



**ELECTRONICS, INC.**  
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## 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, $T_C = +90^\circ\text{C}$ ), $I_{T(AV)}$ .....	
	110A
RMS On-State Current, $I_{(RMS)}$ .....	
	175A
Continuous On-State Current, $I_T$ .....	
	175A
Peak One-Cycle, Non-Repetitive Surge Current (10ms Duration), $I_{TSM}$	
60% $V_{RRM}$ reapplied .....	2450A
$V_R \leq 10V$ .....	2695A
Maximum $I^2t$ for Fusing ( $V_R \leq 10V$ ), $I^2t$	
10ms Duration .....	36300A <sup>2</sup> sec
10ms Duration .....	27000A <sup>2</sup> sec
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 $\mu$ s Pulse Width), $P_{GM}$ .....	
	100W
Rate of Rise of Off-State Voltage (To 80% $V_{DRM}$ , Gate Open), $dv/dt$ .....	
	200V/ $\mu$ s
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

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

Peak On-State Voltage ( $I_{TM} = 377A$ ), $V_{TM}$ .....	1.57V
Forward Conduction Threshold Voltage, $V_O$ .....	0.9V
Forward Conduction Slope Resistance, $r$ .....	1.79m $\Omega$
Repetitive Peak Off-State Current (At $V_{DRM}$ ), $I_{DRM}$ .....	20mA
Repetitive Peak Reverse Current (At $V_{RRM}$ ), $I_{RRM}$ .....	20mA
Maximum Gate Current Required to Fire All Devices ( $V_A = 6V$ , $I_A = 2A$ , $T_J = +25^\circ\text{C}$ ), $I_{GT}$ ..	150mA
Maximum Gate Voltage Required to Fire All Devices ( $V_A = 6V$ , $I_A = 2A$ , $T_J = +25^\circ\text{C}$ ), $V_{GT}$ .....	3V
Maximum Holding ( $V_A = 6V$ , $I_A = 2A$ , $T_J = +25^\circ\text{C}$ ), $I_H$ .....	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,  $T_C$  .....  $-40^\circ$  to  $+125^\circ\text{C}$

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

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

    DC and  $180^\circ$  Sine wave .....  $0.23^\circ\text{C/W}$

$120^\circ$  Rectangular wave .....  $0.28^\circ\text{C/W}$

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

