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NTE5598 & NTE5599 Silicon Controlled Rectifier (SCR) 1800 Amp RMS, 2.9" Dia. Hockey Puck

Features:

- Low On-State Voltage
- High di/dt Capability
- High dv/dt Capability
- Excellent Surge and I²t Ratings

Applications:

- Power Supplies
- Motor Control

Absolute Maximum Ratings:

Repetitive Peak Voltages, V_{RRM} , V_{DRM}	
NTE5598	600V
NTE5599	1200V
Non-Repetitive Peak Reverse Blocking Voltage, V_{RSM}	
NTE5598	700V
NTE5599	1300V
Average On-State Current (180° Sine Wave), $I_{T(AV)}$	
$T_C = +55^\circ C$	1780A
$T_C = +85^\circ C$	1200A
RMS On-State Current, $I_{T(RMS)}$	
$T_C = +55^\circ C$	2790A
$T_C = +85^\circ C$	1880A
Peak One-Cycle Surge On-State Current (Non-Repetitive), I_{TSM}	
60Hz	27000A
50Hz	24650A
Rate of Rise of On-State Current, di/dt	
Repetitive	150A/ μs
Non-Repetitive	300A/ μs
I ² t for Fusing for One Cycle (60Hz), I ² t	3040000A ² s
Peak Gate Power Dissipation, P_{GM}	16W
Average Gate Power Dissipation, $P_{G(av)}$	3W
Operating Temperature Range, T_J	-40° to +125°C
Storage Temperature Range, T_{stg}	-40° to +150°C
Mounting Force	5000 to 5500 lb. (2270 to 2500 kg.)
Maximum Thermal Resistance ($T_J = +25^\circ C$, Double Sided Cooling)	
Junction-to-Case, $R_{th(jc)}$	0.023°C/W
Case-to-Sink, $R_{th(cs)}$	0.0075°C/W

Electrical Characteristics: ($T_J = +25^\circ\text{C}$ unless otherwise specified)

Max. Repetitive Peak Reverse Leakage Current ($T_J = +125^\circ\text{C}$, $V_R = V_{RRM}$), I_{RRM}	75mA
Max. Repetitive Peak Forward Leakage Current ($T_J = +125^\circ\text{C}$, $V_D = V_{DRM}$), I_{DRM}	75mA
Max. Peak On-State Voltage ($I_{TM} = 1500\text{A}$ Peak, Duty Cycle $< 0.1\%$), V_{TM}	1.35V
Max. Threshold Voltage, Low Level ($T_J = +125^\circ\text{C}$, $I = 15\%$, $I_{T(av)}$ to $\pi I_{T(av)}$), $V_{(TO)1}$	0.60559V
Max. Slope Resistance, Low Level ($T_J = +125^\circ\text{C}$, $I = 15\%$, $I_{T(av)}$ to $\pi I_{T(av)}$), r_{T1}	0.2681m Ω
Max. Threshold Voltage, High Level ($T_J = +125^\circ\text{C}$, $I = \pi I_{T(av)}$ to I_{TSM}), $V_{(TO)2}$	0.64284V
Max. Slope Resistance, High Level ($T_J = +125^\circ\text{C}$, $I = \pi I_{T(av)}$ to I_{TSM}), r_{T2}	0.1906m Ω
Max. V_{TM} Coefficients, Low Level ($T_J = +125^\circ\text{C}$, $I = 15\%$, $I_{T(av)}$ to $\pi I_{T(av)}$)	
A_1	-0.55126
B_1	0.21303
C_1	1.433E-04
D_1	-0.003097
Max. V_{TM} Coefficients, High Level ($T_J = +125^\circ\text{C}$, $I = \pi I_{T(av)}$ to I_{TSM})	
A_1	-62.5287
B_1	10.457
C_1	0.001238
D_1	-0.43650
Typical Turn-On Time ($I_{TM} = 1000\text{A}$, $V_D = 450\text{V}$), t_{on}	3 μs
Typical Turn-Off Time, t_q	
($T_J = +125^\circ\text{C}$, $I_T = 250\text{A}$, $di_R/dt = 50\text{A}/\mu\text{s}$ Reapplied, $dv/dt = 20\text{V}/\mu\text{s}$ Linear to 80% V_{DRM})	350 μs
Min. Critical dv/dt - Exponential to $V_{DRN=M}$ ($T_J = +125^\circ\text{C}$), dv/dt	300V/ μs
Max. Gate Trigger Current ($T_J = +25^\circ\text{C}$, $V_D = 12\text{V}$), I_{GT}	200mA
Max. Gate Trigger Voltage ($T_J = +25^\circ\text{C}$, $V_D = 12\text{V}$), V_{GT}	3V
Max. Non-Triggering Gate Voltage ($T_J = +125^\circ\text{C}$, $V_D = V_{DRM}$), V_{GDM}	0.15V
Peak Forward Gate Current, I_{GTM}	4A
Peak Reverse Gate Voltage, V_{GRM}	5V

