



**TIC236A, TIC236B, TIC236C, TIC236D, TIC236E, TIC236M,
TIC236N, TIC236S**

SILICON TRIACS

- High current triacs
- 12 A RMS
- Glass Passivated Wafer
- 100 V to 800 V Off-State Voltage
- Max I_{GTR} of 50 mA (Quadrants 1-3)
- Compliance to ROHS

ABSOLUTE MAXIMUM RATINGS

Symbol	Ratings	Value								Unit
		A	B	C	D	E	M	S	N	
V_{DRM}	Repetitive peak off-state voltage (see Note1)	100	200	300	400	500	600	700	800	V
I_{TRMS}	Full-cycle RMS on-state current at (or below) 70°C case temperature (see note2)							12		A
I_{TSW}	Peak on-state surge current full-sine-wave (see Note3)						100			A
I_{GM}	Peak gate current					± 1				A
T_c	Operating case temperature range				-40 to +110					°C
T_{STG}	Storage temperature range				-40 to +125					°C
T_L	Lead temperature 1.6 mm from case for 10 seconds					230				°C

THERMAL CHARACTERISTICS

Symbol	Ratings	Value	Unit
R_{AEC}	Junction to case thermal resistance	≤ 2	°C/W
R_{AJA}	Junction to free air thermal resistance	≤ 62.5	



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ELECTRICAL CHARACTERISTICS

TC=25°C unless otherwise noted

Symbol	Ratings	Test Condition(s)	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	$V_{\text{supply}} = +12 \text{ V} \dagger, R_L = 10 \Omega, t_{\text{gate}} = > 20 \mu\text{s}$	-	12	50	mA
		$V_{\text{supply}} = +12 \text{ V} \dagger, R_L = 10 \Omega, t_{\text{gate}} = > 20 \mu\text{s}$	-	-19	-50	
		$V_{\text{supply}} = -12 \text{ V} \dagger, R_L = 10 \Omega, t_{\text{gate}} = > 20 \mu\text{s}$	-	-16	-50	
		$V_{\text{supply}} = -12 \text{ V} \dagger, R_L = 10 \Omega, t_{\text{gate}} = > 20 \mu\text{s}$	-	34	-	
V_{GT}	Gate trigger voltage	$V_{\text{supply}} = +12 \text{ V} \dagger, R_L = 10 \Omega, t_{\text{gate}} = > 20 \mu\text{s}$	-	0.8	2	V
		$V_{\text{supply}} = +12 \text{ V} \dagger, R_L = 10 \Omega, t_{\text{gate}} = > 20 \mu\text{s}$	-	-0.8	-2	
		$V_{\text{supply}} = -12 \text{ V} \dagger, R_L = 10 \Omega, t_{\text{gate}} = > 20 \mu\text{s}$	-	-0.8	-2	
		$V_{\text{supply}} = -12 \text{ V} \dagger, R_L = 10 \Omega, t_{\text{gate}} = > 20 \mu\text{s}$	-	0.9	2	
I_H	Holding current	$V_{\text{supply}} = +12 \text{ V} \dagger, I_G = 0$ initiating $I_{TM} = 100 \text{ mA}$	-	22	40	mA
		$V_{\text{supply}} = -12 \text{ V} \dagger, I_G = 0$ initiating $I_{TM} = -100 \text{ mA}$	-	-22	-40	
I_L	Latching current	$V_{\text{supply}} = +12 \text{ V} \dagger \text{ (see Note5)}$	-	-	80	mA
		$V_{\text{supply}} = -12 \text{ V} \dagger \text{ (see Note5)}$	-	-	-80	
V_{TM}	Peak on-state voltage	$I_{TM} = \pm 17 \text{ A}, I_G = 50 \text{ mA}$ (see Note4)	-	± 1.4	± 1.7	V
dv/dt	Critical rate of rise of off-state voltage	$V_{DRM} = \text{Rated } V_{DRM}, I_G = 0$ $T_C = 110^\circ\text{C}$	-	± 400	-	V/ μs
di/dt	Critical rate of rise of off-state current	$V_{DRM} = \text{Rated } V_{DRM}, I_{GT} = 50 \text{ mA},$ $di_G/dt = 50 \text{ mA}/\mu\text{s}, T_C = 110^\circ\text{C}$	-	± 100	-	A/ μs
dv/dt_e	Critical rise of communication voltage	$V_{DRM} = \text{Rated } V_{DRM}, I_T = 1.4 I_{TRMS}$ $di/dt = 0.5 I_{TRMS}/\text{ms}, T_C = 80^\circ\text{C}$	± 1.2	± 9	-	V/ μs

\dagger All voltages are with respect to Main Terminal 1.

