Triacs

Silicon Bidirectional Triode Thyristors

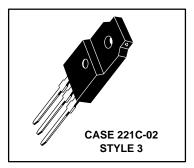
. . . designed primarily for industrial and consumer applications for full wave control of ac loads such as appliance controls, heater controls, motor controls, and other power switching applications.

- Four Mode Triggering for Drive Circuits that Source Current
- 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

MAC228FP Series MAC228AFP Series

TRIACS 8 AMPERES RMS 200 thru 800 VOLTS





MAXIMUM RATINGS ($T_J = 25^{\circ}C$ unless otherwise noted.)

Rating	Symbol	Value	Unit
Peak Repetitive Off-State Voltage(1) (T _J = -40 to 110°C	^V DRM		Volts
1/2 Sine Wave 50 to 60 Hz, Gate Open)			
MAC228-4FP, MAC228A4FP		200	
MAC228-6FP, MAC228A6FP MAC228-8FP, MAC228A8FP		400 600	
MAC228-10FP, MAC228A10FP		800	
IVIAOZZO-TOFF, IVIAOZZOATOFF		000	
On-State RMS Current (T _C = 80°C)	IT(RMS)	8	Amps
Full Cycle Sine Wave 50 to 60 Hz			
Peak Non-repetitive Surge Current	ITSM	80	Amps
(One Full Cycle 60 Hz, T _J = 110°C)			
Circuit Fusing	l ² t	26	A ² s
(t = 8.3 ms)			
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 ($T_C = 80^{\circ}C$, $t \le 8.3 \text{ ms}$)	P _{G(AV)}	0.5	Watts
Operating Junction Temperature Range	TJ	-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.

^{2.} The case temperature reference point for all TC measurements is a point on the center lead of the package as close as possible to the plastic body.



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THERMAL CHARACTERISTICS

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

ELECTRICAL CHARACTERISTICS ($T_C = 25^{\circ}C$ and either polarity of MT2 to MT1 voltage unless otherwise noted.)

Characteristic	Symbol	Min	Тур	Max	Unit
Peak Blocking Current (V_D = Rated V_{DRM} , Gate Open) T_J = 25°C T_J = 110°C	IDRM		_	10 2	μA 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\ \Omega) \\ MT2(+),\ G(+);\ MT2(+),\ G(-);\ MT2(-),\ G(-) \\ MT2(-),\ G(+)\ "A"\ Suffix\ Only $	l _{GT}	_ 	_ _	5 10	mA
Gate Trigger Voltage (Continuous dc) $ (V_D = 12 \ V, \ R_L = 100 \ \Omega) $ $ MT2(+), \ G(+); \ MT2(+), \ G(-); \ MT2(-), \ G(-) $ $ MT2(-), \ G(+) \ "A" \ Suffix \ Only $ $ (V_D = Rated \ V_{DRM}, \ T_C = 110 \ ^\circ C, \ R_L = 10 \ k) $ $ MT2(+), \ G(+); \ MT2(+), \ G(-); \ MT2(-), \ G(-) $ $ MT2(-), \ G(+) \ "A" \ Suffix \ Only $	Vgт	 0.2 0.2	_ _ _ _	2 2.5 — —	Volts
Holding Current (V _D = 12 Vdc, I _{TM} = 200 mA, Gate Open)	lн	_	_	15	mA
Gate-Controlled Turn-On Time $(V_D = Rated V_{DRM}, I_{TM} = 16 A Peak, I_G = 30 mA)$	tgt		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

FIGURE 1 - RMS CURRENT DERATING

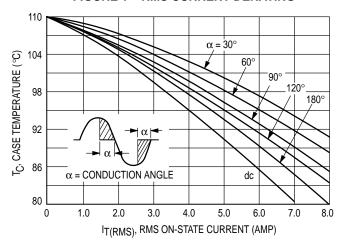
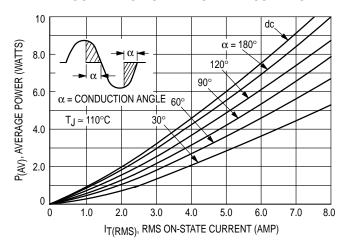
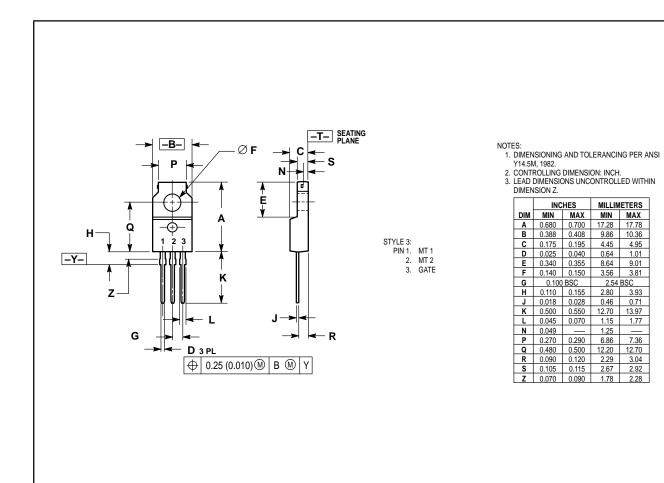


FIGURE 2 - ON-STATE POWER DISSIPATION



PACKAGE DIMENSIONS



CASE 221C-02

MAC228FP Series MAC228AFP Series

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