ELECTRONICS, INC.
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RoHS 2002/95/EC

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 I^2t 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°C 1780A
- T_C = +85°C 1200A

RMS On–State Current, $I_{T(RMS)}$
- T_C = +55°C 2790A
- T_C = +85°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^2t for Fusing fo One Cycle (60Hz), I^2t . . . . . $3040000A^2s$

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°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°C unless otherwise specified)

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