ELECTRONICS, INC.
44 FARRAND STREET
BLOOMFIELD, NJ 07003
(973) 748–5089

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

Maximum Ratings and Electrical Characteristics: (T_J = +125°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°C, Single phase, 50Hz, 180° sinewave), $I_{T(AV)}$ 183A

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 = 10ms, half sinewave, T_J(initial) = +125°C, $V_{RM} = 0.6V_{RRM}$max) 3500A
- (t = 10ms, half sinewave, T_J(initial) = +125°C, $V_{RM} \le 10V$) 3850A

Maximum Permissible Surge Energy (T_J(initial) = +125°C), I^2t
- (t = 10ms, $V_{RM} = 0.6V_{RRM}$max) . . . . . $61.3 \times 10^3 A^2sec$
- (t = 10ms, $V_{RM} \le 10V$) . . . . . $74.1 \times 10^3 A^2sec$
- (t = 3ms, $V_{RM} \le 10V$) . . . . . $54.5 \times 10^3 A^2sec$

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, P_{GM} 60W

Rate of Rise of Off–State Voltage (To 80% V_{DRM}, Gate Open–Circuit), dv/dt 200V/μs

Rate of Rise of On–State Current (Repetitive, Gate Drive 20V, 20Ω with $t_r \le 1\mu s$), di/dt . . 500A/μs

Peak On–State Voltage (I_{TM} = 600A), V_{TM} 1.96V

Forward Conduction Threshold Voltage, V_O 1.4V

Forward Conduction Slope Resistance, r 0.937mΩ

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°C, V_A = 6V, I_A = 1A), I_{GT} . . 200mA

Maximum Gate Voltage Required to Fire All Devices (T_J = +25°C, V_A = 6V, I_A = 1A), V_{GT} 3V

Maximum Ratings and Electrical Characteristics (Cont'd): (T_J = +125°C unless otherwise specified)

Maximum Holding Current (T_J = +25°C, V_A = 6V, I_A = 1A), I_H 600mA

Maximum Gate Voltage Which Will Not Trigger Any Device, V_{GD} 0.25V

Typical Stored Charge (I_{TM} = 300A, dir/dt 20A/µs, V_{RM} = 50V, 50% Chord Value), Q_{rr} 50µC

Maximum Circuit Commutated Turn–Off Time, t_q
(I_{TM} = 300A, dir/dt = 20A/µs, dv/dt = 200V/µs to 80% V_{DRM}) . . . . . 30 – 40µs

Typical Circuit Commutated Turn–Off Time, t_q
(I_{TM} = 300A, dir/dt = 20A/µs, dv/dt = 20V/µs to 80% V_{DRM}) . . . . . 25 – 35µs

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} 0.04/W