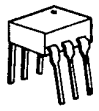
Photon Coupled Isolator GE3020-GE3023

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.

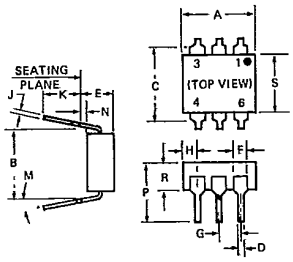
These devices are especially designed for triggering power triacs while maintaining dielectric isolation from the trigger control circuit.



absolute maximum ratings: (25° C)

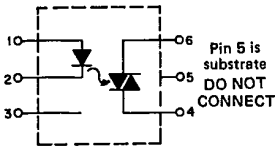
INFRARED EMITTING DIODE		
Power Dissipation	*100	milliwatts
Forward Current (Continuous)	50	milliamps
Forward Current (Peak) (Pulse width 1 μsec. 300 pps)	3	amperes
Reverse Voltage	3	volts

*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	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.



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	
B	7.62 REF.		.300 REF.		1
C	—	8.64	—	.340	2
D	.406	.508	016	.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

VDE Approved to 0883/6.80 01106 Certificate #35025

T-41-87

individual electric 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} = 400 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	V_{in} = 30 $V_{(RMS)}$ (See Figure 1)	dv/dt	10.0	—	volts/μsec.
Critical Rate-of-Rise of Commutating Off-State Voltage	I_{load} = 15 mA, V_{in} = 30 $V_{(RMS)}$ (See Figure 1)	$dv/dt_{(C)}$	0.15	—	volts/μsec.
Critical Rate-of-Rise of Off-State Voltage	V_{in} = 120 $V_{(RMS)}$ 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 Ω)	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

10

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

Voltages must be applied within dv/dt rating.

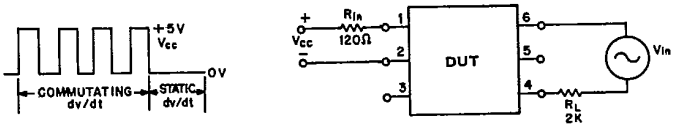


FIGURE 1. dv/dt — TEST CIRCUIT