

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⁽¹⁾ (T _J = -40 to +125°C, ½ sine wave, 50 to 60Hz, gate open) MAC320-4, MAC320A-4 MAC320-6, MAC320A-6 MAC320-8, MAC320A-8 MAC320-10, MAC320A-10	V _{DRM}	200 400 600 800	Volts
Peak gate voltage	V _{GM}	10	Volts
RMS on-state current (Full cycle sine wave, 50 to 60Hz, T _C = 75°C)	I _{T(RMS)}	20	Amps
Peak non-repetitive surge current (1 cycle, 60Hz, T _C = 75°C, preceded and followed by rated current)	I _{TSM}	150	Amps
Peak gate power (T _C = 75°C, t ≤ 2μs)	P _{GM}	20	Watts
Average gate power (T _C = 75°C, t ≤ 8.3ms)	P _{G(AV)}	0.5	Watts
Peak gate current	I _{GM}	2	Amps
Operating junction temperature range	T _J	-40 to +125	°C
Storage temperature range	T _{stg}	-40 to +150	°C

Note 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.

THERMAL CHARACTERISTICS

Characteristic	Symbol	Maximum	Unit
Thermal resistance, junction to case	R _{θJC}	1.8	°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 (V _D = Rated V _{DRM} , gate open, T _J = 25°C) (V _D = Rated V _{DRM} , gate open, T _J = 125°C)	I _{DRM}	-	-	10 2	μA mA
Peak on-state voltage (either direction) (I _{TM} = 28A peak, pulse width ≤ 2ms, duty cycle ≤ 2%.)	V _{TM}	-	1.4	1.7	Volts
Gate trigger current (continuous dc) (V _D = 12V, R _L = 100Ω) MT2(+),G(+); MT2(+),G(-); MT2(-),G(-) MT2(-),G(+) "A" suffix only	I _{GT}	-	-	50 75	mA
Gate trigger voltage (continuous dc) (V _D = 12V, R _L = 100Ω) MT2(+),G(+); MT2(+),G(-); MT2(-),G(-) MT2(-),G(+) "A" suffix only (V _D = Rated V _{DRM} , R _L = 10kΩ, T _J = 110°C) MT2(+),G(+); MT2(+),G(-); MT2(-),G(-) MT2(-),G(+) "A" suffix only	V _{GT}	-	0.9 1.4	2.0 2.5	Volts
Holding current (either direction) (V _D = 12V, I _{TM} = 200mA, gate open)	I _H	-	6	40	mA

