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NTE5374 & NTE5375 Silicon Controlled Rectifier (SCR) for High Speed Switching

Maximum Ratings and Electrical Characteristics: ($T_J = +125^\circ\text{C}$ unless otherwise specified)

Repetitive Peak Voltages, V_{DRM}, V_{RRM}	
NTE5374	600V
NTE5375	1200V
Non-Repetitive Peak Off-State Voltage, V_{DSM}	
NTE5374	600V
NTE5375	1200V
Non-Repetitive Peak Reverse Blocking Voltage, V_{RSM}	
NTE5374	700V
NTE5375	1300V
Average On-State Current ($T_C = +85^\circ\text{C}$, half sinewave), $I_{T(AV)}$	
NTE5374	195A
NTE5375	175A
RMS On-State Current, $I_{T(RMS)}$	355A
Continuous On-State Current, I_T	355A
Peak One-Cycle Surge (Non-Repetitive) On-State Current, I_{TSM}	
($t = 10\text{ms}$, 60% V_{RRM} re-applied)	
NTE5374	4700A
NTE5375	3250A
($t = 10\text{ms}$, $V_R \leq 10\text{V}$)	
NTE5374	5170A
NTE5374	3575A
Maximum Permissible Surge Energy, I^2t	
($t = 10\text{ms}$, $V_R \leq 10\text{V}$)	
NTE5374	134000A ² sec
NTE5375	63900A ² sec
($t = 3\text{ms}$, $V_R \leq 10\text{V}$)	
NTE5374	98000A ² sec
NTE5375	47000A ² sec
Peak Forward Gate Current (Anode Positive with Respect to Cathode), I_{FGM}	18A
Peak Forward Gate Voltage (Anode Positive with Respect to Cathode), V_{FGM}	12V
Peak Reverse Gate Voltage, V_{RGM}	5V
Average Gate Power, $P_{G(AV)}$	1.5W
Peak Gate Power (100 μs Pulse Width), P_{GM}	60W
Rate of Rise of Off-State Voltage (To 80% V_{DRM} , Gate Open-Circuit), dv/dt	200V/ μs

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

Rate of Rise of On–State Current, di/dt (Gate Drive 20V, 20Ω with $t_r \leq 1\mu\text{s}$, Anode voltage $\leq 80\% V_{\text{DRM}}$)	
Repetitive	500A/ μs
Non–Repetitive	1000A/ μs
Peak On–State Voltage ($I_{\text{TM}} = 600\text{A}$), V_{TM}	
NTE5374	1.8V
NTE5375	2.074V
Forward Conduction Threshold Voltage, V_O	
NTE5374	1.4V
NTE5375	1.55V
Forward Conduction Slope Resistance, r	
NTE5374	0.67m Ω
NTE5375	0.87m Ω
Repetitive Peak Off–State Current (At Rated V_{DRM}), I_{DRM}	30mA
Repetitive Peak Reverse Current (At Rated V_{RRM}), I_{RRM}	30mA
Maximum Gate Current Required to Fire All Devices ($T_J = +25^\circ\text{C}$, $V_A = 6\text{V}$, $I_A = 1\text{A}$), I_{GT} ..	200mA
Maximum Gate Voltage Required to Fire All Devices ($T_J = +25^\circ\text{C}$, $V_A = 6\text{V}$, $I_A = 1\text{A}$), V_{GT}	3V
Maximum Holding Current ($T_J = +25^\circ\text{C}$, $V_A = 6\text{V}$, $I_A = 1\text{A}$), I_H	600mA
Maximum Gate Voltage Which Will Not Trigger Any Device, V_{GD}	0.25V
Typical Stored Charge ($I_{\text{TM}} = 300\text{A}$, $di/dt = 20\text{A}/\mu\text{s}$, $V_{\text{RM}} = 50\text{V}$, 50% Chord Value), Q_{rr}	
NTE5374	25 μC
NTE5375	45 μC
Maximum Circuit Commutated Turn–Off Time, t_q ($I_{\text{TM}} = 300\text{A}$, $di/dt = 20\text{A}/\mu\text{s}$, $V_{\text{RM}} = 50\text{V}$, $dv/dt = 200\text{V}/\mu\text{s}$ to $80\% V_{\text{DRM}}$)	
NTE5374	10 μs
NTE5375	20 μs
Operating Temperature Range, T_C	-40° to $+125^\circ\text{C}$
Storage Temperature Range, T_{stg}	-40° to $+150^\circ\text{C}$
Thermal Resistance, Junction–to–Case, R_{thJC}	0.12 $^\circ\text{C}/\text{W}$

