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NTE5368 Silicon Controlled Rectifier (SCR) for High Speed Switching, 125 Amp, TO83

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

Repetitive Peak Voltages, V_{DRM} , V_{RRM}	600V
Non-Repetitive Peak Reverse Blocking Voltage, V_{RSM}	700V
Average On-State Current (180° Conduction, Half Sine Wave, $T_C = +85^\circ\text{C}$), $I_{T(AV)}$	85A
RMS On-State Current (DC, $T_C = +77^\circ\text{C}$), $I_{T(RMS)}$	135A
Continuous On-State Current, I_T	175A
Peak One Half Cycle, Non-Repetitive Surge Current, I_{TSM} (No Voltage Reapplied, Sinusoidal Half Wave)	
$t = 10\text{ms}$	2450A
$t = 8.3\text{ms}$	2560A
(100% V_{RRM} Reapplied, Sinusoidal Half Wave)	
$t = 10\text{ms}$	2060A
$t = 8.3\text{ms}$	2160A
Maximum I^2t for Fusing, I^2t (No Voltage Reapplied, Sinusoidal Half Wave)	
$t = 10\text{ms}$	30KA ² s
$t = 8.3\text{ms}$	27KA ² s
(100% V_{RRM} Reapplied, Sinusoidal Half Wave), I^2t	
$t = 10\text{ms}$	21KA ² s
$t = 8.3\text{ms}$	19KA ² s
Maximum $I^2\sqrt{t}$ for Fusing ($t = 0.1$ to 10ms , No Voltage Reapplied), $I^2\sqrt{t}$	300KA ² \sqrt{s}
Max. Peak Positive Gate Current ($t_p \leq 5\text{ms}$), I_{GM}	5A
Max. Peak Positive Gate Voltage ($t_p \leq 5\text{ms}$), $+V_{GM}$	20V
Max. Peak Negative Gate Voltage ($t_p \leq 5\text{ms}$), $-V_{GM}$	5V
Average Gate Power ($f = 50\text{Hz}$, $d\% = 50$), $P_{G(AV)}$	5W
Max. Peak Gate Power ($f = 50\text{Hz}$, $d\% = 50$), P_{GM}	40W
Max. Critical Rate of Rise of Off-State Voltage (To 80% V_{DRM}), dv/dt	500V/ μs
Max. Non-Repetitive Rate of Rise of Turned On Current, di/dt ($V_{DRM} = 600\text{V}$, $I_{TM} = 2 \times di/dt$)	1000A/ μs
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} (DC Operation)	0.195K/W
Thermal Resistance, Case-to-Heatsink, R_{thCS} (Mounting surface, smooth, flat and greased)	0.08K/W

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

Max. Peak On-State Voltage ($I_{TM} = 300\text{A}$, $t_p = 10\text{ms}$ Sine Wave Pulse), V_{TM}	2.15V
Low Level Threshold Voltage ($[16.7\% \times \pi \times I_{T(AV)} < I < \pi \times I_{T(AV)}]$), $V_{T(TO)1}$	1.46V
High Level Threshold Voltage ($[I > \pi \times I_{T(AV)}]$), $V_{T(TO)2}$	1.52V
Low level Forward Slope Resistance ($[16.7\% \times \pi \times I_{T(AV)} < I < \pi \times I_{T(AV)}]$), r_{t1}	2.32m Ω
High level Forward Slope Resistance ($[I > \pi \times I_{T(AV)}]$), r_{t2}	2.34m Ω
Repetitive Peak Off-State Current (Rated V_{DRM} Applied), I_{DRM}	30mA
Repetitive Peak Reverse Current (Rated V_{RRM} Applied), I_{RRM}	30mA
Max. Gate Current ($V_A = 12\text{V}$, $R_a = 6\Omega$, $T_J = +25^\circ\text{C}$), I_{GT}	200mA
Max. Gate Voltage ($V_A = 12\text{V}$, $R_a = 6\Omega$, $T_J = +25^\circ\text{C}$), V_{GT}	3V
Max. Holding Current ($I_T > 30\text{A}$, $T_J = +25^\circ\text{C}$), I_H	600mA
Typical Latching Current ($T_J = +25^\circ\text{C}$, $V_A = 12\text{V}$, $R_a = 6\Omega$, $I_G = 1\text{A}$), I_L	1000mA
Max. DC Gate Current Not to Trigger (Rated V_{DRM} Applied), I_{GD}	20mA
Max. DC Gate Voltage Not to Trigger (Rated V_{DRM} Applied), V_{GD}	0.25V
Typical Delay Time, t_d ($T_J = +25^\circ\text{C}$, $V_{DM} = 600\text{V}$, $I_{TM} = 50\text{A}$ DC, $t_p = 1\mu\text{s}$, Resistive Load, Gate Pulse: 10V, 5 Ω Source)	0.80 μs
Max. Turn-Off Time ($I_{TM} = 100\text{A}$, Commutating $di/dt = 10\text{A}/\mu\text{s}$, $V_R = 50\text{V}$, $t_p = 200\mu\text{s}$), t_q ...	10–20 μs

