

FEATURES:

- Available as "HR" (high reliability) screened per MIL-PRF-19500, JANTX level. Add "HR" suffix to base part number
- Available Non-RoHS (standard) or RoHS compliant (add PBF suffix)

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Peak repetitive off-state voltage⁽¹⁾ ($T_J = 125^\circ\text{C}$) MAC800-2, MAC800A-2, MAC800B-2 MAC800-5, MAC800A-5, MAC800B-5 MAC800-10, MAC800A-10, MAC800B-10 MAC800-20, MAC800A-20, MAC800B-20 MAC800-40, MAC800A-40, MAC800B-40 MAC800-60, MAC800A-60, MAC800B-60 MAC800-80, MAC800A-80, MAC800B-80	V_{DRM}	25 50 100 200 400 600 800	Volts
RMS on-state current (full sine wave, 50 to 60Hz, $T_C = 95^\circ\text{C}$)	$I_{\text{T(RMS)}}$	4.0	Amps
Peak non-repetitive surge current (1 cycle, 60 Hz, $T_J = -40$ to $+125^\circ\text{C}$)	I_{TSM}	40	Amps
Circuit fusing considerations ($T_J = -40$ to $+125^\circ\text{C}$, $t = 8.3\text{ms}$)	I^2t	6.5	A^2s
Peak gate power ($t \leq 10\mu\text{s}$)	P_{GM}	10	Watts
Average gate power	$P_{\text{G(AV)}}$	0.5	Watts
Peak gate voltage (pulse width $\leq 10\mu\text{s}$)	V_{GM}	5.0	Volts
Operating junction temperature range	T_J	-40 to +125	$^\circ\text{C}$
Storage temperature range	T_{stg}	-40 to +150	$^\circ\text{C}$

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

* Soldering temperatures shall not exceed 200°C for 10 seconds.

THERMAL CHARACTERISTICS

Characteristic	Symbol	Maximum	Unit
Thermal resistance, junction to case	$R_{\theta\text{JC}}$	5.0	$^\circ\text{C}/\text{W}$
Thermal resistance, junction to ambient	$R_{\theta\text{JA}}$	150	$^\circ\text{C}/\text{W}$

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise specified)

Characteristic	Symbol	Min	Typ.	Max	Unit
Peak blocking current (either direction) (Rated V_{DRM} @ $T_J = 125^\circ\text{C}$, gate open)	I_{DRM}	-	0.5	2.0	mA
Peak on-state voltage (either direction) ($I_{\text{TM}} = 6.0\text{A}$ peak, pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$)	V_{TM}	-	-	2.0	Volts
Gate trigger voltage (continuous dc) ($V_D = 12\text{V}$, $R_L = 100\Omega$, $T_J = 40^\circ\text{C}$, minimum gate pulse width = 8.3ms) MT2(+),G(+); MT2(-),G(-), all types MT2(+),G(-); MT2(-),G(+), MAC800A, B ($V_D = \text{Rated } V_{\text{DRM}}$, $R_L = 10\text{k}\Omega$, $T_J = 125^\circ\text{C}$, minimum pulse width = 8.3ms) MT2(+),G(+); MT2(-),G(-), all types MT2(+),G(-); MT2(-),G(+), MAC800A, B	V_{GT}	- - 0.2 0.2	1.4 1.4 - -	2.5 2.5 - -	Volts

MAC800(A)(B)

SILICON BIDIRECTIONAL THYRISTORS

Holding current (either direction) $(V_D = 12V, \text{ gate open, initiating current} = 1.0A, T_j = -40^\circ C)$ MAC800 Series $(V_D = 12V, \text{ gate open, initiating current} = 1.0A, T_j = -40^\circ C)$ MAC800A, B Series $(V_D = 12V, \text{ gate open, initiating current} = 1.0A, T_j = 25^\circ C)$ MAC800 Series $(V_D = 12V, \text{ gate open, initiating current} = 1.0A, T_j = 25^\circ C)$ MAC800A, B Series	I_H	- - - -	- - - -	70 30 30 15	mA
Gate controlled turn on time $(V_D = \text{rated } V_{DRM}, I_{TM} = 14A \text{ peak}, I_{GT} = 100mA)$	t_{gt}	-	1.0	2.0	μs
Critical rate of rise of off-state voltage $(V_D = \text{Rated } V_{DRM}, \text{ exponential waveform}, T_C = 95^\circ C, \text{ gate open})$	dv/dt	-	5.0	-	$V/\mu s$

