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NTE310P Integrated Thyristor/Rectifier (ITR) TV Horizontal Deflection & Trace Switch

Absolute Maximum Ratings:

Repetitive Peak Forward Off-State Voltage ($T_C = +85^\circ\text{C}$, Note 1), V_{DRM}	800V
Repetitive Peak Reverse Voltage ($T_C = +85^\circ\text{C}$, Note 1), V_{RRM}	750V
Mean On-State Current ($T_C = +60^\circ\text{C}$, 50Hz Sine Wave, Conduction Angle of 180°), I_O , $I_{T(AV)}$	
Rectifier	3.0A
SCR	5.0A
RMS On-State Current ($T_C = +60^\circ\text{C}$, 50Hz Sine Wave, Conduction Angle of 180°), $I_{F(RMS)}$, $I_{T(RMS)}$	
Rectifier	4.5A
SCR	8.0A
Surge Current ($T_C = +85^\circ\text{C}$, One Full Cycle), I_{TSM} , I_{FSM}	
60Hz Sinusoidal	80A
50Hz Sinusoidal	70A
Rate of Change of On-State Current ($V_D = 700\text{V}$, $I_{GT} = 50\text{mA}$, $t_r = 0.1\mu\text{s}$), di/dt	200A/ μs
Peak Forward Gate Power (Negative Gate Bias = -10V , $10\mu\text{s}$ max, Note 2), P_{GM}	25W
Peak Reverse Gate Power (Negative Gate Bias = -10V , $10\mu\text{s}$ max, Note 2), P_{RGM}	25W
Operating Case Temperature Range, T_C	-40° to $+85^\circ\text{C}$
Storage Temperature Range, T_{stg}	-40° to $+150^\circ\text{C}$
Maximum Thermal Resistance, Junction-to-Case, R_{thJC}	2.5°C/W
Lead Temperature (During Soldering, 1/8" from case, 10sec max), T_L	$+225^\circ\text{C}$

Note 1. These values do not apply if there is a positive gate signal. Gate must be open or negatively biased.

Note 2. Any product of gate current and gate voltage which results in a gate power less than the maximum is permitted, provided that the maximum reverse gate bias (as specified) is not exceeded.

Electrical Characteristics: ($T_C = +25^\circ\text{C}$ "Maximum Ratings" unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Peak Forward Blocking Current	I_{DRM}	$V_D = 700\text{V}$, $T_C = +85^\circ\text{C}$	–	0.5	1.5	mA
Instantaneous Voltage Rectifier	V_F	$I_F = 10\text{A}$	–	1.35	1.7	V
SCR	V_T	$I_T = 30\text{A}$	–	1.75	3.0	V
Peak Forward Voltage (Rectifier Only)	V_{FM}	$I_{FM} = 1\text{A}$	–	8	13	V
Gate Trigger Current, Continuous DC	I_{GT}	Anode Voltage = 12V , $R_L = 30\Omega$	–	15	40	mA
Gate Trigger Voltage, Continuous DC	V_{GT}	Anode Voltage = 12V , $R_L = 30\Omega$	–	1.8	4.0	V

Electrical Characteristics (Cont'd): ($T_C = +25^\circ\text{C}$ "Maximum Ratings" unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Rate of Rise of Off-State Voltage	dv/dt	$V_D = 700\text{V}$, $T_C = +85^\circ\text{C}$	175	–	–	$\text{V}/\mu\text{s}$
Reverse Recovery Time (Rectifier Only)	t_{rr}	$I_{FM} = 10\text{A}$, $-di_F/dt = -10\text{A}/\mu\text{s}$, $t_p = 3\mu\text{s}$	0.5	0.7	–	μs
Circuit Commutated Turn-Off Time	t_q	Minimum Negative Gate Bias = -20V , $dv/dt = 175\text{V}/\mu\text{s}$, $T_C = +80^\circ\text{C}$, Note 3	–	–	2.4	μs

Note 3. Turn-off time increases with temperature; therefore, case temperature must not exceed the level indicated.

