New Jersey Semi-Conductor Products, Inc.

20 STERN AVE.
SPRINGFIELD, NEW JERSEY 07081
U.S.A.

TELEPHONE: (973) 376-2922
(212) 227-6005
FAX: (973) 376-8960

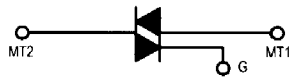
Triacs
Silicon Bidirectional Triode Thyristors

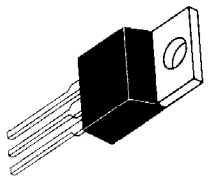
MAC229 Series
MAC229A Series

TRIACs
8 AMPERES RMS
200 thru 800 VOLTS

. . . designed primarily for industrial and consumer applications for full wave control of ac loads such as appliance controls, heater controls, motor controls, and other power switching applications.

- All Diffused and Glass-Passivated Junctions for Parameter Uniformity and Stability
- Small, Rugged, Thermowatt Construction for Low Thermal resistance and High Heat Dissipation
- Center Gate Geometry for Uniform Current Spreading
- Gate Triggering Guaranteed in Three Modes (MAC229 Series) or Four Modes (MAC229A Series)





(TO-220AB)

MAXIMUM RATINGS (T_J = 25°C unless otherwise noted.)

Rating	Symbol	Value	Unit
Peak Repetitive Off-State Voltage(1) (T_J = –40 to 110°C, 1/2 Sine ave 50 to 60 Hz, Gate Open) MAC229-4, MAC229A4 MAC229-6, MAC229A6 MAC229-8, MAC229A8 MAC229-10, MAC229A10	V_{DRM}	 200 400 600 800	Volts
On-State RMS Current (T_C = 80°C) Full Cycle Sine Wave 50 to 60 Hz	$I_{T(RMS)}$	8	Amps
Peak Non–repetitive Surge Current (One Full Cycle 60 Hz, T_J = 110°C)	I_{TSM}	80	Amps
Circuit Fusing (t = 8.3 ms)	I^2t	26	A^2s
Peak Gate Current (t ≤ 2 μs)	I_{GM}	±2	Amps
Peak Gate Voltage (t ≤ 2 μs)	V_{GM}	±10	Volts
Peak Gate Power (t ≤ 2 μs)	P_{GM}	20	Watts
Average Gate Power (T_C = 80°C, t ≤ 8.3 ms)	$P_{G(AV)}$	0.5	Watts
Operating Junction Temperature Range	T_J	–40 to 110	°C
Storage Temperature Range	T_{stg}	–40 to 150	°C
Mounting Torque		8	in. lb.

1. V_{DRM} for all types can be applied on a continuous basis. Blocking voltages shall not be tested with a constant current source such that the voltage ratings of the devices are exceeded. (cont.)

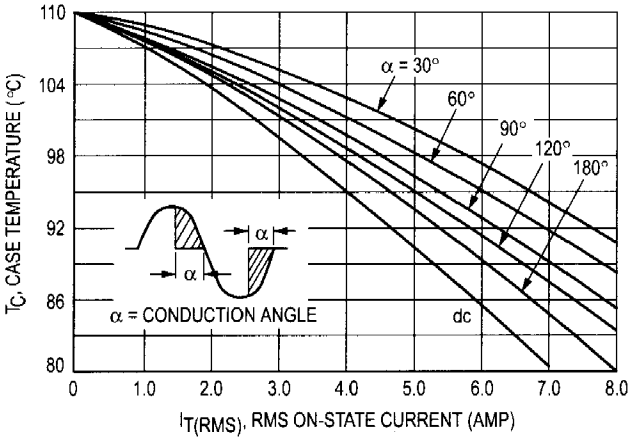
THERMAL CHARACTERISTICS

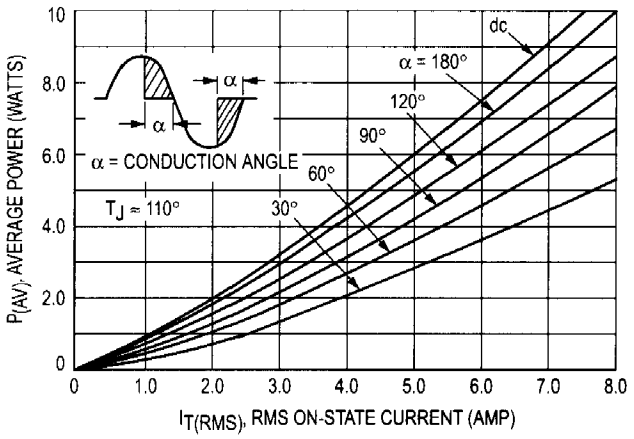
Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	$R_{\theta JC}$	2.2	°C/W
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	60	°C/W

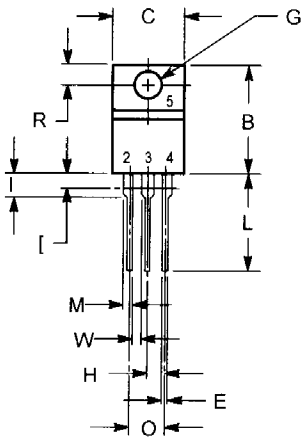
ELECTRICAL CHARACTERISTICS (T_C = 25°C and either polarity of MT2 to MT1 voltage unless otherwise noted.)

