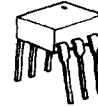


GE3020-GE3023

Optoisolator GaAs Infrared Emitting Diode and Light Activated Triac Driver

The 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)

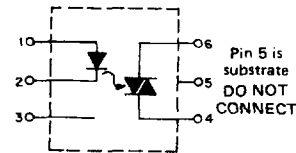
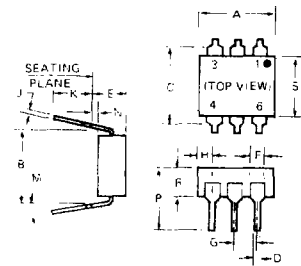
INFRARED EMITTING DIODE		
Power Dissipation	*100	milliwatts
Forward Current (Continuous)	50	milliamps
Forward Current (Peak) (Pulse width 1 μsec. 300 pps)	3	amperes
Reverse Voltage	3	volts

*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	8.78	8.86	.350	.350	1
B	7.62	REF	.300	REF	1
C	-	8.64	-	.340	2
D	4.06	5.08	.16	.200	
E	-	5.08	-	.200	3
F	1.01	1.78	.040	.070	
G	2.25	2.80	.090	.110	
H	-	2.16	-	.085	4
J	2.03	.305	.038	.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	

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

VDE Approved to 0883; 6.80 01106 Certificate #35025

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

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.

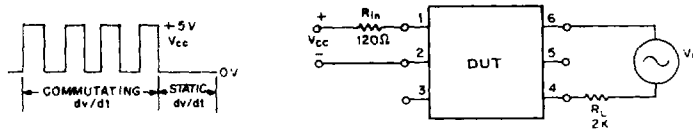


FIGURE 1. dv/dt -- TEST CIRCUIT