

TIC226A, TIC226B, TIC226C, TIC226D, TIC226E, TIC226M, TIC226N, TIC226S

SILICON BIDIRECTIONAL TRIODE THYRISTOR

- 8 A RMS
- 70 A Peak
- · Glass Passivated Wafer
- 100 V to 800 V Off-State Voltage
- Max I_{GT} of 50 mA (Quadrants 1-3)
- High-temperature, High-current and high-voltage applications
- Compliance to ROHS

DESCRIPTION

This device is a bidirectional triode thyristor (triac) which may be triggered from the off-state to the on-state by either polarity of gate signal with main Terminal 2 at either polarity.

ABSOLUTE MAXIMUM RATINGS

Symbol	Ratings		Value							Unit
		A	В	С	D	Е	M	S	N	
V _{DRM}	Repetitive peak off-state voltage (see Note1)	100	200	300	400	500	600	700	800	V
I _{T(RMS)}	Full-cycle RMS on-state current at (or below) 70°C case temperature (see note2)	8			Α					
I _{TSM}	Peak on-state surge current full-sine-wave (see Note3)		70						Α	
I _{TSM}	Peak on-state surge current half-sine-wave (see Note4)		8						Α	
I _{GM}	Peak gate current		± 1							Α
P _{GM}	Peak gate power dissipation at (or below) 85°C case temperature (pulse width ≤200 µs)								W	
P _{G(AV)}	Average gate power dissipation at (or below) 85°C case (see Note5)		0.9						W	
DataSheet4U.	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	



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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 320 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 one 50-Hz half-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.
- 5. This value applies for a maximum averaging time of 20 ms.

THERMAL CHARACTERISTICS

Symbol	Ratings	Value	Unit	
R _{∂JC}	Junction to case thermal resistance	≤ 1.8	°C/W	
R _{∂JA}	Junction to free air thermal resistance	≤ 62.5	C/VV	

ELECTRICAL CHARACTERISTICS

TC=25°C unless otherwise noted

Symbol	Ratings	Test Condition(s)		Тур	Mx	Unit		
I _{DRM}	Repetitive peak off- state current	V_D = Rated V_{DRM} , , I_G = 0, T_C = 110°C	-	-	±2	mA		
	Gate trigger current	V_{supply} = +12 V†, R_L = 10 Ω , $t_{p(g)}$ = > 20 μs	-	2	50			
I _{GT}		V_{supply} = +12 V†, R_L = 10 Ω , $t_{p(g)}$ = > 20 μs	-	-12	-50	mA		
'GI		V_{supply} = -12 V†, R_L = 10 Ω, $t_{p(g)}$ = > 20 μs	-	-9	-50	111/		
		$V_{\text{supply}} = -12 \text{ V}^{\dagger}, R_{L} = 10 \Omega, t_{p(g)} = > 20 \mu \text{s}$	-	20	-			
	Gate trigger voltage	V_{supply} = +12 V†, R_L = 10 Ω , $t_{p(g)}$ = > 20 μs	_	0.7	2	V		
V _{GT}		V_{supply} = +12 V†, R_L = 10 Ω , $t_{p(g)}$ = > 20 μ s	-	-0.8	-2			
▼ G1		V_{supply} = -12 V†, R _L = 10 Ω, $t_{p(g)}$ = > 20 μs	_	-0.8	-2			
		$V_{\text{supply}} = -12 \text{ V}_{\uparrow}, R_{L} = 10 \Omega, t_{p(g)} = > 20 \mu \text{s}$	-	0.9	2			
	Holding current	V_{supply} = +12 V†, I_{G} = 0, initiating I_{TM} = 100 mA	-	5	30	mA		
I _H		V_{supply} = -12 V†, I_{G} = 0, initiating I_{TM} = -100 mA	-	-9	-30			
IL.	Latching current	V_{supply} = +12 V† (seeNote7) V_{supply} = -12 V† (seeNote7)	-	-	50 -50	mA		
a V reet4U.com	Peak on-state voltage	$I_{TM} = \pm 12 \text{ A}, I_G = 50 \text{ mA (see Note6)}$	-	±1.6	±2.1	V		
dv/dt	Critical rate of rise of off-state voltage	V_{DRM} = Rated V_{DRM} , I_G = 0 T_C = 110°C	-	±100	-			
dv/dt _©	Critical rise of communication voltage	V_{DRM} = Rated V_{DRM} , I_{TRM} = ± 12A T_C = 85°C	±5	-	-	V/µs		

† All voltages are whit respect to Main Terminal 1.



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Note 6: This parameters must be measured using pulse techniques, $t_W = \le 1$ ms, duty cycle ≤ 2 %, voltage-sensing contacts, separate from the courrent-carrying contacts are located within 3.2mm (1/8 inch) from de device body. Note 7: The triacs are triggered by a 15-V (open circuit amplitude) pulse supplied by a generator with the following characteristics: $R_G = 100\Omega$, $t_{t(g)} = 20 \mu s$, $t_r = \le 15$ ns, $t_r = 1 kHz$.

MECHANICAL DATA CASE TO-220

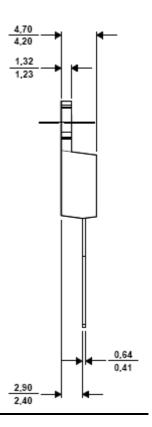
TO220

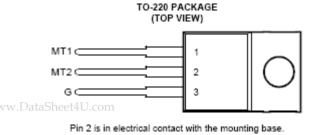
10.4 3,96 10,0 2,95 2,54 see Note B 6,6 6,0 14,55 see Note C 6,1 3.5 14,1 12,7 1,70 1,07 0,97

2,74

2.34

5,28 4,88





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