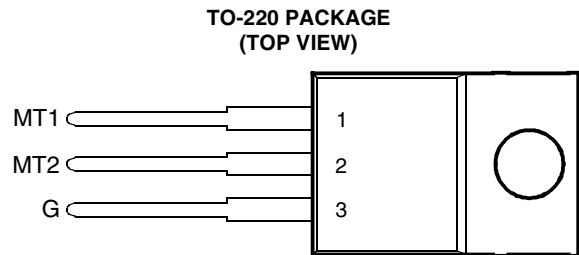




THE DATASHEET OF TIC216S-S



- Sensitive Gate Triacs
- 6 A RMS
- Glass Passivated Wafer
- 400 V to 800 V Off-State Voltage
- Max I_{GT} of 5 mA (Quadrants 1 - 3)



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)	TIC216D	V_{DRM}	400	V
	TIC216M		600	
	TIC216S		700	
	TIC216N		800	
Full-cycle RMS on-state current at (or below) 70°C case temperature (see Note 2)		$I_{T(RMS)}$	6	A
Peak on-state surge current full-sine-wave at (or below) 25°C case temperature (see Note 3)		I_{TSM}	60	A
Peak gate current		I_{GM}	±1	A
Peak gate power dissipation at (or below) 85°C case temperature (pulse width ≤ 200 μs)		P_{GM}	2.2	W
Average gate power dissipation at (or below) 85°C case temperature (see Note 4)		$P_{G(AV)}$	0.9	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 70°C derate linearly to 110°C case temperature at the rate of 150 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	$V_D = \text{rated } V_{DRM}$	$I_G = 0$	$T_C = 110^\circ\text{C}$			±2	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
	$V_{supply} = +12 \text{ V}^\dagger$	$R_L = 10 \Omega$	$t_{p(g)} > 20 \mu\text{s}$			-5	
	$V_{supply} = -12 \text{ V}^\dagger$	$R_L = 10 \Omega$	$t_{p(g)} > 20 \mu\text{s}$			-5	
	$V_{supply} = -12 \text{ V}^\dagger$	$R_L = 10 \Omega$	$t_{p(g)} > 20 \mu\text{s}$			10	

† All voltages are with respect to Main Terminal 1.

PRODUCT INFORMATION

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

PARAMETER		TEST CONDITIONS			MIN	TYP	MAX	UNIT
V_{GT}	Gate trigger voltage	$V_{supply} = +12 V†$	$R_L = 10 \Omega$	$t_{p(g)} > 20 \mu s$			2.2	V
		$V_{supply} = +12 V†$	$R_L = 10 \Omega$	$t_{p(g)} > 20 \mu s$			-2.2	
		$V_{supply} = -12 V†$	$R_L = 10 \Omega$	$t_{p(g)} > 20 \mu s$			-2.2	
		$V_{supply} = -12 V†$	$R_L = 10 \Omega$	$t_{p(g)} > 20 \mu s$			3	
V_T	On-state voltage	$I_T = \pm 8.4 A$	$I_G = 50 mA$	(see Note 5)			± 1.7	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)			4		mA
		$V_{supply} = -12 V†$				-2		
dv/dt	Critical rate of rise of off-state voltage	$V_{DRM} = \text{Rated } V_{DRM}$	$I_G = 0$	$T_C = 110^\circ C$		± 20		V/ μs
dv/dt _(c)	Critical rise of commutation voltage	$V_{DRM} = \text{Rated } V_{DRM}$	$I_{TRM} = \pm 8.4 A$	$T_C = 70^\circ C$	± 2	± 5		V/ μs

† All voltages are with respect to Main Terminal 1.

NOTES: 5. This parameter must be measured using pulse techniques, $t_p = \leq 1 ms$, 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			2.5	$^\circ C/W$
$R_{\theta JA}$	Junction to free air thermal resistance			62.5	$^\circ C/W$

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