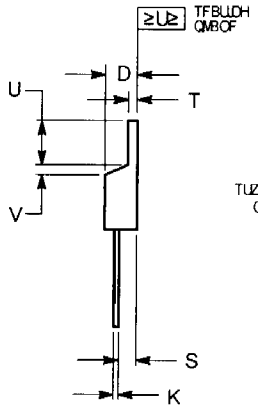
Characteristic	Symbol	Min	Typ	Max	Unit
Peak Blocking Current(1) (V_D = Rated V_{DRM}, Gate Open) T_J = 25°C	I_{DRM}	—	—	10	μA
T_J = 110°C		—	—	2	mA
Peak On-State Voltage (I_{TM} = 11 A Peak, Pulse Width ≤ 2 ms, Duty Cycle ≤ 2%)	V_{TM}	—	—	1.8	Volts
Gate Trigger Current (Continuous dc) (V_D = 12 V, R_L = 100 Ω)	I_{GT}				mA
MT2(+), G(+); MT2(+), G(–); MT2(–), G(–)		—	—	10	
MT2(–), G(+) "A" SUFFIX ONLY		—	—	15	
Gate Trigger Voltage (Continuous dc) (V_D = 12 V, R_L = 100 Ω)	V_{GT}				Volts
MT2(+), G(+); MT2(+), G(–); MT2(–), G(–)		—	—	2	
MT2(–), G(+) "A" SUFFIX ONLY		—	—	2.5	
(V_D = Rated V_{DRM}, T_C = 110°C, R_L = 10 k)					
MT2(+), G(+); MT2(+), G(–); MT2(–), G(–); All Types		0.2	—	—	
MT2(–), G(+) "A" SUFFIX ONLY MAC229 series		0.2	—	—	
Holding Current (V_D = 12 Vdc, I_{TM} = 200 mA, Gate Open)	I_H	—	—	15	mA
Gate-Controlled Turn-On Time (V_D = Rated V_{DRM}, I_{TM} = 16 A Peak, I_G = 30 mA)	t_{gt}	—	1.5	—	μs
Critical Rate of Rise of Off-State Voltage (V_D = Rated V_{DRM}, Exponential Waveform, T_C = 110°C)	dv/dt	—	25	—	V/μs
Critical Rate of Rise of Commutation Voltage (V_D = Rated V_{DRM}, I_{TM} = 11.3 A, Commutating di/dt = 4.1 A/ms, Gate Unenergized, T_C = 80°C)	dv/dt(c)	—	5	—	V/μs

1. Ratings apply for open gate conditions. Devices shall not be tested with a constant current source for blocking voltage such that the voltage applied exceeds the rated blocking voltage.









TUZMF!5;
QLD!2/ NBJOUFSNJOBM2
3/ NBJOUFSNJOBM3
4/ HBUF
5/ NBJOUFSNJOBM3

OPUFT;

2/ EJNFOTJPOBM!BOE!UPMFSBODJOH!QFS!BOTJ Z25/6N-!2: 93/

3/ DPOUSPMMJOH!EJNFOTJPOBM!DPEJ /

4/ EJNFOTJPO[!EFGJOFT!B![POF!X I FSF!BMM OPEZ!BOE!MFBE\SSFHVMBSJUFT!BSF BMMPXFE/

	JODI FT		NJMMINFUFST	
E.N	N.O	NBY	N.O	NBY
B	1/681	1/731	25/59	26/86
C	1/491	1/516	. /77	21/39
D	1/271	1/2: 1	5/18	5/93
E	1/136	1/146	1/75	1/99
G	1/253	1/258	4/72	4/84
H	1/1: 6	1/216	3/53	3/77
I	1/221	1/266	3/91	4/ 4
K	1/125	1/133	1/47	1/66
L	1/611	1/673	23/81	25/38
M	1/156	1/166	2/26	2/4:
O	1/2: 1	1/321	5/94	6/44
R	1/211	1/231	3/65	4/15
S	1/191	1/221	3/15	3/8:
T	1/156	1/166	2/26	2/4:
U	1/346	1/366	6/ 8	7/58
V	1/111	1/161	1/11	2/38
W	1/156	≥≥≥	2/26	≥≥≥
[	≥≥≥	1/191	≥≥≥	3/15