

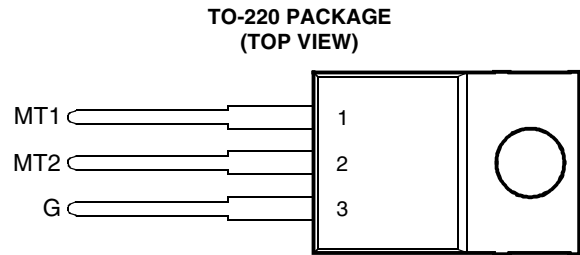
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- Sensitive Gate Triacs
- 2.5 A RMS
- Glass Passivated Wafer
- 400 V to 700 V Off-State Voltage
- Max  $I_{GT}$  of 5 mA (Quadrant 1)



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)	TIC201D	$V_{DRM}$	400	V
	TIC201M		600	
	TIC201S		700	
Full-cycle RMS on-state current at (or below) 85°C case temperature (see Note 2)		$I_T(RMS)$	2.5	A
Peak on-state surge current full-sine-wave at (or below) 25°C case temperature (see Note 3)		$I_{TSM}$	12	A
Peak gate current		$I_{GM}$	±0.2	A
Peak gate power dissipation at (or below) 85°C case temperature (pulse width ≤ 200 μs)		$P_{GM}$	1.3	W
Average gate power dissipation at (or below) 85°C case temperature (see Note 4)		$P_{G(AV)}$	0.3	W
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 85°C derate linearly to 110°C case temperature at the rate of 100 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 on-state current. Surge may be repeated after the device has returned to original thermal equilibrium. During the surge, gate control may be lost.  
 4. This value applies for a maximum averaging time of 20 ms.

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

PARAMETER	TEST CONDITIONS			MIN	TYP	MAX	UNIT
$I_{DRM}$ Repetitive peak off-state current	$V_D = \text{rated } V_{DRM}$	$I_G = 0$	$T_C = 110^\circ\text{C}$			±1	mA
$I_{GT}$ Gate trigger current	$V_{supply} = +12\text{ V}^\dagger$	$R_L = 10\ \Omega$	$t_{p(g)} > 20\ \mu\text{s}$			5	mA
	$V_{supply} = +12\text{ V}^\dagger$	$R_L = 10\ \Omega$	$t_{p(g)} > 20\ \mu\text{s}$			-8	
	$V_{supply} = -12\text{ V}^\dagger$	$R_L = 10\ \Omega$	$t_{p(g)} > 20\ \mu\text{s}$			-10	
	$V_{supply} = -12\text{ V}^\dagger$	$R_L = 10\ \Omega$	$t_{p(g)} > 20\ \mu\text{s}$			25	

† All voltages are with respect to Main Terminal 1.

**PRODUCT INFORMATION**

JANUARY 1977- REVISED SEPTEMBER 2002  
 Specifications are subject to change without notice.

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

PARAMETER		TEST CONDITIONS			MIN	TYP	MAX	UNIT
$V_{GT}$	Gate trigger voltage	$V_{supply} = +12 V†$	$R_L = 10 \Omega$	$t_{p(g)} > 20 \mu s$		0.7	2.5	V
		$V_{supply} = +12 V†$	$R_L = 10 \Omega$	$t_{p(g)} > 20 \mu s$		-0.7	-2.5	
		$V_{supply} = -12 V†$	$R_L = 10 \Omega$	$t_{p(g)} > 20 \mu s$		-0.7	-2.5	
		$V_{supply} = -12 V†$	$R_L = 10 \Omega$	$t_{p(g)} > 20 \mu s$		0.7		
$V_T$	On-state voltage	$I_T = \pm 3.5 A$	$I_G = 50 mA$	(see Note 5)			$\pm 1.9$	V
$I_H$	Holding current	$V_{supply} = +12 V†$	$I_G = 0$	Init' $I_{TM} = 100 mA$			30	mA
		$V_{supply} = -12 V†$	$I_G = 0$	Init' $I_{TM} = -100 mA$			-30	
$I_L$	Latching current	$V_{supply} = +12 V†$	(see Note 6)				40	mA
		$V_{supply} = -12 V†$					-40	
dv/dt	Critical rate of rise of off-state voltage	$V_{DRM} = \text{Rated } V_{DRM}$	$I_G = 0$	$T_C = 110^\circ C$		$\pm 20$		V/ $\mu s$
dv/dt <sub>(c)</sub>	Critical rise of commutation voltage	$V_{DRM} = \text{Rated } V_{DRM}$	$I_{TRM} = \pm 3.5 A$	$T_C = 85^\circ C$	$\pm 1$	$\pm 4$		V/ $\mu s$

† All voltages are with respect to Main Terminal 1.

NOTES: 5. This parameter must be measured using pulse techniques,  $t_p = \leq 1 ms$ , duty cycle  $\leq 2 \%$ . Voltage-sensing contacts separate from the current carrying contacts are located within 3.2 mm from the device body.

6. The triacs are triggered by a 15-V (open circuit amplitude) pulse supplied by a generator with the following characteristics:  
 $R_G = 100 \Omega$ ,  $t_{p(g)} = 20 \mu s$ ,  $t_r = \leq 15 ns$ ,  $f = 1 kHz$ .

**thermal characteristics**

PARAMETER		MIN	TYP	MAX	UNIT
$R_{\theta JC}$	Junction to case thermal resistance			10	$^\circ C/W$
$R_{\theta JA}$	Junction to free air thermal resistance			62.5	$^\circ C/W$

OBSOLETE