Note1: These values apply bidirectionally for any value of resistance between the gate and Main Terminal 1.

Note2: 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/ $^\circ\text{C}$.

Note3: 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.

Note4: These parameters must be measured using pulse techniques, $t_W = \leq 1\text{ms}$, duty cycle $\leq 2\%$, voltage-sensing contacts, separate from the current-carrying contacts are located within 3.2 mm from the device body.

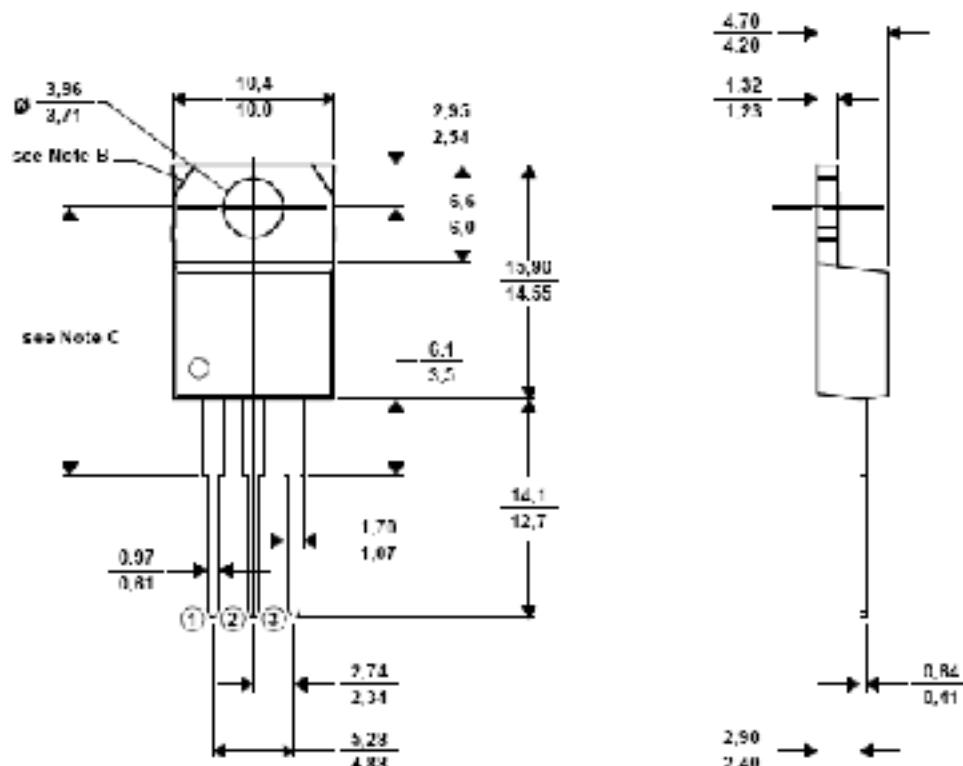
Note5: The triacs are triggered by a 15-V (open circuit amplitude) pulse supplied by a generator with the following characteristics : $R_G = 100\Omega$, $t_{\text{spg}} = 20 \mu\text{s}$, $t_r = \leq 15\text{ns}$, $f = 1 \text{ kHz}$.



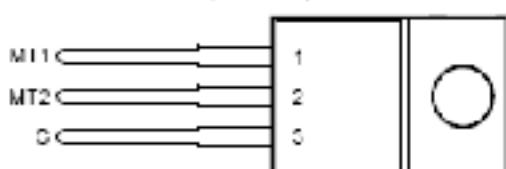
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MECHANICAL DATA CASE TO-220

TO220



TO-220 PACKAGE
(TOP VIEW)



Pin 1 :	Main Terminal 1
Pin 2 :	Main Terminal 2
Pin 3 :	Gate

Pin 2 is in electrical contact with the mounting base.

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