



**ELECTRONICS, INC.**  
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## NTE5631 thru NTE5637 TRIAC – 10 Amp

**Description:**

The NTE5631 through NTE5637 series of TRIACs are high performance glass passivated PNPN devices in a TO220 type package designed for general purpose applications where moderate gate sensitivity is required.

**Absolute Maximum Ratings:** ( $T_A = +25^\circ\text{C}$  unless otherwise specified)

Repetitive Peak Off-State Voltage ( $T_J = -40^\circ$ to $+125^\circ\text{C}$ , $R_{GK} = 1\text{k}\Omega$ ), $V_{DRM}$		
NTE5631 .....		50V
NTE5632 .....		100V
NTE5633 .....		200V
NTE5634 .....		300V
NTE5635 .....		400V
NTE5636 .....		500V
NTE5637 .....		600V
On-State Current (All Conduction Angles, $T_C = +85^\circ\text{C}$ ), $I_{T(RMS)}$		10A
Non-Repetitive On-State Current (Half Cycle), $I_{TSM}$		
60Hz .....		110A
50Hz .....		100A
Fusing Current ( $t = 10\text{ms}$ ), $I^2t$		50A <sup>2</sup> s
Peak Gate Current ( $t = 10\mu\text{s}$ Max), $I_{GM}$		4A
Peak Gate Dissipation ( $t = 10\mu\text{s}$ Max), $P_{GM}$		10W
Gate Dissipation ( $t = 20\text{ms}$ Max), $P_{G(AV)}$		1W
Operating Junction Temperature Range, $T_J$		$-40^\circ$ to $+125^\circ\text{C}$
Storage Temperature Range, $T_{stg}$		$-40^\circ$ to $+125^\circ\text{C}$
Thermal Resistance, Junction-to-Case, $R_{thJC}$		2.5K/W
Thermal Resistance, Junction-to-Ambient, $R_{thJA}$		60K/W
Lead Temperature (During Soldering, 1.6mm from case, 10sec max), $T_L$		$+250^\circ\text{C}$

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Off-State Leakage Current	$I_{DRM}$	$V_D = V_{DRM}$ , $R_{GK} = 1\text{k}\Omega$ , $T_J = +25^\circ\text{C}$	–	–	10	$\mu\text{A}$
		$V_D = V_{DRM}$ , $R_{GK} = 1\text{k}\Omega$ , $T_J = +125^\circ\text{C}$	–	–	2	mA
On-State Voltage	$V_T$	$I_T = 15\text{A}$ , $T_J = +25^\circ\text{C}$	–	–	1.75	V
On-State Threshold Voltage	$V_{T(TO)}$	$T_J = +125^\circ\text{C}$	–	–	1.05	V
On-State Slope Resistance	$r_T$	$T_J = +125^\circ\text{C}$	–	–	52	m $\Omega$

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Gate Trigger Current	$I_{GT}$	$V_D = 12\text{V}$ , Note 1	–	–	50	mA
Gate Trigger Voltage	$V_{GT}$	$V_D = 12\text{V}$ , All Quadrants	–	–	2.5	V
Holding Current	$I_H$	$R_{GK} = 1\text{k}\Omega$	–	–	50	mA
Critical Rate-of-Rise	$dv/dt$	$V_D = 0.67 \times V_{DRM}$ , $R_{GK} = 1\text{k}\Omega$ , $T_J = +125^\circ\text{C}$	500	–	–	V/ $\mu\text{s}$
Critical Rate-of-Rise, Off-State	$dv/dt_c$	$I_T = 8\text{A}$ , $di/dt = 3.55\text{A/ms}$ , $T_C = +85^\circ\text{C}$	5	–	–	V/ $\mu\text{s}$

Note 1. For either polarity of gate voltage with reference to electrode  $MT_1$ .

