

NTE5587, NTE5589, NTE5593 Silicon Controlled Rectifier for Phase Control Applications

Features:

- Low On-State Voltage
- High di/dt
- High dv/dt
- Excellent Surge and I^2t 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/ μ s
Non-Repetitive	800A/ μ s

I^2t fo Fusing (8.2ms), I^2t 416,000A²sec

Peak Gate Power Dissipation, P_{GM} 16W

Average Gate Power Dissipation, $P_{G(AV)}$ 3W

Peak On-State Voltage ($I_{TM} = 625A$, $T_J = +25^\circ C$), V_{TM} 1.4V

Peak Forward Leakage Current (At V_{DRM} , $T_J = +125^\circ C$), I_{DRM} 30mA

Peak Reverse Leakage Current (At V_{RRM} , $T_J = +125^\circ C$), I_{RRM} 30mA

Gate Current to Trigger ($V_D = 12V$, $T_J = +25^\circ C$), I_{GT} 150mA

Gate Voltage to Trigger ($V_D = 12V$, $T_J = +25^\circ C$), V_{GT} 3V

Non-Triggering Gate Voltage (At V_{DRM} , $T_J = +125^\circ C$), 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 $+125^\circ C$
Storage Temperature Range, T_{stg}	-40° to $+150^\circ C$
Maximum Thermal Resistance, Junction-to-Case, R_{thJC}	0.10 $^\circ C/W$
Maximum Thermal Resistance, Case-to-Sink (Lubricated), R_{thCS}	0.05 $^\circ C/W$
Mounting Torque	360in.-lb.
Mounting Torque (Lubricated)	400kg-cm

