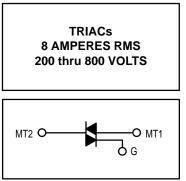
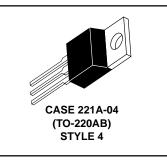
Triacs Silicon Bidirectional Thyristors

... designed primarily for full-wave ac control applications, such as light dimmers, motor controls, heating controls and power supplies.

- Blocking Voltage to 800 Volts
- · Glass Passivated Junctions for Greater Parameter Uniformity and Stability
- TO-220 Construction Low Thermal Resistance, High Heat Dissipation and Durability
- Gate Triggering Guaranteed in Three Modes (MAC218 Series) or Four Modes (MAC218A Series)

MAC218 Series MAC218A Series





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

Rating		Symbol	Value	Unit	
Peak Repetitive Off-State Voltage ⁽¹⁾ (Gate Open, T _J = 25 to 125°C)	MAC218-4, MAC218A4 MAC218-6, MAC218A6 MAC218-8, MAC218A8 MAC218-10, MAC218A10	VDRM	200 400 600 800	Volts	
On-State Current RMS (Conduction Angle = 360°, T _C = +80°C)		IT(RMS)	8	Amps	
Peak Non-repetitive Surge Current (One Full Cycle, 60 Hz, T _C = 80°C, pre	ITSM	100	Amps		
Fusing Current (t = 8.3 ms)		l ² t	40	A ² s	
Peak Gate Power (T _C = +80°C, Pulse Width = 2 μs)	PGM	16	Watts		
Average Gate Power ($T_C = +80^{\circ}C$, t = 8.3 ms)		PG(AV)	0.35	Watt	
Peak Gate Trigger Current (Pulse Width = 1 μs)		IGTM	4	Amps	
Operating Junction Temperature Range		TJ	-40 to +125	°C	
Storage Temperature Range		T _{stg}	-40 to +150	°C	

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.



© Motorola, Inc. 1995

MAC218 Series MAC218A Series

THERMAL CHARACTERISTICS

Characteristic		Symbol		Max		Unit			
Thermal Resistance, Junction to Case		$R_{\theta JC}$		2.2	c	°C/W			
ELECTRICAL CHARACTERISTICS (T _C = 25°C unless otherwise noted.)									
Characteristic	S	Symbol	Min	Тур	Max	Unit			
Peak Blocking Current (V _D = Rated V _{DRM} , gate open) $T_J = 25^{\circ}C$ $T_J = 125^{\circ}C$		IDRM			10 2	μA mA			
Peak On-State Voltage (Either Direction) (I _{TM} = 11.3 A Peak; Pulse Width = 1 to 2 ms, Duty Cycle < 2%)		V _{TM}	_	1.7	2	Volts			
Gate Trigger Current (Continuous dc) $(V_D = 12 \text{ Vdc}, R_L = 12\Omega)$ Trigger Mode MT2(+), Gate(+); MT2(+), Gate(-); MT2(-), Gate(-) MT2(-), Gate(+) "A" SUFFIX ONLY		lgt			50 75	mA			
Gate Trigger Voltage (Continuous dc) (Main Terminal Voltage = 12 Vdc, $R_L = 100$ Ohms) MT2(+), G(+) MT2(+), G(-) MT2(-), G(-) MT2(-), G(+) "A" SUFFIX ONLY (Main Terminal Voltage = Rated V _{DRM} , $R_L = 10$ k Ω , $T_J = +125^{\circ}$ C) MT2(+), G(+); MT2(-), G(-); MT2(+), G(-) MT2(-), G(+) "A" SUFFIX ONLY		V _{GT}	 0.2 0.2	0.9 0.9 1.1 1.4 —	2 2 2.5 —	Volts			
Holding Current (Either Direction) (V _D = 24 Vdc, Gate Open, Initiating Current = 200 mA)		Ч	_	—	50	mA			
Critical Rate of Rise of Commutating Off-State Voltage (V_D = Rated V_{DRM} , I_{TM} = 11.3 A, Commutating di/dt = 4.1 A/ms, Gate Unenergized, T_C = 80°C)	C	dv/dt(c)	_	5	—	V/µs			
Critical Rate of Rise of Off-State Voltage (V_D = Rated V_{DRM} , Exponential Voltage Rise, Gate Open, T_J = 125°C)		dv/dt	—	100		V/µs			

