

NTE5620 TRIAC 800V_{RM}, 8A, TO220 Full Pack

The NTE5620 TRIAC is designed primarily for full-wave AC control applications, such as light dimmers, heater controls, motor controls, and power supplies; or wherever full wave silicon gate controlled solid state devices are needed. TRIAC type thyristors switch from a blocking to a conducting state for either polarity of applied voltage with positive or negative gate triggering.

Features:

- Blocking Voltage – 800 Volts
- All Diffused and Glass Passivated Junctions for Greater Parameter Uniformity and Stability
- Small, Rugged, TO220 Full Pack for Low Thermal Resistance, High Heat Dissipation, and Durability
- Gate Triggering Guaranteed in Four Modes

Absolute Maximum Ratings:

Peak Repetitive Off-State Voltage, V_{DRM} ($T_J = -40^\circ$ to $+125^\circ\text{C}$, 1/2 Sine Wave 50 to 60Hz, Gate Open, Note 1)	800V
On-State Current RMS, $I_{T(RMS)}$ ($T_C = +80^\circ\text{C}$, Full Cycle Sine Wave 50 to 60Hz, Note 2)	8A
Peak Non-Repetitive Surge Current, I_{TSM} (One Full Cycle, 60Hz, $T_C = +125^\circ\text{C}$, Preceded and followed by rated current)	100A
Peak Gate Power ($T_C = +80^\circ\text{C}$, Pulse Width = 2 μs), P_{GM}	16W
Average Gate Power ($T_C = +80^\circ\text{C}$, $t = 8.3\text{ms}$), $P_{G(AV)}$	350mW
Peak Gate Current (Pulse Width = 2 μs), I_{GM}	4A
RMS Isolation Voltage ($T_A = +25^\circ\text{C}$, Relative Humidity $\leq 20\%$), $V_{(ISO)}$	1500V
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}	2.2 $^\circ\text{C/W}$
Typical Thermal Resistance, Case-to-Sink, R_{thCS}	2.2 $^\circ\text{C/W}$
Thermal Resistance, Junction-to-Ambient, R_{thJA}	60 $^\circ\text{C/W}$

Note 1. Ratings apply for open gate conditions. Thyristor devices shall not be tested with a constant current source for blocking capability such that the voltage applied exceeds the rated blocking voltage.

Note 2. The case temperature reference point for all T_C measurements is a point on the center lead of the package as close as possible to the plastic body.

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

Characteristics	Symbol	Min	Typ	Max	Unit
Peak Blocking Current (Either Direction) (Rated V_{DRM} , $T_J = +125^{\circ}\text{C}$, Gate Open)	I_{DRM}	—	—	2	mA
Peak On-State Voltage (Either Direction) ($I_{\text{TM}} = 11.3\text{A}$ Peak; Pulse Width = 1 to 2ms, Duty Cycle < 2%)	V_{TM}	—	1.7	2.0	V
Peak Gate Trigger Current (Main Terminal Voltage = 12Vdc, $R_L = 100\ \Omega$) MT2(+), G(+) MT2(+), G(–) MT2(–), G(–) MT2(–), G(+)	I_{GT}	— — — —	— — — —	50 50 50 75	mA
Peak Gate Trigger Voltage (Main Terminal Voltage = 12Vdc, $R_L = 100\ \Omega$) MT2(+), G(+) MT2(+), G(–) MT2(–), G(–) MT2(–), G(+) (Main Terminal Voltage = Rated V_{DRM} , $R_L = 10\text{k}\Omega$, $T_J = +125^{\circ}\text{C}$) MT2(+), G(+); MT2(+), G(–); MT2(–), G(–) MT2(–), G(+)	V_{GT}	— — — — 0.2 0.2	0.9 0.9 1.1 1.4 — —	2.0 2.0 2.0 2.5 — —	V
Holding Current (Either Direction) (Main Terminal Voltage = 24Vdc, Gate Open $I_T = 200\text{mA}$)	I_H	—	—	50	mA
Critical Rate of Rise of Off-State Voltage (Rated V_{DRM} , Exponential Waveform, $T_J = +125^{\circ}\text{C}$, Gate Open)	dv/dt	—	100	—	V/ μs
Critical Rate of Rise of Commutation Voltage (Rated V_{DRM} , $I_{\text{T(RMS)}} = 6\text{A}$, Commutating $di/dt = 4.3\text{A/ms}$, Gate Unenergized, $T_C = +80^{\circ}\text{C}$)	$dv/dt(c)$	—	5	—	V/ μs

