



ELECTRONICS, INC.  
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## NTE5368 & NTE5369 Silicon Controlled Rectifier (SCR) 125 Amp

### **Absolute Maximum Ratings:** ( $T_J = +125^\circ\text{C}$ unless otherwise specified)

Repetitive Peak Voltages, $V_{RRM}$ , $V_{DRM}$ , $V_{DSM}$	
NTE5368	600V
NTE5369	1200V
Non-Repetitive Peak Reverse Blocking Voltage, $V_{RSM}$	
NTE5368	700V
NTE5369	1300V
Average On-State Current (Half Sine Wave, $T_C = +85^\circ\text{C}$ ), $I_{T(AV)}$	75A
RMS On-State Current, $I_{T(RMS)}$	175A
Continuous On-State Current, $I_T$	175A
Peak One-Cycle Surge (10ms duration, 60% $V_{RRM}$ re-applied), $I_{TSM(1)}$	1500A
Non-Repetitive On-State Current (10ms duration, $V_R \leq 10V$ ), $I_{TSM(2)}$	1650A
Maximum Permissible Surge Energy ( $V_R \leq 10V$ ), $I^2t$	
10ms duration	13600A <sup>2</sup> s
3ms duration	10000A <sup>2</sup> s
Peak Forward Gate Current (Anode positive with respect to cathode), $I_{FGM}$	14A
Peak Forward Gate Voltage (Anode positive with respect to cathode), $V_{FGM}$	20V
Peak Reverse Gate Voltage, $V_{RGM}$	5V
Average Gate Power, $P_G$	1.5W
Peak Gate Power (100 $\mu$ s pulse width), $P_{GM}$	60W
Rate of Rise of Off-State Voltage (To 80% $V_{DRM}$ gate open-circuit), $dv/dt$	200V/ $\mu$ s
Rate of Rise of On-State Current, $di/dt$ (Gate drive 20V, 20 $\Omega$ with $t_r \leq 1\mu$ s, anode voltage $\leq 80\%$ $V_{DRM}$ )	
Repetitive	500A/ $\mu$ s
Non-Repetitive	1000A/ $\mu$ s
Operating Temperature Range, $T_{hs}$	-40° to +125°C
Storage Temperature Range, $T_{stg}$	-40° to +150°C
Thermal Resistance, Junction-to-Case, $R_{thJC}$ (For a device with a maximum forward voltage drop characteristic)	0.23°C/W

**Absolute Maximum Ratings (Cont'd):** ( $T_J = +125^\circ\text{C}$  unless otherwise specified)

Peak On-State Voltage ( $I_{TM} = 280\text{A}$ ), $V_{TM}$ .....	2.54V
Forward Conduction Threshold Voltage, $V_O$ .....	1.7V
Forward Conduction Slope Resistance, $r$ .....	3m $\Omega$
Repetitive Peak Off-State Current (At $V_{DRM}$ ), $I_{DRM}$ .....	20mA
Repetitive Peak Reverse Current (At $V_{RRM}$ ), $I_{RRM}$ .....	20mA
Maximum Gate Current ( $V_A = 6\text{V}$ , $I_A = 1\text{A}$ , $T_J = +25^\circ\text{C}$ ), $I_{GT}$ .....	200mA
Maximum Gate Voltage ( $V_A = 6\text{V}$ , $I_A = 1\text{A}$ , $T_J = +25^\circ\text{C}$ ), $V_{GT}$ .....	3V
Maximum Holding Current ( $V_A = 6\text{V}$ , $I_A = 1\text{A}$ , $T_J = +25^\circ\text{C}$ ), $I_H$ .....	600mA
Maximum Gate Voltage Which Will Not Trigger Any Device, $V_{GD}$ .....	0.25V
Typical Stored Charge ( $I_{TM} = 200\text{A}$ , $dr_R/dt = 10\text{A}/\mu\text{s}$ , $V_{RM} = 50\text{V}$ , 50% chord value), $Q_{rr}$ .....	25 $\mu\text{C}$
Circuit Commutated Turn-Off Time ( $I_{TM} = 200\text{A}$ , $di_R/dt = 10\text{A}/\mu\text{s}$ , $V_{RM} = 50\text{V}$ ), $t_q$	
(200V/ $\mu\text{s}$ to 80% $V_{DRM}$ ) .....	25–40 $\mu\text{s}$
(20V/ $\mu\text{s}$ to 80% $V_{DRM}$ ) .....	(typical) 20–35 $\mu\text{s}$

