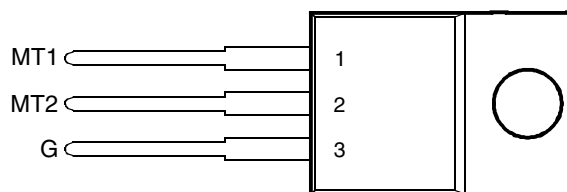


- High Current Triacs
- 12 A RMS
- Glass Passivated Wafer
- 400 V to 800 V Off-State Voltage
- Max I_{GT} of 50 mA (Quadrants 1 - 3)

TO-220 PACKAGE
(TOP VIEW)

Pin 2 is in electrical contact with the mounting base.

MDC2ACA

absolute maximum ratings over operating case temperature (unless otherwise noted)

RATING		SYMBOL	VALUE	UNIT
Repetitive peak off-state voltage (see Note 1)	TIC236D	V_{DRM}	400	V
	TIC236M		600	
	TIC236S		700	
	TIC236N		800	
Full-cycle RMS on-state current at (or below) 70°C case temperature (see Note 2)		$I_{T(RMS)}$	12	A
Peak on-state surge current full-sine-wave at (or below) 25°C case temperature (see Note 3)		I_{TSM}	100	A
Peak gate current		I_{GM}	±1	A
Operating case temperature range		T_C	-40 to +110	°C
Storage temperature range		T_{stg}	-40 to +125	°C
Lead temperature 1.6 mm from case for 10 seconds		T_L	230	°C

NOTES: 1. These values apply bidirectionally for any value of resistance between the gate and Main Terminal 1.

2. This value applies for 50-Hz full-sine-wave operation with resistive load. Above 70°C derate linearly to 110°C case temperature at the rate of 300 mA/°C.

3. This value applies for one 50-Hz full-sine-wave when the device is operating at (or below) the rated value of peak reverse voltage and on-state current. Surge may be repeated after the device has returned to original thermal equilibrium.

electrical characteristics at 25°C case temperature (unless otherwise noted)

PARAMETER	TEST CONDITIONS			MIN	TYP	MAX	UNIT
I_{DRM} Repetitive peak off-state current	$V_D = \text{Rated } V_{DRM}$	$I_G = 0$	$T_C = 110^\circ\text{C}$			±2	mA
I_{GT} Gate trigger current	$V_{supply} = +12\text{ V}^\dagger$	$R_L = 10\ \Omega$	$t_{p(g)} > 20\ \mu\text{s}$		12	50	mA
	$V_{supply} = +12\text{ V}^\dagger$	$R_L = 10\ \Omega$	$t_{p(g)} > 20\ \mu\text{s}$		-19	-50	
	$V_{supply} = -12\text{ V}^\dagger$	$R_L = 10\ \Omega$	$t_{p(g)} > 20\ \mu\text{s}$		-16	-50	
	$V_{supply} = -12\text{ V}^\dagger$	$R_L = 10\ \Omega$	$t_{p(g)} > 20\ \mu\text{s}$		34		
V_{GT} Gate trigger voltage	$V_{supply} = +12\text{ V}^\dagger$	$R_L = 10\ \Omega$	$t_{p(g)} > 20\ \mu\text{s}$		0.8	2	V
	$V_{supply} = +12\text{ V}^\dagger$	$R_L = 10\ \Omega$	$t_{p(g)} > 20\ \mu\text{s}$		-0.8	-2	
	$V_{supply} = -12\text{ V}^\dagger$	$R_L = 10\ \Omega$	$t_{p(g)} > 20\ \mu\text{s}$		-0.8	-2	
	$V_{supply} = -12\text{ V}^\dagger$	$R_L = 10\ \Omega$	$t_{p(g)} > 20\ \mu\text{s}$		0.9	2	
V_T On-state voltage	$I_{TM} = \pm 17\text{ A}$	$I_G = 50\text{ mA}$	(see Note 4)		±1.4	±2.1	V

† All voltages are with respect to Main Terminal 1.

NOTE 4: This parameter must be measured using pulse techniques, $t_p \leq 1\text{ ms}$, duty cycle $\leq 2\%$. Voltage-sensing contacts separate from the current carrying contacts are located within 3.2 mm from the device body.

