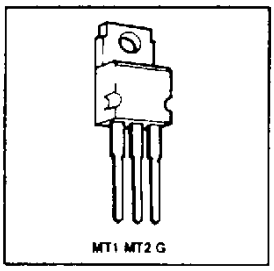
TIC226 SERIES
SILICON TRIACS

SLPS046 Revised March 1990

- **8 A RMS, 70 A Peak**
- **100 V to 800 V**
- **Max I_{GT} of 50 mA (Quadrants 1 - 3)**



PACKAGE: TO220

Absolute Maximum Ratings over Operating Case Temperature (unless otherwise noted)

		TIC226A	TIC226B	TIC226C	TIC226D	TIC226E	TIC226M	TIC226S	TIC226N
V_{DRM}	Repetitive peak off-state voltage (Note 1)	100 V	200 V	300 V	400 V	500 V	600 V	700 V	800 V
$I_{T(RMS)}$	Full-cycle RMS on-state current at (or below) 85°C case temperature (Note 2)							8 A	
I_{TSM}	Peak on-state surge current full-sine-wave (Note 3)							70 A	
I_{TSM}	Peak on-state surge current half-sine-wave (Note 4)							80 A	
I_{GM}	Peak gate current							1 A	
P_{GM}	Peak gate power dissipation at (or below) 85°C case temperature (pulse width ≤ 200 µs)							2.2 W	
$P_{G(AV)}$	Average gate power dissipation at (or below) 85°C case temperature (Note 5)							0.9 W	
T_C	Operating case temperature range							-40°C to +110°C	
T_{stg}	Storage temperature range							-40°C to +125°C	
T_L	Lead temperature 1.6mm from case for 10 seconds							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 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.

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 = rated V_{DRM}	I_G = 0	T_C = 110°C				±2	mA
I_{GTM}	Peak gate trigger current	V_{supply} = +12 V†	R_L = 10 Ω	$t_{p(g)}$ > 20 µs			2	50	mA
		V_{supply} = +12 V†	R_L = 10 Ω	$t_{p(g)}$ > 20 µs			-12	-50	
		V_{supply} = -12 V†	R_L = 10 Ω	$t_{p(g)}$ > 20 µs			-9	50	
		V_{supply} = -12 V†	R_L = 10 Ω	$t_{p(g)}$ > 20 µs			20		
V_{GTM}	Peak gate trigger voltage	V_{supply} = +12 V†	R_L = 10 Ω	$t_{p(g)}$ > 20 µs			0.7	2.0	V
		V_{supply} = +12 V†	R_L = 10 Ω	$t_{p(g)}$ > 20 µs			-0.8	-2.0	
		V_{supply} = -12 V†	R_L = 10 Ω	$t_{p(g)}$ > 20 µs			-0.8	-2.0	
		V_{supply} = -12 V†	R_L = 10 Ω	$t_{p(g)}$ > 20 µs			0.9	2.0	
V_{TM}	Peak on-state voltage	I_{TM} = ±12 A	I_G = 50 mA	(Note 6)			±1.6	±2.1	V
I_H	Holding current	V_{supply} = +12 V†	I_G = 0	Init' I_{TM} = 100 mA			5	30	mA
		V_{supply} = -12 V†	I_G = 0	Init' I_{TM} = -100 mA			-9	-30	mA
I_L	Latching current	V_{supply} = +12 V†		(Note 7)				50	mA
		V_{supply} = -12 V†						-50	mA
dv/dt	Critical rate of rise of off-state voltage	V_{DRM} = rated V_{DRM}	I_G = 0	T_C = 110°C			100		V/µs
$dv/dt_{(c)}$	Critical rise of commutation voltage	V_{DRM} = rated V_{DRM}	I_{TRM} = ±12 A	T_C = 85°C		5			V/µs

† All voltages are with respect to Main Terminal 1.

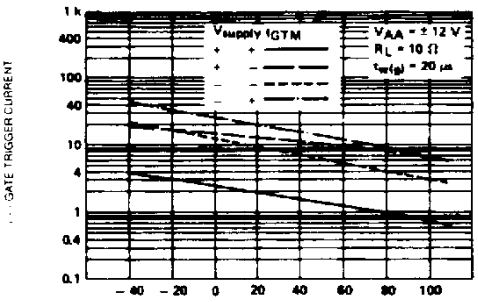
NOTES: 6. This parameter must be measured using pulse techniques, t_w ≤ 1ms, duty cycle ≤ 2%. Voltage sensing contacts separate from the current carrying contacts are located within 3.2mm from the device body.
7. The triacs are triggered by a 15-V (open circuit amplitude) pulse supplied by a generator with the following characteristics: R_G = 100 Ω, t_w = 20 µs, t_r ≤ 15 ns, f = 1kHz.

Thermal Characteristics

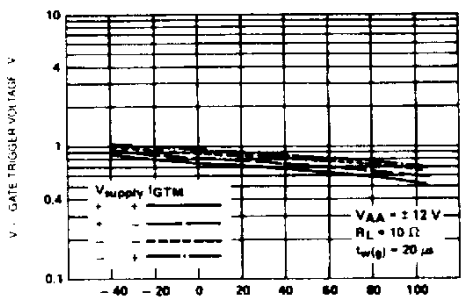
	PARAMETER	MAX	UNIT
$R_{\theta JC}$	Junction - to - case thermal resistance	1.8	°C/W
$R_{\theta JA}$	Junction - to - free - air thermal resistance	62.5	°C/W

TYPICAL CHARACTERISTICS

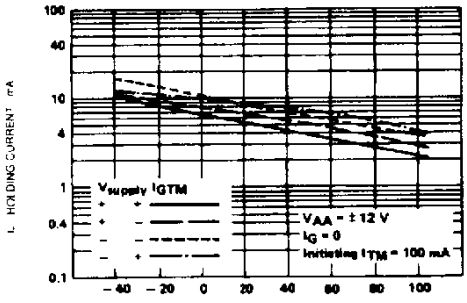
GATE TRIGGER CURRENT
vs
CASE TEMPERATURE



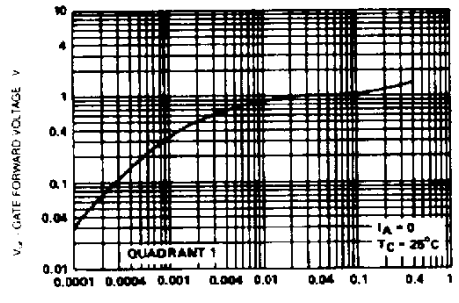
GATE TRIGGER VOLTAGE
vs
CASE TEMPERATURE



HOLDING CURRENT
vs
CASE TEMPERATURE



GATE FORWARD VOLTAGE
vs
GATE FORWARD CURRENT



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