



ELECTRONICS, INC.
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NTE56033 TRIAC, 45 Amp

Features:

- Blocking Voltage of 600V
- Glass-Passivated Chip
- Gate Triggering Guaranteed in Four Modes
- Excellent Thermal Impedance and High Reliability Construction

Absolute Maximum Ratings:

Peak Repetitive Off-State Voltage (1/2 Sine Wave 6.3μs), V_{DRM}	600V
On-State RMS Current ($T_C = +60^{\circ}C$, 360° Conduction Angle), $I_T(RMS)$	40A
Peak Non-Repetitive Surge Current ($+25^{\circ} < T_J \text{ initial} < +110^{\circ}C$, One Full Cycle), I_{TSM}	
60Hz	420A
50Hz	400A
Circuit Fusing ($t = 10ms$), I^2t	800A ² s
Peak Gate Current ($t = 10\mu s$, Note 1), I_{GM}	±10A
Peak Gate Voltage ($t = 10\mu s$, Note 1), V_{GM}	±16V
Peak Gate Power ($t = 10\mu s$, Note 1), P_{GM}	40W
Average Gate Power, $P_{G(AV)}$	1W
Operating Junction Temperature Range, T_J	-40° to +110°C
Storage Temperature Range, T_{stg}	-40° to +125°C
Thermal Resistance, Contact (with Grease), R_{thCH}	0.2°C/W
Thermal Resistance, Junction-to-Case, $R_{thJC(DC)}$	1.33°C/W
Thermal Resistance, Junction-to-Case ($F = 50Hz$, 360° Conduction Angle), $R_{thJC(AC)}$	1°C/W

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

Note 2. For either polarity of MT_2 voltage with reference to MT_1 .

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Peak Forward Blocking Current	I_{DRM}	$T_J = +110^\circ\text{C}$, $V_D = 600\text{V}$, Gate Open, Note 2	–	0.75	4.0	mA
Gate Trigger Current Quadrant I, II, III	I_{GT}	$V_D = 12\text{V}$, $R_L = 33\Omega$, Pulse Duration $> 20\mu\text{s}$, Note 1	1	–	50	mA
Quadrant IV			1	–	75	mA
Gate Trigger Voltage	V_{GT}	$V_D = 12\text{V}$, $R_L = 33\Omega$, Pulse Duration $> 20\mu\text{s}$, Note 1	–	–	2.5	V
Gate Non-Trigger Voltage	V_{GD}	$V_D = 600\text{V}$, $T_J = +110^\circ\text{C}$, $R_L = 3\text{k}$, Pulse Duration $> 20\mu\text{s}$, Note 1	0.2	–	–	V
Holding Current	I_{H}	$V_D = 12\text{V}$, $I_T = 1\text{A}$, Gate Open, Note 2	–	30	80	mA
Peak On-State Voltage	V_{TM}	$I_{\text{TM}} = 60\text{A}$, $t_p = 10\text{ms}$, Note 2	–	–	1.6	V
Gate Controlled Turn-On Time	t_{gt}	$V_D = 600\text{V}$, $I_{\text{TM}} = 40\text{A}$, $I_{\text{G}} = 1\text{A}$, $di_{\text{G}}/dt = 10\text{A}/\mu\text{s}$, Note 1	–	2.5	–	μs
Critical Rate of Rise of Off-State Voltage	dv/dt	$V_D = 600\text{V}$, Gate Open, $T_J = +110^\circ\text{C}$, Note 2	50	150	–	$\text{V}/\mu\text{s}$
Critical Rate of Rise of Commutation Voltage	$dv/dt(c)$	$V_D = 600\text{V}$, $I_{\text{TM}} = 40\text{A}$, $T_C = +60^\circ\text{C}$ Commutating $di/dt = 18\text{A}/\text{ms}$, Note 2	–	5	–	$\text{V}/\mu\text{s}$

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

Note 2. For either polarity of MT_2 voltage with reference to MT_1 .

