



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), $I_{T(RMS)}$	780A
Continuous On-State Current ($T_{hs} = +25^\circ\text{C}$, 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, $V_R \leq 10V$), $I_{TSM(2)}$	5120A
Maximum Permissible Surge Energy ($V_R \leq 10V$), I^2t	
10ms duration	131000A ² s
3ms duration	97350A ² s
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 (100 μ s pulse width), P_{GM}	100W
Rate of Rise of Off-State Voltage (To 80% V_{DRM} gate open-circuit), dv/dt	200V/ μ s
Rate of Rise of On-State Current, di/dt	
(Gate drive 20V, 20 Ω with $t_r \leq 1\mu$ s, anode voltage $\leq 80\%$ V_{DRM})	
Repetitive	500A/ μ s
Non-Repetitive	1000A/ μ s
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): ($T_J = +125^\circ\text{C}$ 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 Ω
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

