

T-41-87

HARRIS SEMICONDUCTOR 37E D ■ 4302271 0027228 5 ■ HAS
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.

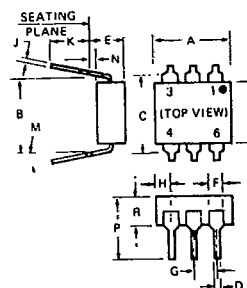
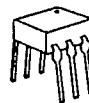
These devices are especially designed for triggering power triacs while maintaining dielectric isolation from the trigger control circuit. They are mounted in dual-in-line packages. These devices are also available in Surface-Mount packaging.

absolute maximum ratings: (25°C)

INFRARED EMITTING DIODE		
Power Dissipation	*100	milliwatts
Forward Current (Continuous)	50	milliamps
Forward Current (Peak) (Pulse width 1 μ sec, 300 pps)	3	amperes
Reverse Voltage	3	volts
*Derate 1.33mW/°C above 25°C ambient.		

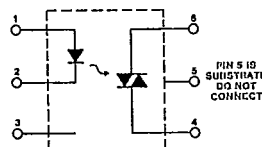
OUTPUT DRIVER		
Off-State Output Terminal Voltage	400	Volts
On-State RMS Current (Full Cycle Sine Wave, 50 to 60 Hz)	100	milliamps
Peak Nonrepetitive Surge Current (PW = 10 ms, DC = 10%)	1.2	amperes
Total Power Dissipation @ $T_A = 25^\circ\text{C}$	**300	milliwatts
**Derate 4.0 mW/°C above 25°C ambient.		

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)	



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	3
D	406	508	0.16	.020	4
E	—	5.08	—	.200	
F	1.01	1.78	.040	.070	
G	2.28	2.80	.090	.110	
H	—	2.16	—	.085	
I	.203	.305	.008	.012	
J	2.54	—	.100	—	
K	—	15°	—	15°	
L	.381	—	.015	—	
M	—	9.53	—	.375	
N	—	3.43	.115	.135	
P	2.92	6.86	.115	.270	
R	6.10	—	—	—	
S	—	—	—	—	

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

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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 ($V_R = 3$ V)	I_R	—	100	microamps
Capacitance ($V = 0$, $f = 1$ 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 $T_A = 85^\circ\text{C}$	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, $R_L = 150 \Omega$)	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

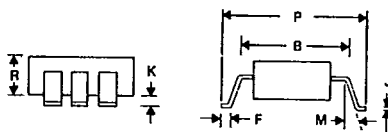
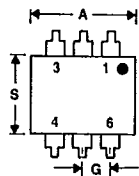
NOTE 1: Ratings apply to either polarity of Pin 6 — referenced to Pin 4.
Voltages must be applied within dv/dt rating.

HARRIS SEMICONDUCTOR

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T-91-20

Surface-Mount Optoisolators



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.

