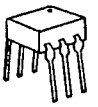
Photon Coupled Isolator MOC3020-MOC3023

Ga As Infrared Emitting Diode & Light Activated Triac Driver

The GE Solid State MOC3020-MOC3023 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

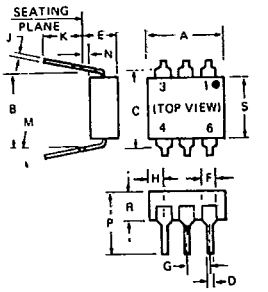
*Derate 1.33mW/°C above 25°C ambient.

OUTPUT DRIVER		
Off-State Output Terminal Voltage	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 ambient.

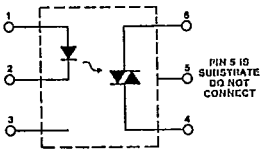
TOTAL DEVICE
Storage Temperature –55°C to +150°C
Operating Temperature –40°C to +100°C
Lead Soldering Time (at 260°C) 10 seconds
Isolation Surge Voltage: (Input to Output) 7500VAC (Peak AC Voltage, 60 Hz, 5 second duration)

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



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.



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37E D
HARRIS SEMICOND SECTOR

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} 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	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. (Main Terminal Voltage = 3.0 V, R_L = 150 Ω	MOC3020	I_{FT}	—	30	milliamps
	MOC3021	I_{FT}	—	15	milliamps
	MOC3022	I_{FT}	—	10	milliamps
	MOC3023	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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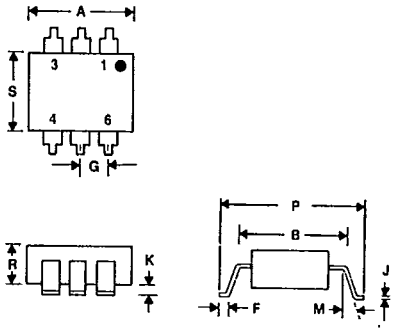
Surface-Mount Optoisolators



Surface-mount packaging for the entire 6-pin DIP opto-isolator line!

Add the "SMA" or "SMB" suffix to any 6-pin optoisolator part number when ordering.

DIMENSIONAL OUTLINE NO. 298
All Surface-Mount Types

SMB (Standard)
Surface-Mount Package

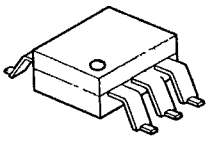
SYMBOL	INCHES		MILLIMETERS		NOTES
	MIN.	MAX.	MIN.	MAX.	
A	0.330	0.350	8.38	8.89	
B	0.330 REF		8.38 REF		
F	0.020	0.040	0.508	1.02	
J	0.008	0.012	0.203	0.305	
K	0.0040	0.0098	0.102	0.249	
M	—	15°	—	15°	
P	0.375	0.395	9.53	10.03	
R	0.115	0.135	2.92	3.43	
S	0.240	0.270	6.10	6.86	
Coplanarity	0	0.002	0	0.051	1

92CS-42862

1. Coplanarity is the distance from a plane, defined by the end of the three longest legs to the end of the shortest leg.

SMA (Low Profile)
Surface-Mount Package

SYMBOL	INCHES		MILLIMETERS		NOTES
	MIN.	MAX.	MIN.	MAX.	
A	0.330	0.350	8.38	8.89	
B	0.330 REF		8.38 REF		
F	0.020	0.040	0.508	1.02	
J	0.008	0.012	0.203	0.305	
K	0.0005	0.0040	0.013	0.102	
M	—	15°	—	15°	
P	0.373	0.393	9.47	9.98	
R	0.115	0.135	2.92	3.43	
S	0.240	0.270	6.10	6.86	
Coplanarity	0	0.002	0	0.051	1

92CS-42861

1. Coplanarity is the distance from a plane, defined by the end of the three longest legs to the end of the shortest leg.