$V_{DRM} = 250 \text{ V}$	I_{DRM}	—	100	nanoamps
Peak On-State Voltage	$I_{TM} = 100 \text{ mA}$	V_{TM}	2.5	3.0	volts
Critical Rate-of-Rise of Off-State Voltage	$V_{in} = 30 \text{ V}_{(RMS)}$ (See Figure 1)	dv/dt	10.0	—	volts/ μsec .
Critical Rate-of-Rise of Commutating Off-State Voltage	$I_{load} = 15 \text{ mA}$ $V_{in} = 30 \text{ V}_{(RMS)}$ (See Figure 1)	$dv/dt_{(C)}$	0.15	—	volts/ μsec .
Critical Rate-of-Rise of Off-State Voltage	$V_{in} = 140 \text{ V}_{(RMS)}$ JEDEC conditions	dv/dt	6.0	—	volts/ μsec .

coupled electrical characteristics (25°C)

		SYMBOL	TYP.	MAX.	UNITS
IRED Trigger Current, Current Required to Latch Output (Main Terminal Voltage = 3.0V, $R_L = 150 \Omega$)	GE3009	I_{FT}	—	30	milliamps
	GE3010	I_{FT}	—	15	milliamps
	GE3011	I_{FT}	—	10	milliamps
	GE3012	I_{FT}	—	5	milliamps
Holding Current, Either Direction		I_H	250	—	microamps

NOTE 1: Ratings apply for either polarity of Pin 6 — referenced to Pin 4.

Voltages must be applied within dv/dt rating.FIGURE 1. dv/dt — TEST CIRCUIT