New Jersey Semi-Conductor Products, Inc.

20 STERN AVE.
SPRINGFIELD, NEW JERSEY 07081
U.S.A.

TELEPHONE: (973) 376-2922
(212) 227-6005
FAX: (973) 376-8960

T4700 Series

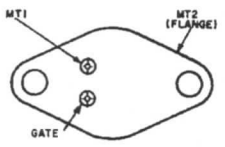
15-Ampere Silicon Triacs

For Phase-Control and Load-Switching Applications

Features:

- *800V, 125 Deg. C T_J Operating*
- *High dv/dt and di/dt Capability*
- *Low Switching Losses*
- *High Pulse Current Capability*
- *Low Forward and Reverse Leakage*
- *Sipos Oxide Glass Multilayer Passivation System*
- *Advanced Unisurface Construction*
- *Precise Ion Implanted Diffusion Source*

TERMINAL DESIGNATIONS



JEDEC TO-213AA

MAXIMUM RATINGS, *Absolute-Maximum Values:*

		T4700B	T4700D	T4700M	T4700N	
REPETITIVE PEAK OFF-STATE VOLTAGE:■						
Gate Open	V_{DROM}	200	400	600	800	V
RMS ON-STATE CURRENT:						
T_C = 95° C, conduction angle = 360°	$I_{T(RMS)}$	15				A
PEAK SURGE (NON-REPETITIVE) ON-STATE CURRENT:	I_{TSM}					
For one full cycle of applied principal voltage 60 Hz (sinusoidal)		100				A
For one full cycle of applied principal voltage (50-Hz, sinusoidal)		85				A
For more than one full cycle of applied voltage		See Fig. 3				
PEAK GATE-TRIGGER CURRENT:						
For 1 μs max.	I_{GTM}	4				A
FUSING CURRENT (for triac protection):						
T_J = -40 to 100° C, t = 1.25 to 10 ms	I^2t	50				A^2s
GATE POWER DISSIPATION:						
Peak● (for 1 μs max. and $I_{GTM} = \leq 4$ A)	P_{GM}	16				W
Average (averaging time = 10 ms max.)	$P_{G(AV)}$	0.45				W
TEMPERATURE RANGE:▲						
Storage	T_{stg}	-40 to 150				°C
Operating (Case)	T_C	-40 to 125				°C
PIN TEMPERATURE (During soldering):						
At distances ≥ 1/32 in. (0.8 mm) from seating plane for 10 s max.	T_P	225				°C

■For either polarity of main terminal 2 voltage (V_{MT2}) with reference to main terminal 1.
●For either polarity of gate voltage (V_G) with reference to main terminal 1.
▲For temperature measurement reference point, *see Dimensional Outline.*

NJ Semi-Conductors reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by NJ Semi-Conductors is believed to be both accurate and reliable at the time of going to press. However, NJ Semi-Conductors assumes no responsibility for any errors or omissions discovered in its use. NJ Semi-Conductors encourages customers to verify that datasheets are current before placing orders.

Quality Semi-Conductors

T4700 Series

ELECTRICAL CHARACTERISTICS
At Maximum Ratings and at Indicated Case Temperature (T_C) Unless Otherwise Specified

CHARACTERISTIC	SYMBOL	LIMITS For All Types Unless Otherwise Specified			UNITS
		Min.	Typ.	Max.	
Peak Off-State Current♦ Gate open, T_J = 125°C, V_{DROM} = Max. rated value	I_{DROM}	—	0.2	4	mA
Instantaneous On-State Voltage♦ For i_T = 30A (peak), T_C 25°C	v_T	—	1.6	2.0	V
DC Holding Current♦ Gate open, Initial principal current = 150 mA (DC), v_D = 12V: T_C = 25°C ..... For other case temperatures	I_{HO}	—	15 See Fig. 5	60	mA
Critical Rate of Applied Commutating Voltage♦ For $v_D = V_{DROM}$, $I_{T(RMS)}$ = 15 A, commutating di/dt = 8 A/ms, and gate unenergized At T_C = +95°C	dv/dt	2	10	—	V/μs
Critical Rate of Rise of Off-State Voltage♦ For $v_D = V_{DROM}$, exponential voltage rise, and gate open At T_C = 125°C T4700B ..... T4700D ..... T4700M T4700N	dv/dt	 30 20 15 10	 150 100 75 50	 — — — —	V/μs
DC Gate-Trigger Current♦ ■ For v_D = 6 volts (dc), R_L = 12 ohms, T_C = +25°, and Specified Triggering Mode: I^+ Mode: V_{T2} is positive, V_G is positive ..... I^- Mode: V_{T2} is positive, V_G is negative ..... III^+ Mode: V_{T2} is negative, V_G is positive ..... III^- Mode: V_{T2} is negative, V_G is negative ..... For other case temperatures	I_{GT}	 — — — —	 15 35 35 15 See Figs. 7 & 9	 30 80 80 30	mA
DC Gate-Trigger Voltage♦ ■ For v_D = 6 volts (dc) and R_L = 12 ohms At T_C = +25° ..... For other case temperatures ..... For $v_D = V_{DROM}$, R_L = 125 Ω, T_C = 125°C	V_{GT}	 — 0.2	 1 See Fig. 11 —	 2.5 —	V
Gate-Controlled Turn-On Time (Delay Time + Rise Time) For $v_D = V_{DROM}$, I_G = 160 mA, t_r = 0.1 μs, i_T = 25 A (peak), T_C = 25°C	t_{gt}	—	1.6	2.5	μs
Thermal Resistance: Junction-to-Case	$R_{\theta JC}$	—	—	1.3	°C/W

♦For either polarity of main terminal 2 voltage (V_{T2}) with reference to main terminal 1.
■For either polarity of gate voltage (V_G) with reference to main terminal 1.