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## NTE5611 thru NTE5618 TRIAC – 10 Amp

### Description:

The NTE5611 through NTE5618 TRIACs are designed primarily for full-wave AC control applications, such as light dimmers, motor controls, heating 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 anode voltage with positive or negative gate triggering.

### Features:

- All Diffused and Passivated Junctions for Greater Parameter Uniformity and Stability
- Small, Rugged, Thermopad Construction for Low Thermal Resistance, High Heat Dissipation and Durability.
- Gate Triggering Guaranteed in Four Modes

### Absolute Maximum Ratings: (Note 1)

Repetitive Peak Off-State Voltage ( $T_J = +100^\circ\text{C}$ , Note 2),  $V_{\text{DRM}}$

NTE5611 .....	25V
NTE5612 .....	50V
NTE5613 .....	100V
NTE5615 .....	300V
NTE5618 .....	600V

On-State Current RMS ( $T_C = +75^\circ\text{C}$ ),  $I_{\text{T(RMS)}}$  ..... 10A

Peak Surge Current (One Full Cycle, 60Hz,  $T_J = -40^\circ$  to  $+100^\circ\text{C}$ ),  $I_{\text{TSM}}$  ..... 100A

Circuit Fusing Considerations ( $T_J = -40^\circ$  to  $+100^\circ\text{C}$ ,  $t = 1.0$  to  $8.3\text{ms}$ ),  $I^2t$  .....  $40\text{A}^2\text{s}$

Peak Gate Power,  $P_{\text{GM}}$  ..... 10W

Average Gate Power,  $P_{\text{G(AV)}}$  ..... 0.5W

Peak Gate Current,  $I_{\text{GM}}$  ..... 2A

Operating Junction Temperature Range,  $T_J$  .....  $-40^\circ$  to  $+100^\circ\text{C}$

Storage Temperature Range,  $T_{\text{stg}}$  .....  $-40^\circ$  to  $+150^\circ\text{C}$

Mounting Torque (6-32 Screw, Note 3) ..... 12in. lb.

Thermal Resistance, Junction-to-Case,  $R_{\text{thJC}}$  .....  $2^\circ\text{C/W}$

Thermal Resistance, Case-to-Ambient,  $R_{\text{thJA}}$  .....  $50^\circ\text{C/W}$

Note 1. **NTE5618** is a **discontinued** device and **no longer available**.

Note 2. 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 3. Torque rating applies with use of torque washer. Mounting torque in excess of 8 in. lbs. does not appreciably lower case-to-sink thermal resistance. Anode lead and heatsink contact pad are common.

Note 4. For soldering purposes (either terminal connection or device mounting), soldering temperatures shall not exceed  $+230^\circ\text{C}$ .

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

Parameter	Symbol	Min	Typ	Max	Unit
Peak Blocking Current (Either Direction) (Rated $V_{\text{DRM}}$ , $T_J = 100^\circ\text{C}$ , Gate Open)	$I_{\text{DRM}}$	–	–	2	mA
On-State Voltage (Either Direction) ( $I_{\text{TM}} = 14\text{A}$ Peak)	$V_{\text{TM}}$	–	1.3	1.8	V
Gate Trigger Current (Continuous DC) (Main Terminal Voltage = 12V, $R_L = 100\Omega$ ) MT <sub>2</sub> (+), G (+); MT <sub>2</sub> (–), G (–) MT <sub>2</sub> (+), G (–); MT <sub>2</sub> (–), G (+)	$I_{\text{GT}}$	– –	– –	50 75	mA
Gate Trigger Voltage (Continuous DC) (Main Terminal Voltage = 12V, $R_L = 100\Omega$ ) MT <sub>2</sub> (+), G (+); MT <sub>2</sub> (–), G (–) MT <sub>2</sub> (+), G (–); MT <sub>2</sub> (–), G (+)	$V_{\text{GT}}$	– –	0.9 1.0	2.0 2.5	V
Gate Trigger Voltage (Continuous DC – All Modes) (Main Terminal Voltage = Rated $V_{\text{DRM}}$ , $R_L = 100\Omega$ , $T_J = +100^\circ\text{C}$ )	$V_{\text{GD}}$	0.2	–	–	V
Holding Current (Either Direction) (Main Terminal Voltage = 12Vdc, Gate Open, $I_T = 100\text{mA}$ )	$I_{\text{H}}$	–	–	50	mA
Turn-On Time ( $I_{\text{TM}} = 14\text{A}$ , $I_{\text{GT}} = 100\text{mA}$ )	$t_{\text{on}}$	–	1.5	–	$\mu\text{s}$
Blocking Voltage Application Rate at Commutation (At $V_{\text{DRM}}$ , $T_J = +75^\circ\text{C}$ , Gate Open)	dv/dt	–	5	–	V/ $\mu\text{s}$