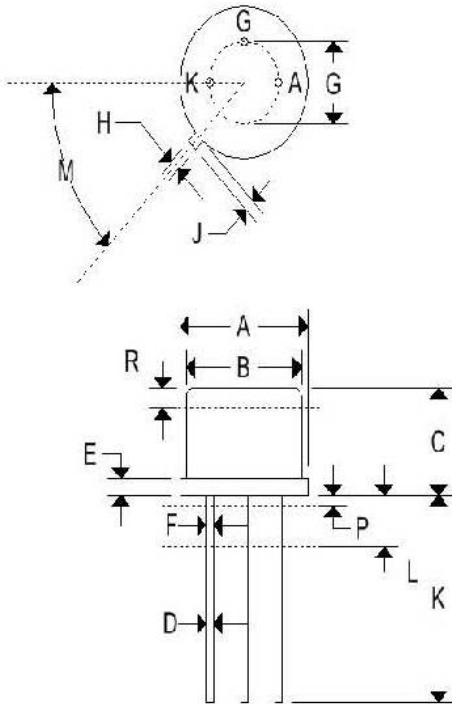
Characteristic			Symbol	QUADRANT			
				I mA	II mA	III mA	IV mA
Peak gate trigger current $(V_D = 12V, R_L = 100\Omega, \text{ minimum gate pulse width} = 8.3ms)$	MAC800 SERIES	$T_j = 25^\circ C$	I_{GT}	30	-	30	-
	MAC800 SERIES	$T_j = -40^\circ C$		60	-	60	-
	MAC800A SERIES	$T_j = 25^\circ C$		5.0	5.0	5.0	10
	MAC800A SERIES	$T_j = -40^\circ C$		20	20	20	30
	MAC800B SERIES	$T_j = 25^\circ C$		3.0	3.0	3.0	5.0
	MAC800B SERIES	$T_j = -40^\circ C$		15	15	15	20

MAC800(A)(B)

SILICON BIDIRECTIONAL THYRISTORS

MECHANICAL CHARACTERISTICS

Case	TO-39
Marking	Apha-numeric
Polarity	Cathode band



	TO-39			
	Inches		Millimeters	
	Min	Max	Min	Max
A	0.335	0.370	8.510	9.390
B	0.305	0.335	7.750	8.500
C	0.240	0.260	6.100	6.600
D	0.016	0.021	0.410	0.530
E	0.009	0.041	0.230	1.040
F	0.016	0.019	0.410	0.480
G	0.200 BSC		5.080 BSC	
H	0.028	0.034	0.720	0.860
J	0.029	0.045	0.740	1.140
K	0.500	0.750	12.700	19.050
L	0.250	-	6.350	-
M	45°C BSC		45°C BSC	
P	-	0.050	-	1.270
R	0.100	-	2.540	-

