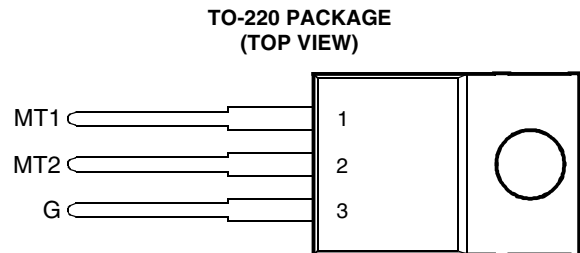




THE DATASHEET OF TIC201D-S



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

† All voltages are with respect to Main Terminal 1.

NOTES: 5. 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.



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

thermal characteristics

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

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