



ELECTRONICS, INC.
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NTE56004 thru NTE56010 TRIAC, 15 Amp

The NTE56004 thru NTE56010 series of TRIACs are designed primarily for full-wave AC control applications, such as solid-state relays, 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:

- Blocking Voltage from 200 to 800 Volts
- All Diffused and Glass Passivated Junctions
- Small, Rugged, TO220 package for Low Thermal Resistance, High Heat Dissipation and Durability
- Gate Triggering specified in Four Quadrants

Absolute Maximum Ratings:

Peak Repetitive Off-State Voltage, ($T_J = -40^\circ$ to 125°C), V_{DRM}	
NTE56004	200V
NTE56006	400V
NTE56008	600V
NTE56010	800V
Peak Gate Voltage, V_{GM}	10V
On-State Current RMS (Full Cycle Sine Wave 50 to 60Hz, $T_C = +90^\circ\text{C}$), $I_{T(RMS)}$	15A
Circuit Fusing ($t = 8.3\text{ms}$) I^2t	93A ² s
Peak Surge Current (One Full Cycle, 60Hz, $T_C = +80^\circ\text{C}$), I_{TSM}	
Preceded and followed by rated current	150A
Peak Gate Power ($T_C = +80^\circ\text{C}$, Pulse Width = $2\mu\text{s}$), P_{GM}	20W
Average Gate Power ($T_C = +80^\circ\text{C}$, $t = 8.3\text{ms}$), $P_{G(AV)}$	500mW
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}	2°C/W

Electrical Characteristics ($T_C = 25^\circ\text{C}$, and either polarity of MT2 to MT1 Voltage, unless otherwise noted)

Characteristics	Symbol	Min	Typ	Max	Unit
Peak Forward or Reverse Blocking Current (Rated V_{DRM} , or V_{RRM} , Gate open) $T_J=25^\circ\text{C}$ $T_J=125^\circ\text{C}$	I_{DRM} , I_{RRM}	– –	– –	10 2	μA mA
Peak On-State Voltage ($I_{TM} = 21\text{ A Peak}$; Pulse Width = 1 to 2ms, Duty Cycle $\leq 2\%$)	V_{TM}	–	1.3	1.6	Volts
Gate Trigger Current (Continuous dc) ($V_D = 12\text{Vdc}$, $R_L = 100\text{ Ohms}$) MT2(+) G(+), MT2(+) G(-), MT2(-) G(-) MT2(-), G(+)	I_{GT}	– –	– –	50 75	mA
Gate Trigger Voltage (Continuous dc) ($V_D = 12\text{Vdc}$, $R_L = 100\text{ Ohms}$) MT2(+) G(+), MT2(+) G(-) MT2(-) G(-) MT2(-) G(+) ($V_D = \text{Rated } V_{DRM}$, $R_L = 10\text{k Ohms}$, $T_J = 110^\circ\text{C}$) MT2(+) G(+), MT2(-) G(-), MT2(+) G(-) MT2(-) G(+)	V_{GT}	– – – 0.2 0.2	– 0.9 1.1 1.4 – –	– 2 2 2.5 – –	Volts
Holding Current (Either Direction) ($V_D = 12\text{Vdc}$, $I_T = 200\text{mA}$, Gate Open)	I_H	–	6	40	mA
Turn-On Time ($V_D = \text{Rated } V_{DRM}$, $I_{TM} = 17\text{A}$) ($I_{GT} = 120\text{mA}$, Rise Time = $0.1\mu\text{s}$, Pulse Width = $2\mu\text{s}$)	t_{gt}	–	1.5	–	μs
Critical Rate of Rise of Commutation Voltage ($V_D = \text{Rated } V_{DRM}$, $I_{TM} = 21\text{ A}$, Commutating $di/dt = 8\text{A/ms}$, Gate Unenergized, $T_C = 80^\circ\text{C}$)	$dv/dt(c)$	–	5	–	$\text{V}/\mu\text{s}$