FIGURE 1 – RMS CURRENT DERATING

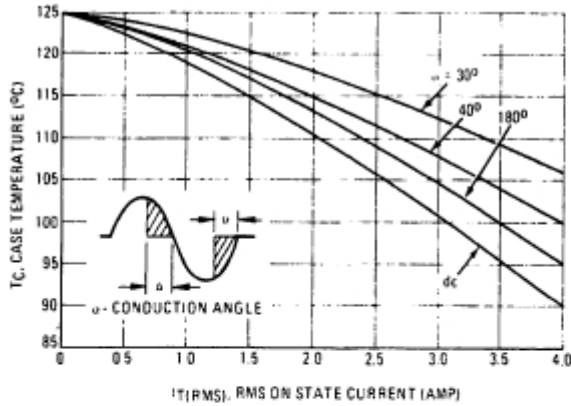


FIGURE 2 – POWER DISSIPATION

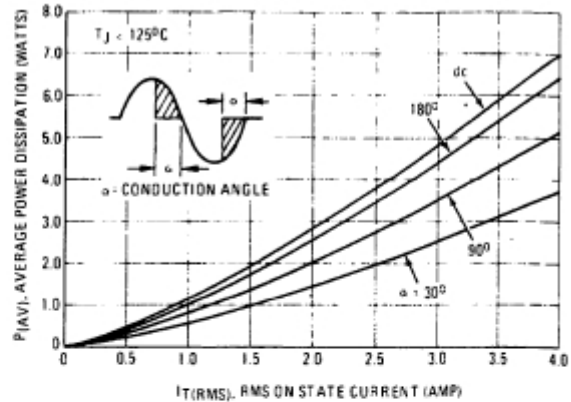


FIGURE 3 – TYPICAL GATE-TRIGGER VOLTAGE

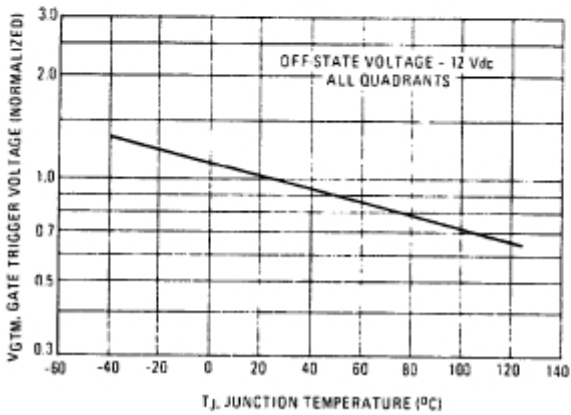
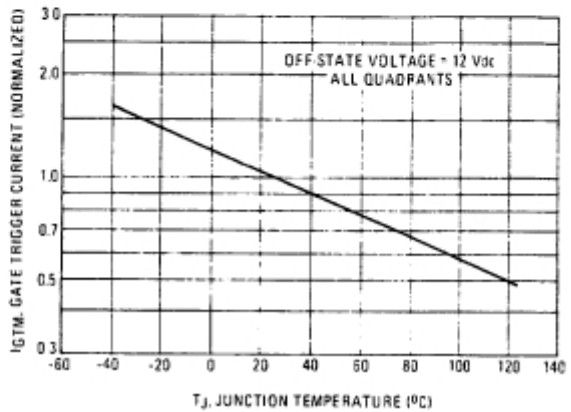


FIGURE 4 – TYPICAL GATE-TRIGGER CURRENT



MAC800(A)(B)

SILICON BIDIRECTIONAL THYRISTORS

FIGURE 5 – MAXIMUM ON-STATE CHARACTERISTICS

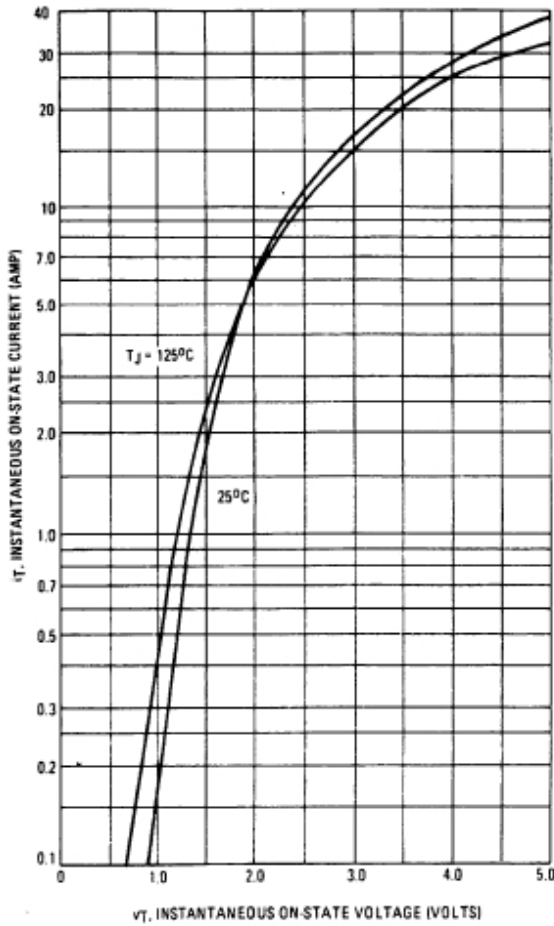


FIGURE 6 – TYPICAL HOLDING CURRENT

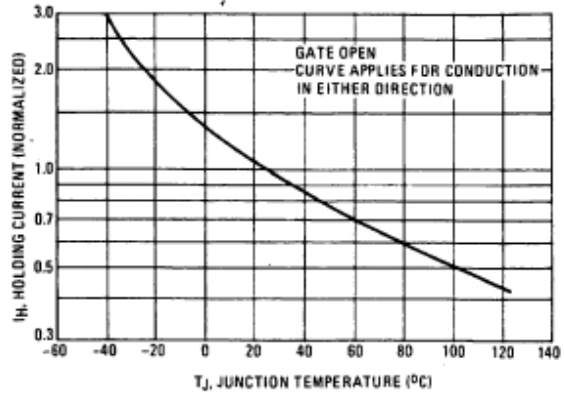


FIGURE 7 – MAXIMUM NON-REPETITIVE SURGE CURRENT

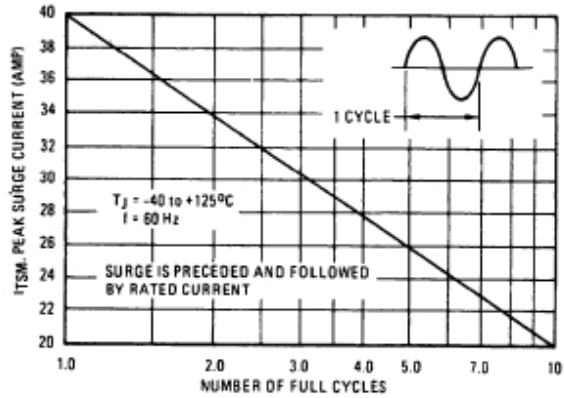


FIGURE 8 – THERMAL RESPONSE

