



ELECTRONICS, INC.

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

### **Absolute Maximum Ratings:** ( $T_J = +125^\circ\text{C}$ 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),  $I_{T(AV)}$

$T_{hs} = +55^\circ\text{C}$ (Double Side Cooled) .....	470A
$T_{hs} = +85^\circ\text{C}$ (Single Side Cooled) .....	160A

RMS On-State Current ( $T_{hs} = +25^\circ\text{C}$ , Double Side Cooled),  $I_{T(RMS)}$  .....

Continuous On-State Current ( $T_{hs} = +25^\circ\text{C}$ , Double Side Cooled),  $I_T$  .....

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

Non-Repetitive On-State Current (10ms duration,  $V_R \leq 10V$ ),  $I_{TSM(2)}$  .....

Maximum Permissible Surge Energy ( $V_R \leq 10V$ ),  $I^2t$

10ms duration .....	131000A <sup>2</sup> s
3ms duration .....	97350A <sup>2</sup> s

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

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

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

Average Gate Power,  $P_G$  .....

Peak Gate Power (100 $\mu$ s pulse width),  $P_{GM}$  .....

Rate of Rise of Off-State Voltage (To 80%  $V_{DRM}$  gate open-circuit),  $dv/dt$  .....

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,  $T_{hs}$  .....

Storage Temperature Range,  $T_{stg}$  .....

Thermal Resistance, Junction-to-Heatsink,  $R_{th(j-hs)}$

(For a device with a maximum forward voltage drop characteristic)

Double Side Cooled .....	0.095 $^\circ\text{C}/W$
Single Side Cooled .....	0.190 $^\circ\text{C}/W$

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

Peak On-State Voltage ( $I_{TM} = 840\text{A}$ ), $V_{TM}$ .....	1.75V
Forward Conduction Threshold Voltage, $V_O$ .....	0.92V
Forward Conduction Slope Resistance, $r$ .....	0.99m $\Omega$
Repetitive Peak Off-State Current (At $V_{DRM}$ ), $I_{DRM}$ .....	20mA
Repetitive Peak Reverse Current (At $V_{RRM}$ ), $I_{RRM}$ .....	20mA
Maximum Gate Current ( $V_A = 6\text{V}$ , $I_A = 1\text{A}$ , $T_J = +25^\circ\text{C}$ ), $I_{GT}$ .....	150mA
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

