

NTE5576 & NTE5578 Silicon Controlled Rectifier

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

Repetitive Peak Voltages, V_{DRM} & V_{RRM}

NTE5576 600V

NTE5578 1600V

Non-Repetitive Peak Off-State Voltage, V_{DSM}

NTE5576 600V

NTE5578 1600V

Non-Repetitive Peak Reverse Blocking Voltage, V_{RSM}

NTE5576 700V

NTE5578 1700V

Average On-State Current (Half Sine Wave, $T_C = +90^{\circ}\text{C}$), $I_{\text{T(AV)}}$ 110A

RMS On-State Current, $I_{\text{(RMS)}}$ 175A

Continuous On-State Current, I_{T} 175A

Peak One-Cycle, Non-Repetitive Surge Current (10ms Duration), I_{TSM}

60% V_{RRM} reapplied 2450A

$V_{\text{R}} \leq 10\text{V}$ 2695A

Maximum I^2t for Fusing ($V_{\text{R}} \leq 10\text{V}$), I^2t

10ms Duration 36300A²sec

10ms Duration 27000A²sec

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 μs Pulse Width), P_{GM} 100W

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

Rate of Rise of ON-State Current, di/dt

(Gate Drive 20V, 20 Ω , with $t_r \leq 1\mu\text{s}$, Anode Voltage $\leq 80\%$ V_{DRM})

Repetitive 500A/ μs

Non-Repetitive 1000A/ μs

Electrical Characteristics: (Maximum values @ $T_J = +125^{\circ}\text{C}$ unless otherwise specified)

Peak On-State Voltage ($I_{\text{TM}} = 377\text{A}$), V_{TM} 1.57V

Forward Conduction Threshold Voltage, V_{O} 0.9V

Forward Conduction Slope Resistance, r 1.79m 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 Required to Fire All Devices ($V_{\text{A}} = 6\text{V}$, $I_{\text{A}} = 2\text{A}$, $T_J = +25^{\circ}\text{C}$), I_{GT} .. 150mA

Maximum Gate Voltage Required to Fire All Devices ($V_{\text{A}} = 6\text{V}$, $I_{\text{A}} = 2\text{A}$, $T_J = +25^{\circ}\text{C}$), V_{GT} 3V

Maximum Holding ($V_{\text{A}} = 6\text{V}$, $I_{\text{A}} = 2\text{A}$, $T_J = +25^{\circ}\text{C}$), I_{H} 600mA

Maximum Gate Voltage which will not Trigger any Device, V_{GD} 0.25V

Electrical Characteristics (Cont'd): (Maximum values @ $T_J = +125^\circ\text{C}$ unless otherwise specified)

Operating Temperature Range, T_C -40° to $+125^\circ\text{C}$

Storage Temperature Range, T_{stg} -40° to $+150^\circ\text{C}$

Thermal Resistance, Junction-to-Case ($V_F = \text{Max Rating}$), R_{thJC}

 DC and 180° Sine wave 0.23°C/W

120° Rectangular wave 0.28°C/W

Thermal Resistance, Case-to-Heat Sink, $R_{\text{thC-HS}}$ 0.08°C/W

