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NTE5567, NTE5568, NTE5569, & NTE5571 Silicon Controlled Rectifier (SCR) 80 Amp ($I_{T(RMS)}$), TO65 (TO208AC)

Features:

- High Current Rating
- Excellent Dynamic Characteristics
- Superior Surge Capabilities
- Standard Package

Voltage Ratings and Electrical Characteristics: ($T_J = +125^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Conditions		Values	Unit
Maximum Repetitive Peak Forward & Reverse Voltage NTE5567	V_{DRM}, V_{RRM}	Note 1		200	V
NTE5568				600	V
NTE5569				1200	V
NTE5571				1600	V
Maximum Non-Repetitive Peak Voltage NTE5567	V_{RSM}	Note 2		300	V
NTE5568				700	V
NTE5569				1300	V
NTE5571				1700	V
Peak Reverse & Off-State Current	I_{DRM}, I_{RRM}			15	mA
Average On-State Current NTE5567, NTE5568, NTE5569	$I_{T(AV)}$	180° Sinusoidal Conduction	$T_C = +94^\circ\text{C}$	50	A
NTE5571			$T_C = +90^\circ\text{C}$	50	A
RMS On-State Current	$I_{T(RMS)}$			80	A
Peak One-Cycle Non-Repetitive Surge Current	I_{TSM}	t = 10ms, No Voltage Reapplied, Sinusoidal Half Wave		1200	A
I^2t for Fusing NTE5567, NTE5568, NTE5569	I^2t	t = 10ms, Sinusoidal Half Wave	No Voltage Reapplied	10.18	KA ² s
				7.21	KA ² s
			100% V_{RRM} Reapplied	7.20	KA ² s
				5.10	KA ² s

Note 1. Units may be broken over non-repetitively in the off-state direction without damage, if di/dt does not exceed 20A/ μs .

Note 2. For voltage pulses with $t_p \leq 5\text{ms}$.

Voltage Ratings and Electrical Characteristics (Cont'd): ($T_J = +125^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Values	Unit
I^2t for Fusing NTE5567, NTE5568, NTE5569	I^2t	t = 0.1 to 10ms, No Voltage Reapplied	10.18	KA ² v/s
NTE5571			7.21	KA ² v/s
Low Level Value of Threshold Voltage NTE5567, NTE5568, NTE5569	$I_{T(TO)}$	16.7% $\times \pi \times I_{T(AV)} < I < \pi \times I_{T(AV)}$	0.94	V
NTE5571			1.02	V
High Level Value of Threshold Voltage NTE5567, NTE5568, NTE5569	$I_{T(TO)2}$	$\pi \times I_{T(AV)} < I < 20 \times \pi \times I_{T(AV)}$	1.08	V
NTE5571			1.17	V
Low Level Value of On–State Slope Resistance NTE5567, NTE5568, NTE5569	r_{T1}	16.7% $\times \pi \times I_{T(AV)} < I < 20 \times \pi \times I_{T(AV)}$	4.08	m Ω
NTE5571			4.78	m Ω
High Level Value of On–State Slope Resistance NTE5567, NTE5568, NTE5569	r_{T2}	$\pi \times I_{T(AV)} < I < 20 \times \pi \times I_{T(AV)}$	3.34	m Ω
NTE5571			3.97	m Ω
Maximum On–State Voltage NTE5567, NTE5568, NTE5569	V_{TM}	$I_{pk} = 157A, T_J = +25^\circ\text{C}$	1.60	V
NTE5571			1.78	V
Maximum Holding Current	I_H	$T_J = +25^\circ\text{C}$, Anode Supply 22V, Resistive Load, Initial $I_T = 2A$	200	mA
Latching Current	I_L	Anode Supply 6V, Resistive Load	400	mA
Maximum Rate of Rise of Turned–On Current NTE5567, NTE5568,	di/dt	$V_{DM} = \text{Rated } V_{DRM}$, Gate Pulse = 20V, 15 Ω , $t_p = 6\mu\text{s}$, $t_r = 0.1\mu\text{s}$ Max, $I_{TM} = (2 \times \text{Rated } di/dt) A$	200	A/ μs
NTE5569, NTE5571			100	A/ μs
Typical Delay Time	t_d	$T_C = +25^\circ\text{C}$, $V_{DM} = \text{Rated } V_{DRM}$, DC Resistive Circuit, Gate Pulse = 10V, 15 Ω Source, $t_p = 20\mu\text{s}$	0.9	μs
Typical Turn–Off Time	t_q	$T_C = +125^\circ\text{C}$, $I_{TM} = 50A$, Reapplied dv/dt = 20V/ μs , dir/dt = 10A/ μs , $V_R = 50V$	110	μs
Maximum Critical Rate of Rise of Off–State Voltage	dv/dt	Linear to 100% Rated V_{DRM}	200	V/ μs
		Linear to 67% Rated V_{DRM}	500	V/ μs
Maximum Peak Gate Power	$P_{G(AV)}$	$t_p \leq 5\text{ms}$	10	W
Maximum Average Gate Power	P_{GM}		2.5	W
Maximum Peak Positive Gate Current	I_{GM}		2.5	A
Maximum Peak Positive Gate Voltage	+ V_{GM}		10	V
Maximum Peak Negative Gate Voltage	- V_{GM}		10	V
DC Gate Current Required to Trigger	I_{GT}	6V, Anode–to–Cathode Applied	100	mA
DC Gate Voltage Required to Trigger	V_{GT}	6V, Anode–to–Cathode Applied, $T_J = +25^\circ\text{C}$	2.5	V
DC Gate Current Not to Trigger	I_{GD}	Rated V_{DRM} , Anode–to–Cathode Applied	5.0	mA

Note 1. Units may be broken over non–repetitively in the off–state direction without damage, if di/dt does not exceed 20A/ μs .

Note 2. For voltage pulses with $t_p \leq 5\text{ms}$.

Voltage Ratings and Electrical Characteristics (Cont'd): ($T_J = +125^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Values	Unit
DC Gate Voltage Not to Trigger	V_{GD}	Rated V_{DRM} , Anode-to-Cathode Applied	0.2	V
Operating Junction Temperature Range	T_J		-40 to +125	$^\circ\text{C}$
Storage Temperature Range	T_{stg}		-40 to +125	$^\circ\text{C}$
Thermal Resistance, Junction-to-Case	R_{thJC}	DC Operation	0.35	K/W
Thermal Resistance, Case-to-Heatsink	R_{thCS}	Mounting Surface Smooth, Flat, and Greased	0.25	K/W
Mounting Torque	T	Non-Lubricated Threads	2.8	Nm

Note 1. Units may be broken over non-repetitively in the off-state direction without damage, if di/dt does not exceed $20\text{A}/\mu\text{s}$.

Note 2. For voltage pulses with $t_p \leq 5\text{ms}$.

