

FEATURES

- Available as "HR" (high reliability) screened per MIL-PRF-19500, JANTX level. Add "HR" suffix to base part number.
- Available as non-RoHS (Sn/Pb plating), standard, and as RoHS by adding "-PBF" suffix.

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Peak repetitive off-state voltage, gate open			
MAC216(A)-4	V _{DRM}	200	Volts
MAC216(A)-6		400	
MAC216(A)-7		500	
MAC216(A)-8		600	
Peak gate voltage	V _{GM}	10	Volts
RMS on-state current (T _C = 80°C)	I _{T(RMS)}	6	Amps
Peak non-repetitive surge current (1 cycle, 60 Hz)	I _{TSM}	60	Amps
Circuit fusing considerations (t = 1.0ms)	I ² t	18	A ² s
Critical rate of rise of on-state current	di/dt	10	A/μs
Peak gate power (pulse width = 10μs)	P _{GM}	10	Watts
Average gate power (T _C = 80°C, t = 8.3ms)	P _{G(AV)}	0.5	Watts
Peak gate current (pulse width = 10μs)	I _{GM}	3.5	Amps
Operating junction temperature range	T _J	-40 to +100	°C
Storage temperature range	T _{stg}	-40 to +125	°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	Maximum	Unit
Thermal resistance, junction to case	R _{θJC}	2.2	°C/W

ELECTRICAL CHARACTERISTICS (T_C = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Typ.	Max	Unit
Peak off state current ⁽¹⁾ (Rated V _{DRM} = peak off state voltage, gate open @ T _C = 25°C) (Rated V _{DRM} = peak off state voltage, gate open @ T _C = 100°C)	I _{DRM}	-	0.01 0.2	0.1 0.5	mA
Peak on-state voltage ⁽¹⁾ (Pulse width = 1.0ms, duty cycle < 2%, I _{TM} = 8.5A peak)	V _{TM}	-	1.4	1.83	Volts
Critical rate of rise of off-state voltage ⁽¹⁾ (Rated V _{DRM} , gate open, exponential waveform, T _C = 100°C)	dv/dt	50	100	-	V/μs
Critical rate of rise of commutating off-state voltage ⁽¹⁾ (I _{T(RMS)} = Rated RMS on-state current, V _{DRM} = rated peak off-state voltage, gate open, commutating di/dt = 3.2A/ms)	dv/dt(c)	4	-	-	V/μs

Gate trigger current ⁽²⁾ ($V_D = 12V$, trigger mode) MT2(-),G(+), $R_L = 50\Omega$, "A" only MT2(+),G(+), $R_L = 100\Omega$ MT2(-),G(-), $R_L = 100\Omega$ MT2(+),G(-), $R_L = 50\Omega$ MT2(+),G(+), $R_L = 50\Omega$, $T_C = -40^\circ C$ MT2(-),G(-), $R_L = 50\Omega$, $T_C = -40^\circ C$ MT2(+),G(-), $R_L = 25\Omega$, $T_C = -40^\circ C$ (MAC216) MT2(-),G(+), $R_L = 50\Omega$, $T_C = -40^\circ C$ (MAC216A)	I_{GT}	-	40	75	mA
		-	10	50	
		-	20	50	
		-	25	50	
		-	-	80	
		-	-	80	
		-	-	75	
		-	-	120	
Gate trigger voltage ⁽²⁾ ($V_D = 12V$, trigger mode) MT2(-),G(+), $R_L = 50\Omega$, "A" only MT2(+),G(+), $R_L = 100\Omega$ MT2(-),G(-), $R_L = 100\Omega$ MT2(+),G(-), $R_L = 50\Omega$ MT2(+),G(+), $R_L = 50\Omega$, $T_C = -40^\circ C$ MT2(-),G(-), $R_L = 50\Omega$, $T_C = -40^\circ C$ MT2(+),G(-), $R_L = 25\Omega$, $T_C = -40^\circ C$ (MAC216) MT2(-),G(-), $R_L = 50\Omega$, $T_C = -40^\circ C$ (MAC216A) MT2(+),G(+), $R_L = 1000\Omega$, $T_C = 100^\circ C$ MT2(-),G(-), $R_L = 1000\Omega$, $T_C = 100^\circ C$ MT2(+),G(-), $R_L = 1000\Omega$, $T_C = 100^\circ C$ MT2(-),G(+), $R_L = 1000\Omega$, $T_C = 100^\circ C$	V_{GT}	-	0.8	2.5	Volts
		-	0.8	2.5	
		-	0.9	2.5	
		-	-	2.5	
		-	-	3.5	
		-	-	3.5	
		-	-	2.5	
		-	-	3.5	
		0.2	-	-	
		0.2	-	-	
		0.2	-	-	
		-	-	-	
Holding current ⁽¹⁾ ($V_D = 24V$, initiating current = 0.5A, pulse width = 1ms, duty cycle $\leq 2\%$, gate trigger source = 7V, 200 Ω) $T_C = 25^\circ C$ $T_C = -40^\circ C$	I_H	-	15	50	mA
		-	-	100	
Latching current ⁽²⁾ ($V_D = 24V$, gate trigger source = 15V, 100 Ω , trigger mode) MT2(-),G(+), "A" only MT2(+),G(+) MT2(-),G(-) MT2(+),G(-) MT2(+),G(+), $T_C = -40^\circ C$ MT2(-),G(-), $T_C = -40^\circ C$ MT2(+),G(-), $T_C = -40^\circ C$ (MAC216) MT2(-),G(+), $T_C = -40^\circ C$ (MAC216A)	I_L	-	-	200	mA
		-	-	100	
		-	-	100	
		-	-	200	
		-	-	200	
		-	-	200	
		-	-	200	
		-	-	400	

