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

# NTE5590, NTE5591, NTE5592, NTE5597
# Silicon Controlled Rectifier (SCR)
# 470 Amp

**Absolute Maximum Ratings:** ($T_J$ = +125°C unless otherwise specified)

Repetitive Peak Voltages, $V_{RRM}$, $V_{DRM}$, $V_{DSM}$
- NTE5590 . . . . . 200V
- NTE5591 . . . . . 600V
- NTE5592 . . . . . 1200V
- NTE5597 . . . . . 1600V

Non–Repetitive Peak Reverse Blocking Voltage, $V_{RSM}$
- NTE5590 . . . . . 300V
- NTE5591 . . . . . 700V
- NTE5592 . . . . . 1300V
- NTE5597 . . . . . 1700V

Average On–State Current (Half Sine Wave), $I_{T(AV)}$
- $T_{hs}$ = +55°C (Double Side Cooled) . . . . . 470A
- $T_{hs}$ = +85°C (Single Side Cooled) . . . . . 160A

RMS On–State Current ($T_{hs}$ = +25°C, Double Side Cooled), $I_{T(RMS)}$ . . . . . 780A

Continuous On–State Current ($T_{hs}$ = +25°C, Double Side Cooled), $I_T$ . . . . . 668A

Peak One–Cycle Surge (10ms duration, 60% $V_{RRM}$ re–applied), $I_{TSM\ (1)}$ . . . . . 4650A

Non–Repetitive On–State Current (10ms duration, $V_R \le 10V$), $I_{TSM\ (2)}$ . . . . . 5120A

Maximum Permissible Surge Energy ($V_R \le 10V$), $I^2t$
- 10ms duration . . . . . $131000A^2s$
- 3ms duration . . . . . $97350A^2s$

Peak Forward Gate Current (Anode positive with respect to cathode), $I_{FGM}$ . . . . . 19A

Peak Forward Gate Voltage (Anode positive with respect to cathode), $V_{FGM}$ . . . . . 18V

Peak Reverse Gate Voltage, $V_{RGM}$ . . . . . 5V

Average Gate Power, $P_G$ . . . . . 2W

Peak Gate Power (100μs pulse width), $P_{GM}$ . . . . . 100W

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, di/dt
(Gate drive 20V, 20Ω with $t_r \le 1\mu s$, anode voltage ≤ 80% $V_{DRM}$)
- Repetitive . . . . . 500A/μs
- Non–Repetitive . . . . . 1000A/μs

Operating Temperature Range, $T_{hs}$ . . . . . –40° to +125°C

Storage Temperature Range, $T_{stg}$ . . . . . –40° to +150°C

Thermal Resistance, Junction–to–Heatsink, $R_{th(j–hs)}$
(For a device with a maximum forward voltage drop characteristic)
- Double Side Cooled . . . . . 0.095°C/W
- Single Side Cooled . . . . . 0.190°C/W

**Absolute Maximum Ratings (Cont'd):** ($T_J$ = +125°C unless otherwise specified)

Peak On–State Voltage ($I_{TM}$ = 840A), $V_{TM}$ . . . . . 1.75V
Forward Conduction Threshold Voltage, $V_O$ . . . . . 0.92V
Forward Conduction Slope Resistance, r . . . . . 0.99mΩ
Repetitive Peak Off–State Current (At $V_{DRM}$), $I_{DRM}$ . . . . . 20mA
Repetitive Peak Reverse Current (At $V_{RRM}$), $I_{RRM}$ . . . . . 20mA
Maximum Gate Current ($V_A$ = 6V, $I_A$ = 1A, $T_J$ = +25°C), $I_{GT}$ . . . . . 150mA
Maximum Gate Voltage ($V_A$ = 6V, $I_A$ = 1A, $T_J$ = +25°C), $V_{GT}$ . . . . . 3V
Maximum Holding Current ($V_A$ = 6V, $I_A$ = 1A, $T_J$ = +25°C), $I_H$ . . . . . 600mA
Maximum Gate Voltage Which Will Not Trigger Any Device, $V_{GD}$ . . . . . 0.25V