



ELECTRONICS, INC.  
 44 FARRAND STREET  
 BLOOMFIELD, NJ 07003  
 (973) 748-5089  
<http://www.nteinc.com>

## NTE56019 thru NTE56021 TRIAC, 25 Amp

**Description:**

The NTE56019, NTE56020 and NTE56021 are 25 Amp TRIACs with a repetitive peak blocking of 200V, 400V and 800V respectively. These devices may be gate triggered from a blocking to conduction state for either polarity of applied voltage and are designed for AC switching and phase control applications such as speed and temperature modulation controls, lighting controls, and static switching relays. The triggering signal is normally applied between the Gate and MT<sub>1</sub>.

**Features:**

- Electrically Isolated TO220 Type Package
- Glass-Passivated Junctions
- Surge Capability: Up to 400A

**Absolute Maximum Ratings:** (T<sub>A</sub> = +25°C, 60Hz, with a resistive load unless otherwise specified)

Repetitive Peak Blocking Voltage (Note 1), V <sub>DRM</sub>		
NTE56019	.....	200V
NTE56020	.....	400V
NTE56021	.....	800V
RMS On-State Current (Conduction Angle of 360°, T <sub>C</sub> = -40° to +125°C), I <sub>T(RMS)</sub>		25A
Non-Repetitive On-State Current (One Cycle), I <sub>TSM</sub>		
60Hz	.....	250A
50Hz	.....	208A
Fusing Current (t = 8.3ms), I <sup>2</sup> t		259A <sup>2</sup> s
Peak Gate Current (Pulse Width ≤ 10μs Max), I <sub>GM</sub>		2A
Peak Gate Dissipation (Pulse Width ≤ 10μs, I <sub>GT</sub> ≤ I <sub>GTM</sub> ), P <sub>GM</sub>		20W
Gate Dissipation, P <sub>G(AV)</sub>		500mW
Operating Junction Temperature Range, T <sub>J</sub>		-40° to +125°C
Storage Temperature Range, T <sub>stg</sub>		-40° to +125°C
Thermal Resistance, Junction-to-Case, R <sub>thJC</sub>		1.5K/W
Thermal Resistance, Junction-to-Ambient, R <sub>thJA</sub>		60K/W
Lead Temperature (During Soldering, 1/16" from case, 10sec max), T <sub>L</sub>		+230°C

Note 1. For either polarity of MT<sub>2</sub> with reference to MT<sub>1</sub> terminal.

**Electrical Characteristics:** (T<sub>A</sub> = +25°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Off-State Leakage Current	I <sub>DRM</sub>	V <sub>D</sub> = V <sub>DRM</sub> , T <sub>J</sub> = +25°C, Note 1	-	-	0.1	mA
		V <sub>D</sub> = V <sub>DRM</sub> , T <sub>J</sub> = +125°C, Note 1	-	-	3	mA
On-State Voltage	V <sub>TM</sub>	I <sub>T(RMS)</sub> = 25A, Note 1	-	-	1.8	V

Note 1. For either polarity of MT<sub>2</sub> with reference to MT<sub>1</sub> terminal.

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Gate Trigger Current	$I_{GT}$	$V_D = 12\text{V}$ , $T_C = -40^\circ$ to $+125^\circ\text{C}$	-	-	80	mA
Gate Trigger Voltage	$V_{GT}$	$V_D = 12\text{V}$ , Quadrants I, II, and III, Note 2	-	-	2.5	V
Holding Current	$I_H$	Gate Open, Note 1, Note 3	-	-	100	mA
Gate Controlled Turn-On Time	$t_{gt}$	$I_{GT} = 500\text{mA}$ , $0.1\mu\text{s}$ Rise Time	-	4	-	$\mu\text{s}$
Critical Rate-of-Rise	$dv/dt$	$V_D = V_{DRM}$ , Gate Open, $T_C = +125^\circ\text{C}$ , Note 1	250	-	-	$\text{V}/\mu\text{s}$
Critical Rate-of-Rise, Off-State	$dv/dt_c$	$V_D = V_{DRM}$ , $I_T = 25\text{A}$ , $di/dt = 13.5\text{A}/\text{ms}$ , Gate Unenergized, Note 1	5	-	-	$\text{V}/\mu\text{s}$

Note 1. For either polarity of  $MT_2$  with reference to  $MT_1$  terminal.

Note 2. For either polarity of gate voltage with reference to electrode  $MT_1$ .

Note 3. Initial On-State Current = 400mA (DC).