Note 1: Value apply for either polarity of Main Terminal 2 characteristics reference to Main Terminal 1.

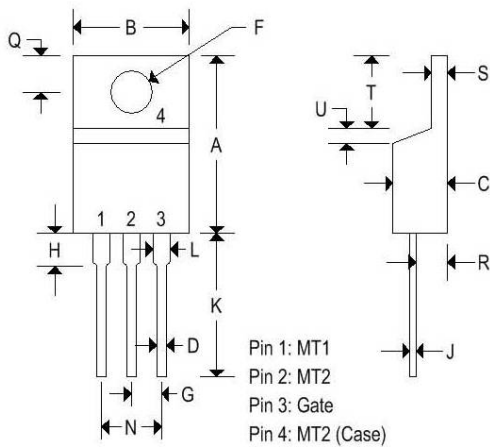
Note 2: Main Terminal 1 is the reference terminal.

MAC216(A) SERIES

SILICON BIDIRECTIONAL THYRISTORS

MECHANICAL CHARACTERISTICS

Case	TO-220AB
Marking	Alpha-numeric
Pin out	See below



	TO-220AB			
	Inches		Millimeters	
	Min	Max	Min	Max
A	0.575	0.620	14.600	15.750
B	0.380	0.405	9.650	10.290
C	0.160	0.190	4.060	4.820
D	0.025	0.035	0.640	0.890
F	0.142	0.147	3.610	3.730
G	0.095	0.105	2.410	2.670
H	0.110	0.155	2.790	3.930
J	0.014	0.022	0.360	0.560
K	0.500	0.562	12.700	14.270
L	0.045	0.055	1.140	1.390
N	0.190	0.210	4.830	5.330
Q	0.100	0.120	2.540	3.040
R	0.080	0.110	2.040	2.790
S	0.045	0.055	1.140	1.390
T	0.235	0.255	5.970	6.480
U	-	0.050	-	1.270
V	0.045	-	1.140	-
Z	-	0.080	-	2.030

FIGURE 1 - RMS CURRENT DERATING

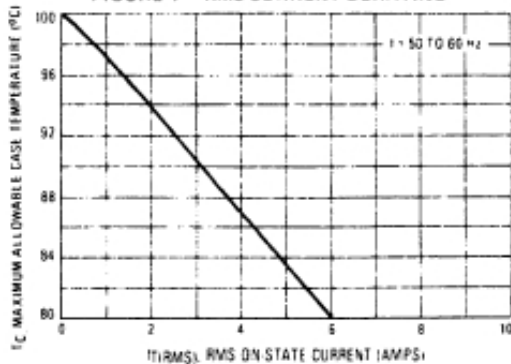


FIGURE 2 - POWER DISSIPATION

