



ELECTRONICS, INC.
44 FARRAND STREET
BLOOMFIELD, NJ 07003
(973) 748-5089
<http://www.nteinc.com>

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}	$t = 10\text{ms}$, No Voltage Reapplied, Sinusoidal Half Wave		1200	A
I^2t for Fusing NTE5567, NTE5568, NTE5569	I^2t	$t = 10\text{ms}$, Sinusoidal Half Wave	No Voltage Reapplied	10.18	KA ² s
NTE5571				7.21	KA ² s
NTE5567, NTE5568, NTE5569			100% V_{RRM} Reapplied	7.20	KA ² s
NTE5571				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 $20\text{A}/\mu\text{s}$.

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^2Vs
NTE5571			7.21	KA^2Vs
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	$\text{m}\Omega$
NTE5571			4.78	$\text{m}\Omega$
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	$\text{m}\Omega$
NTE5571			3.97	$\text{m}\Omega$
Maximum On-State Voltage NTE5567, NTE5568, NTE5569	V_{TM}	$I_{pk} = 157\text{A}$, $T_J = +25^{\circ}\text{C}$	1.60	V
NTE5571			1.78	V
Maximum Holding Current	I_H	$T_J = +25^{\circ}\text{C}$, Anode Supply 22V, Resistive Load, Initial $I_T = 2\text{A}$	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, $I_{TM} = (2 \times \text{Rated } di/dt) \text{ A}$	200	$\text{A}/\mu\text{s}$
NTE5569, NTE5571			100	$\text{A}/\mu\text{s}$
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	$T_C = +125^{\circ}\text{C}$, $I_{TM} = 50\text{A}$, Reapplied $dv/dt = 20\text{V}/\mu\text{s}$, $di/dt = 10\text{A}/\mu\text{s}$, $V_R = 50\text{V}$	110	μs
Maximum Critical Rate of Rise of Off-State Voltage	dv/dt	Linear to 100% Rated V_{DRM}	200	$\text{V}/\mu\text{s}$
		Linear to 67% Rated V_{DRM}	500	$\text{V}/\mu\text{s}$
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 $20\text{A}/\mu\text{s}$.

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

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

