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## NTE308P Integrated Thyristor/Rectifier (ITR) TV Horizontal Deflection & Commutating Switch

### **Absolute Maximum Ratings:**

Repetitive Peak Forward Off-State Voltage ( $T_C = +85^\circ\text{C}$ , Note 1), $V_{DRM}$ .....	750V
Repetitive Peak Reverse Voltage ( $T_C = +85^\circ\text{C}$ , Note 1), $V_{RRM}$ .....	700V
Mean On-State Current ( $T_C = +60^\circ\text{C}$ , 50Hz Sine Wave, Conduction Angle of $180^\circ$ ), $I_O$ , $I_{T(AV)}$	
Rectifier .....	3.0A
SCR .....	5.0A
RMS On-State Current ( $T_C = +60^\circ\text{C}$ , 50Hz Sine Wave, Conduction Angle of $180^\circ$ ), $I_{F(RMS)}$ , $I_{T(RMS)}$	
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/ $\mu\text{s}$
Peak Forward Gate Power (Negative Gate Bias = $-10\text{V}$ , $10\mu\text{s}$ max, Note 2), $P_{GM}$ .....	25W
Peak Reverse Gate Power (Negative Gate Bias = $-10\text{V}$ , $10\mu\text{s}$ max, Note 2), $P_{RGM}$ .....	25W
Operating Case Temperature Range, $T_C$ .....	$-40^\circ$ to $+85^\circ\text{C}$
Storage Temperature Range, $T_{stg}$ .....	$-40^\circ$ to $+150^\circ\text{C}$
Maximum Thermal Resistance, Junction-to-Case, $R_{thJC}$ .....	2.5 $^\circ\text{C}/\text{W}$
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	$V_F$	$I_F = 10\text{A}$	–	1.35	2.0	V
SCR	$V_T$	$I_T = 30\text{A}$	–	1.75	3.0	V
Gate Trigger Current, Continuous DC	$I_{GT}$	Anode Voltage = 12V, $R_L = 30\Omega$	–	15	45	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	$dv/dt$	$V_D = 700\text{V}, V_G = -2.5\text{V}, T_C = +85^\circ\text{C}$	1000	–	–	$\text{V}/\mu\text{s}$
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	–	$\mu\text{s}$
Circuit Commutated Turn-Off Time	$t_q$	Minimum Negative Gate Bias = $-2.5\text{V}$ , $dv/dt = 400\text{V}/\mu\text{s}, T_C = +80^\circ\text{C}$ , Note 3	–	–	4.2	$\mu\text{s}$

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