PRODUCT INFORMATION

DECEMBER 1971 - REVISED SEPTEMBER 2002
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electrical characteristics at 25°C case temperature (unless otherwise noted) (continued)

PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNIT
I_H Holding current	$V_{supply} = +12\text{ V}^\dagger$ $I_G = 0$ $Init' I_{TM} = 100\text{ mA}$ $V_{supply} = -12\text{ V}^\dagger$ $I_G = 0$ $Init' I_{TM} = -100\text{ mA}$		22 -12	40 -40	mA
I_L Latching current	$V_{supply} = +12\text{ V}^\dagger$ $V_{supply} = -12\text{ V}^\dagger$ (see Note 5)			80 -80	mA
dv/dt Critical rate of rise of off-state voltage	$V_D = \text{Rated } V_D$ $I_G = 0$ $T_C = 110^\circ\text{C}$		± 400		V/ μs
$dv/dt_{(c)}$ Critical rise of commutation voltage	$V_D = \text{Rated } V_D$ $T_C = 80^\circ\text{C}$ $di/dt = 0.5 I_{T(RMS)}/\text{ms}$ $I_T = 1.4 I_{T(RMS)}$	± 1.2	± 9		V/ μs
di/dt Critical rate of rise of on-state current	$V_D = \text{Rated } V_D$ $T_C = 110^\circ\text{C}$ $di_G/dt = 50\text{ mA}/\mu\text{s}$ $I_{GT} = 50\text{ mA}$		± 100		A/ μs

† All voltages are with respect to Main Terminal 1.

NOTE 5: The triacs are triggered by a 15-V (open-circuit amplitude) pulse supplied by a generator with the following characteristics:

$R_G = 100\ \Omega$, $t_{p(g)} = 20\ \mu\text{s}$, $t_r \leq 15\text{ ns}$, $f = 1\text{ kHz}$.

thermal characteristics

PARAMETER	MIN	TYP	MAX	UNIT
$R_{\theta JC}$ Junction to case thermal resistance			2	$^\circ\text{C}/\text{W}$
$R_{\theta JA}$ Junction to free air thermal resistance			62.5	$^\circ\text{C}/\text{W}$

TYPICAL CHARACTERISTICS

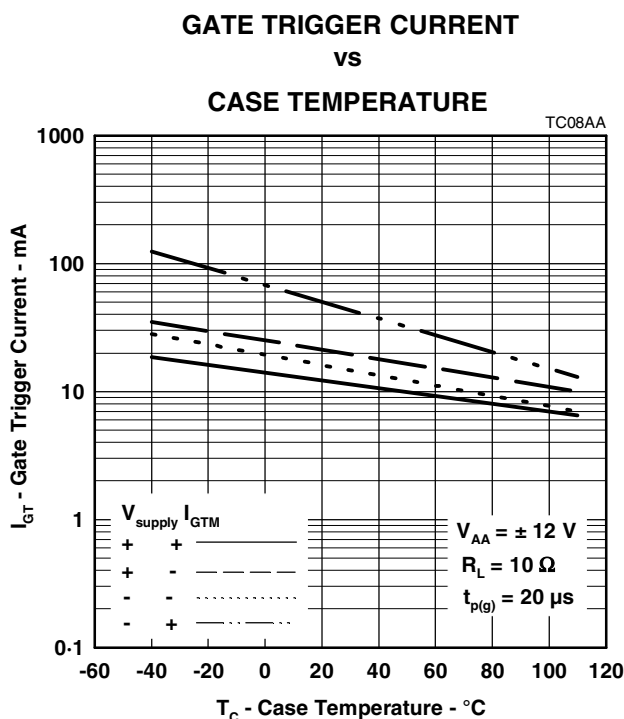


Figure 1.