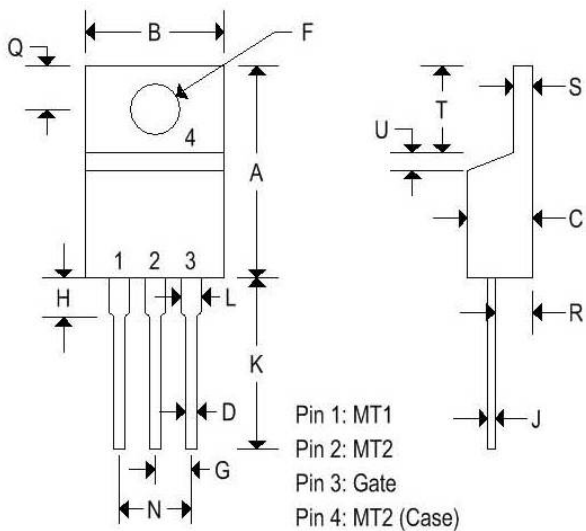
MAC320(A) SERIES

SILICON BIDIRECTIONAL THYRISTORS

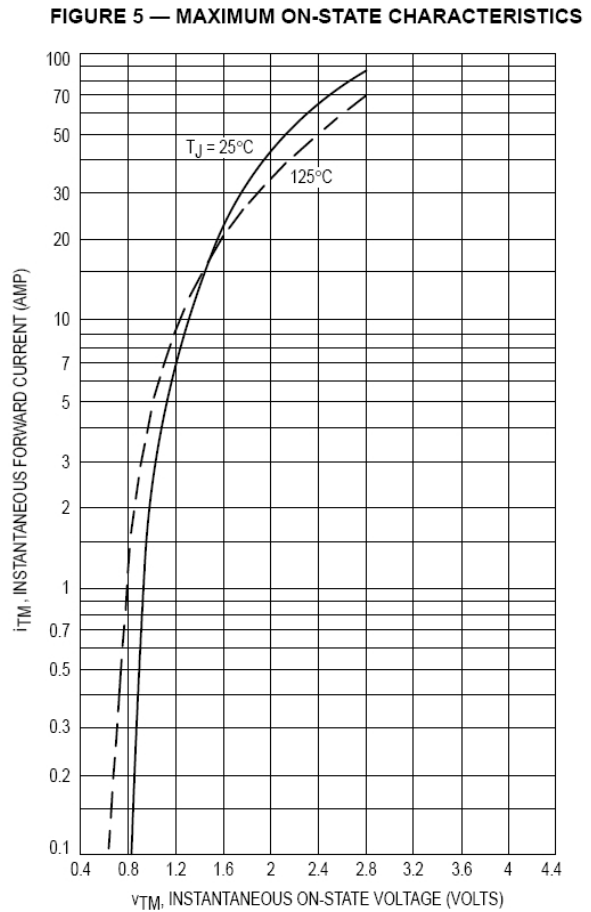
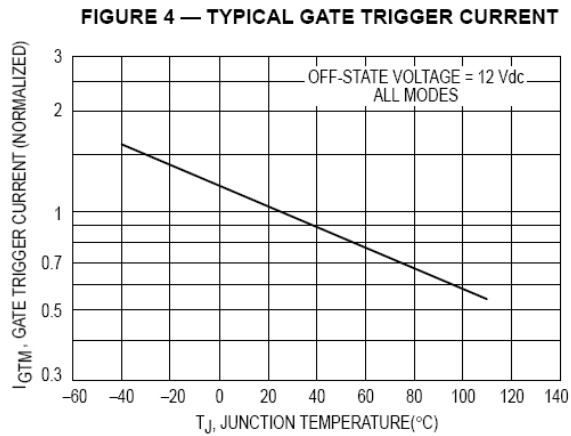
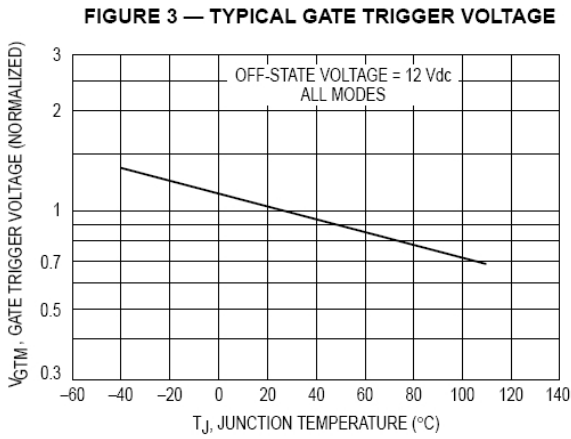
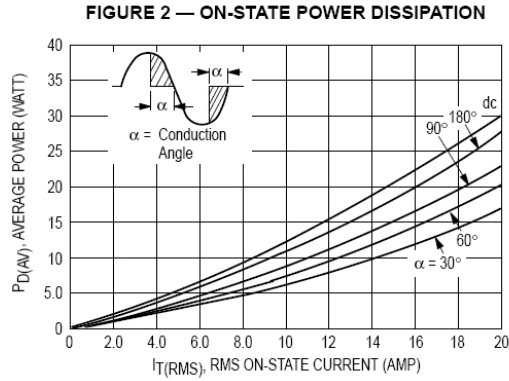
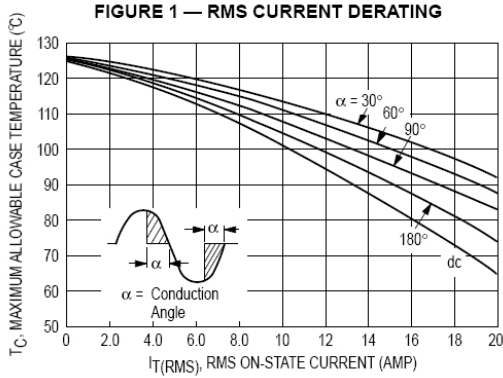
Gate controlled turn-on time ($V_D = \text{Rated } V_{DRM}, I_{TM} = 28A, I_G = 120mA, \text{rise time} = 0.1\mu s, \text{pulse width} = 2\mu s$)	t_{gt}	-	1.5	-	μs
Critical rate of rise of commutation voltage ($V_D = \text{Rated } V_{DRM}, I_{TM} = 28A \text{ peak, commutating } di/dt = 10A/ms, \text{gate unenergized, } T_C = 75^\circ C$)	$dv/dt(c)$	-	5	-	$V/\mu s$

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



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SILICON BIDIRECTIONAL THYRISTORS

FIGURE 6 — TYPICAL HOLDING CURRENT

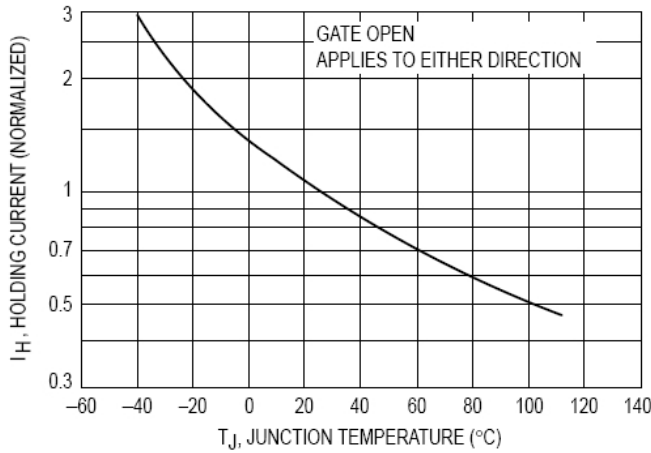


FIGURE 7 — MAXIMUM ON-REPETITIVE SURGE CURRENT

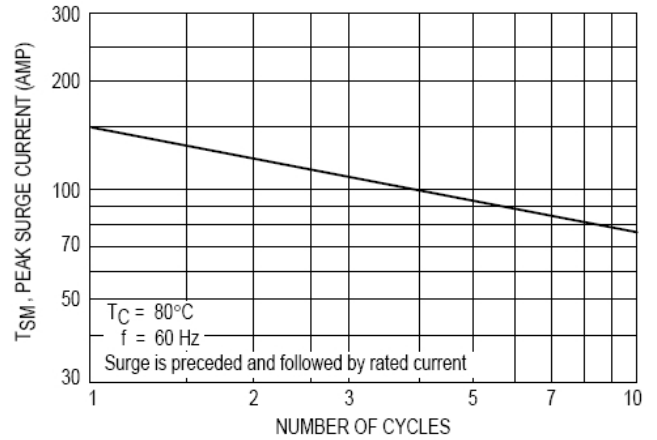


FIGURE 8 — THERMAL RESPONSE

