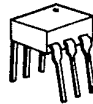


Photon Coupled Isolator GE3020-GE3023

Ga As Infrared Emitting Diode & Light Activated Triac Driver

The GE Solid State GE3020-GE3023 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.

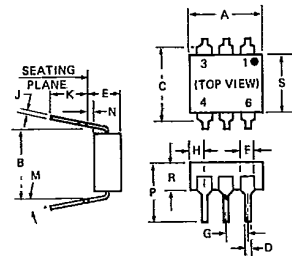
These devices are especially designed for triggering power triacs while maintaining dielectric isolation from the trigger control circuit.



absolute maximum ratings: (25°C)

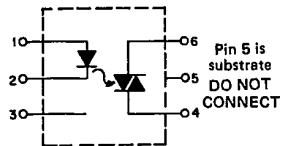
INFRARED EMITTING DIODE		
Power Dissipation	*100	milliwatts
Forward Current (Continuous)	50	milliamperes
Forward Current (Peak) (Pulse width 1 μ sec. 300 pps)	3	amperes
Reverse Voltage	3	volts

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



OUTPUT DRIVER		
Off-State Output Terminal Voltage	400	volts
On-State RMS Current (Full Cycle Sine Wave, 50 to 60 Hz)	100	milliamperes
Peak Nonrepetitive Surge Current (PW = 10 ms, DC = 10%)	1.2	amperes
Total Power Dissipation @ $T_A = 25^\circ\text{C}$	**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)

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	1
D	.406	.508	.016	.020	3
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	2.82	3.43	.115	.135	
S	6.10	6.86	.240	.270	

NOTES:

1. INSTALLED POSITION LEAD CENTER.
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

☑ VDE Approved to 0883/6.80 01106 Certificate #35025

7-4187

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	$V_{DRM} = 400 \text{ V}$	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/ $\mu\text{sec.}$
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/ $\mu\text{sec.}$
Critical Rate-of-Rise of Off-State Voltage	$V_{in} = 120 \text{ V}_{(RMS)}$ JEDEC conditions	dv/dt	6.0	—	volts/ $\mu\text{sec.}$

coupled electrical characteristics (25°C)

		SYMBOL	TYP.	MAX.	UNITS
IRED Trigger Current, Current Required to Latch Output (Main Terminal Voltage = 3.0V, $R_L = 150 \Omega$)	GE3020	I_{FT}	—	30	milliamps
	GE3021	I_{FT}	—	15	milliamps
	GE3022	I_{FT}	—	10	milliamps
	GE3023	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.

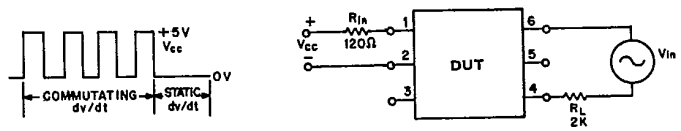


FIGURE 1. dv/dt — TEST CIRCUIT