



ELECTRONICS, INC.
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NTE5550 thru NTE5558 Silicon Controlled Rectifiers

Description:

The NTE5550 thru NTE5558 SCR's are designed primarily for half-wave AC control applications, such as motor controls, heating controls and power supply crowbar circuits.

Features:

- Glass Passivated Junctions with Center Gate Fire for Greater Parameter Uniformity and Stability.
- Small, Rugged, Thermowatt Constructed for Low Thermal Resistance, High Heat Dissipation and Durability.
- Blocking Voltage to 800 Volts
- 300A Surge Current Capability

Absolute Maximum Ratings:

Peak Reverse Blocking Voltage (Note 1), V_{RRM}	
NTE5550	50V
NTE5552	200V
NTE5554	400V
NTE5556	600V
NTE5558	800V
Forward Current ($T_C = +85^\circ\text{C}$), $I_{T(RMS)}$	25A
(All Conduction Angles), $I_{T(AV)}$	16A
Peak Non-Repetitive Surge Current (8.3ms), I_{TSM}	300A
(1/2 Cycle, Sine Wave, 1.5ms)	350A
Forward Peak Gate Power, P_{GM}	20W
Forward Average Gate Power, $P_{G(AV)}$	0.5W
Forward Peak Gate Current, I_{GM}	2A
Operating Junction Temperature Range, T_J	-40° to $+125^\circ\text{C}$
Storage Temperature Range, T_{stg}	-40° to $+150^\circ\text{C}$
Thermal Resistance, Junction-to-Case, R_{thJC}	1.5°C/W

Note 1. V_{RRM} for all types can be applied on a continuous dc basis without incurring damage. Ratings apply for zero or negative gate voltage. Devices should not be tested for blocking capability in a manner such that the voltage supplied exceeds the rated blocking voltage.

Electrical Characteristics: ($T_C = +25^\circ\text{C}$ unless otherwise noted.)

Parameter	Symbol	Min	Typ	Max	Unit
Peak Forward Blocking Voltage, ($T_J = +125^\circ\text{C}$) NTE5550 NTE5552 NTE5554 NTE5556 NTE5558	V_{DRM}	50 200 400 600 800	— — — — —	— — — — —	V
Peak Forward or Reverse Blocking Current, (Rated V_{DRM} or V_{RRM}) $T_J = +25^\circ\text{C}$ $T_J = +125^\circ\text{C}$	$I_{\text{DRM}}, I_{\text{RRM}}$	— —	— —	10 2	μA mA
Forward "ON" Voltage, ($I_{\text{TM}} = 50\text{A}$, Note 2)	V_{TM}	—	—	1.8	V
Gate Trigger Current (Continuous DC), (Anode Voltage = 12Vdc, $R_L = 100\Omega$) $T_C = +25^\circ\text{C}$ $T_C = -40^\circ\text{C}$	I_{GT}	— —	— 25	40 75	mA
Gate Trigger Voltage (Continuous DC) (Anode Voltage = 12Vdc, $R_L = 100\Omega$, $T_C = -40^\circ\text{C}$)	V_{GT}	—	1	1.5	V
Gate Non-Trigger Voltage (Anode Voltage = Rated V_{DRM} , $R_L = 100\Omega$, $T_J = +125^\circ\text{C}$)	V_{GD}	0.2	—	—	V
Holding Current (Anode Voltage = 12Vdc, $T_C = -40^\circ\text{C}$)	I_{H}	—	35	40	mA
Turn-On Time ($I_{\text{TM}} = 25\text{A}$, $I_{\text{GT}} = 50\text{mA}$)	t_{gt}	—	1.5	2	μs
Turn-Off Time ($V_{\text{DRM}} = \text{rated voltage}$) ($I_{\text{TM}} = 25\text{A}$, $I_{\text{R}} = 25\text{A}$) ($I_{\text{TM}} = 25\text{A}$, $I_{\text{R}} = 25\text{A}$, $T_J = +125^\circ\text{C}$)	t_{q}	— —	15 35	— —	μs
Critical Rate of Rise of Off-State Voltage (Gate Open, Rated V_{DRM} , Exponential Waveform)	dv/dt	—	50	—	V/ μs

Note 2. Pulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 2\%$.

