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T2300, T2301, T2302 Series

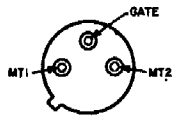
2.5-A Sensitive-Gate Silicon Triacs

Modified TO-205 Package for AC Power Switching

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



Modified TO-205

MAXIMUM RATINGS, *Absolute-Maximum Values:*

	3 mA Gate 4 mA Gate 10 mA Gate	T2300F T2301F T2302F	T2300A T2301A T2302A	T2300B T2301B T2302B	T2300D T2301D T2302D	T2300M T2301M T2302M	T2300N T2301N T2302N	
V_{DROM}▲: T_J = -40 to 125°C		50	100	200	400	600	800	V
$I_{T(RMS)}$: T_C = 95°C				2.5				A
For other conditions				See Figs. 3,4,5				
I_{TSM}: For one cycle of applied principal voltage								
60 Hz (sinusoidal)				25				A
50 Hz (sinusoidal)				21				A
More than one cycle of applied principal voltage				See Figs. 6,7				
di/dt: $V_D = V_{DROM}$, I_G = 50 mA, t_r = 0.1 μs				100				A/μs
I^2t [At T_C shown for $I_{T(RMS)}$]:								
t = 20 ms				4.3				A^2s
= 2.5 ms				2				A^2s
= 0.5 ms				1				A^2s
I_{GTM}•: For 1 μs max.				1				A
P_{GM}: Peak (For 1 μs max., $I_{GTM} \leq$ 1 A(peak)				10				W
$P_{G(AV)}$:								
T_C = 60°C				0.15				W
T_A = 25°C				0.05				W
T_{stg}■				-40 to 150				°C
T_C■				-40 to 125				°C
T_L■:								
During soldering for 10 s maximum								
at distance ≥ 1/16 in. (1.58 mm) from seating plane				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 Outlines.

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

CHARACTERISTIC	LIMITS FOR ALL TYPES Except as Specified			UNITS
	Min.	Typ.	Max.	
I_{DROM}▲: Gate open, T_J = 125°C, V_{DROM} = Max. rated value	–	0.2	0.75	mA
V_{TM}▲: i_T=10 A(peak), T_C=25°C	–	1.7	2.2	V
I_{HO}▲: *(See Figs. 9 & 10)* Gate open, Initial principal current=150 mA (dc), v_D=12 V, T_C=25°C				
(T2300, T2301 series)	–	2	5	mA
(T2302 series)	–	7	15	
dv/dt (Commutating)▲: *(See Fig. 14)* v_D=V_{DROM}, $I_{T(RMS)}$=2.5 A, commutating di/dt=1.33 A/ms, gate unenergized, T_C= 70°C	0.5	–	–	V/μs
dv/dt (Off-state)▲: v_D=V_{DROM}, exponential voltage rise, gate open,				
T_C = 115°C (T2300, T2301 series)	3	5	–	V/μs
T_C = 125°C (T2302 series)	6	10	–	
I_{GT}▲●: *(See Figs. 11 & 12)* v_D=12 V dc, R_L=30 Ω, T_C=25°C				
Mode V_{MT2} V_G				
I^+ positive positive				
T2300 series	–	1	3	
T2301 series	–	1	4	
T2302 series	–	3.5	10	
III^- negative negative				
T2300 series	–	1	3	
T2301 series	–	1	4	
T2302 series	–	3.5	10	mA
I^- positive negative				
T2300 series	–	2	3	
T2301 series	–	2	4	
T2302 series	–	7	10	
III^+ negative positive				
T2300 series	–	2	3	
T2301 series	–	2	4	
T2302 series	–	7	10	
V_{GT}▲●: *(See Fig. 13)*				
v_D=12 V dc, R_L=30 Ω, T_C=25°C	–	1	2.2	V
v_D=V_{DROM}, R_L=125 Ω, T_C = 125°C	0.15	–	–	
t_{gt}: *(See Fig. 16)* v_D=V_{DROM}, I_{GT}=60 mA, t_r=0.1 μs, i_T=10 A(peak), T_C=25°C	–	1.8	2.5	μs
$R_{\theta JC}$: Steady-state	–	–	8.5	°C/W
$R_{\theta JA}$: (T2300 Series)	–	–	150	

▲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.