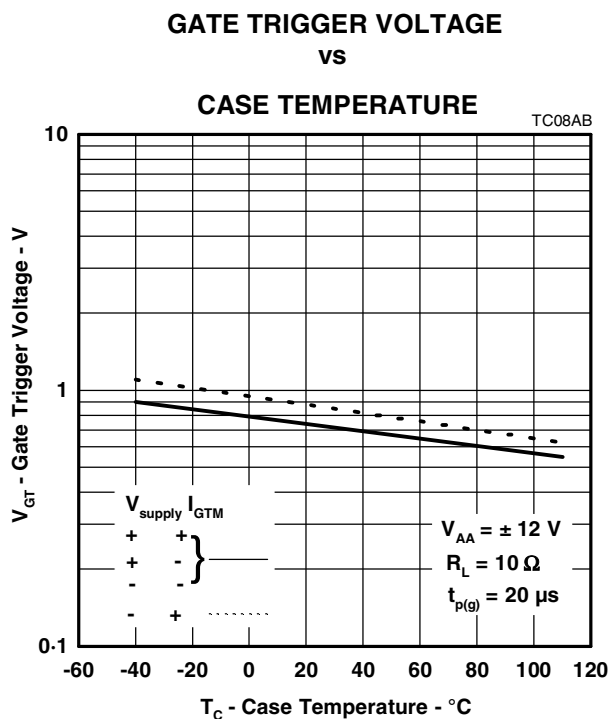


Figure 2.

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TYPICAL CHARACTERISTICS

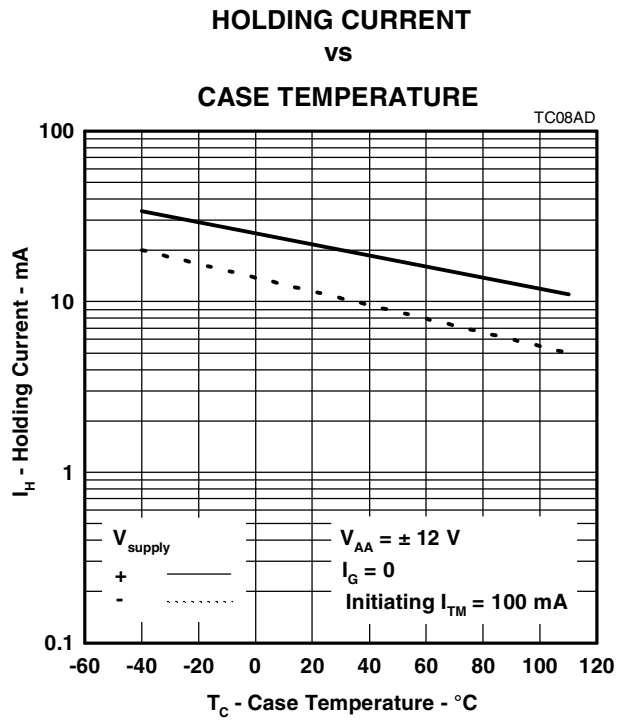


Figure 3.

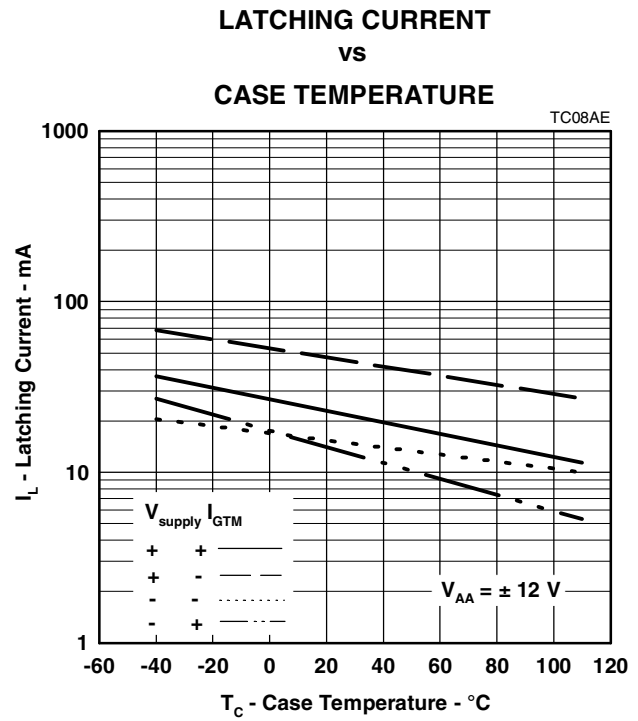


Figure 4.

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