FIGURE 1 — CURRENT DERATING

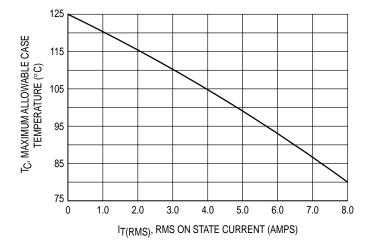
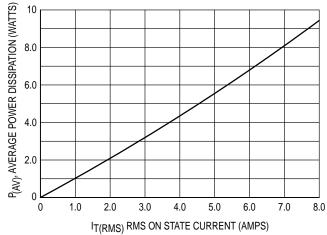
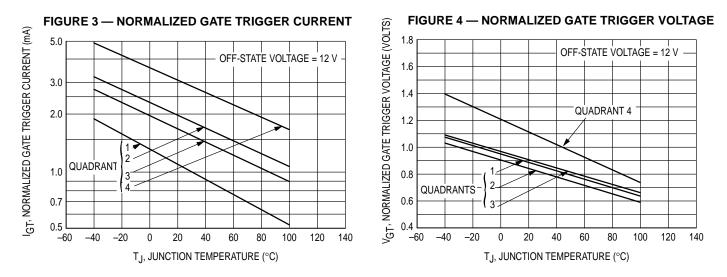


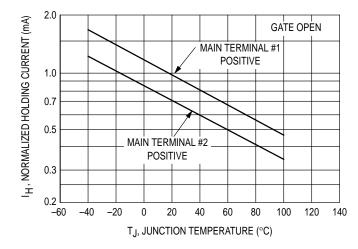
FIGURE 2 — POWER DISSIPATION



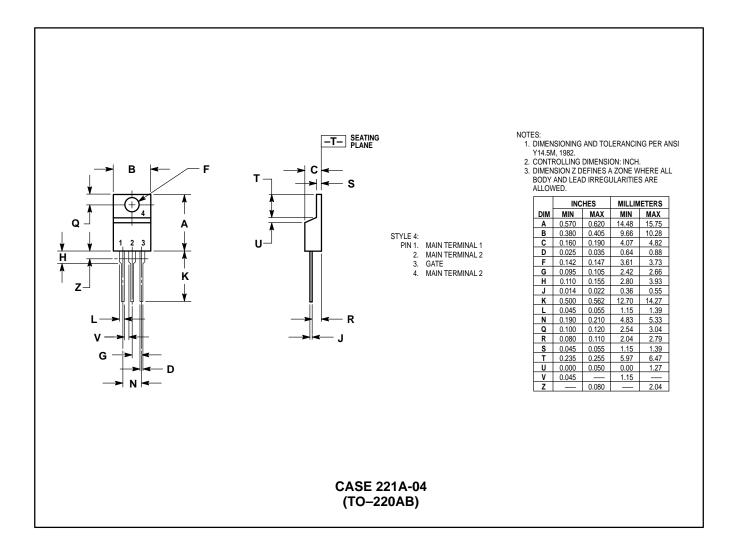
MAC218 Series MAC218A Series







PACKAGE DIMENSIONS



Motorola reserves the right to make changes without further notice to any products herein. Motorola makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does Motorola assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation consequential or incidental damages. "Typical" parameters can and do vary in different applications. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. Motorola does not convey any license under its patent rights nor the rights of others. Motorola products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the Motorola product could create a situation where personal injury or death may occur. Should Buyer purchase or use Motorola products for any such unintended or unauthorized application, Buyer shall indemnify and hold Motorola and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death Motorola was negligent regarding the design or manufacture of the part. Motorola and W are registered trademarks of Motorola, Inc. Motorola, Inc. is an Equal Opportunity/Affirmative Action Employer.

Literature Distribution Centers:

USA: Motorola Literature Distribution; P.O. Box 20912; Phoenix, Arizona 85036. EUROPE: Motorola Ltd.; European Literature Centre; 88 Tanners Drive, Blakelands, Milton Keynes, MK14 5BP, England. JAPAN: Nippon Motorola Ltd.; 4-32-1, Nishi-Gotanda, Shinagawa-ku, Tokyo 141, Japan. ASIA PACIFIC: Motorola Semiconductors H.K. Ltd.; Silicon Harbour Center, No. 2 Dai King Street, Tai Po Industrial Estate, Tai Po, N.T., Hong Kong.



