



ELECTRONICS, INC.
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NTE5587, NTE5589, NTE5593 Silicon Controlled Rectifier for Phase Control Applications

Features:

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

Applications:

- Power Supplies
- Battery Chargers
- Motor Controls

Absolute Maximum Ratings and Electrical Characteristics:

Repetitive Peak Voltages, V _{DRM} & V _{RRM}	
NTE5587	600V
NTE5589	1200V
NTE5593	1600V
RMS On-State Current, I _{T(RMS)}	550A
Average On-State Current, I _{T(AV)}	350
Peak One-Cycle, Non-Repetitive On-State Surge Current, I _{TSM}	
50Hz	9100A
60Hz	10,000A
Critical Rate-of-Rise of On-State Current, di/dt	
Repetitive	150A/μs
Non-Repetitive	800A/μs
I ² t fo Fusing (8.2ms), I ² t	416,000A ² sec
Peak Gate Power Dissipation, P _{GM}	16W
Average Gate Power Dissipation, P _{G(AV)}	3W
Peak On-State Voltage (I _{TM} = 625A, T _J = +25°C), V _{TM}	1.4V
Peak Forward Leakage Current (At V _{DRM} , T _J = +125°C), I _{DRM}	30mA
Peak Reverse Leakage Current (At V _{RRM} , T _J = +125°C), I _{RDM}	30mA
Gate Current to Trigger (V _D = 12V, T _J = +25°C), I _{GT}	150mA
Gate Voltage to Trigger (V _D = 12V, T _J = +25°C), V _{GT}	3V
Non-Trigging Gate Voltage (At V _{DRM} , T _J = +125°C), V _{GDM}	0.15V

Absolute Maximum Ratings and Electrical Characteristics (Cont'd):

Peak Forward Gate Current, I_{GTM}	4A
Peak Reverse Gate Voltage, V_{GRM}	5V
Typical Turn-Off Time, t_q ($I_T = 250A$, $di_R/dt = 25A/\mu s$, re-applied, $dv/dt = 20V/\mu s$, linear to $0.8V_{DRM}$, $T_J = +125^\circ C$)	150 μs
Typical Turn-On Time ($V_D = 100V$, $I_T = 100A$), t_{on}	7 μs
Minimum Critical dv/dt exponential to V_{DRM} ($T_J = +125^\circ C$), dv/dt	300V/ μs
Operating Junction Temperature Range, T_J	-40° to +125°C
Storage Temperature Range, T_{stg}	-40° to +150°C
Maximum Thermal Resistance, Junction-to-Case, R_{thJC}	0.10°C/W
Maximum Thermal Resistance, Case-to-Sink (Lubricated), R_{thCS}	0.05°C/W
Mounting Torque	360in.-lb.
Mounting Torque (Lubricated)	400kg-cm

