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NTE56030 & NTE56031 TRIAC, 40 Amp TO-218 Isolated Tab

Description:

The NTE56030 and NTE56031 are 40 Amp TRIACs in a TO-218 type package with an isolated tab designed to be driven directly with IC and MOS devices.

Applications:

- Phase Control
- Static Switching
- Light Dimming
- Motor Speed Control
- Kitchen Equipment
- Power Tools
- Solenoid Controls:
Dishwashers
Washing Machines

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

Peak Repetitive Off-State Voltage ($I_{GT} = 50\text{mA}$), V_{DRM}	
NTE56030	400V
NTE56031	600V
RMS On-State Current ($T_C = +95^\circ\text{C}$, Full Sine Wave), $I_T(\text{RMS})$	40A
Non-Repetitive Surge Peak On-State Current (Full Cycle, Initial $T_J = +25^\circ\text{C}$), I_{TSM}	
50Hz	400A
60Hz	420A
I^2t Value for Fusing ($t_p = 10\text{ms}$), I^2t	1000A ² s
Critical Rate of Rise of On-State Current ($I_G = 2 \times I_{GT}$, $t_r < 100\text{ns}$, $T_J = +125^\circ\text{C}$), di/dt	50A/ μs
Peak Gate Current ($t_p = 20\mu\text{s}$, $T_J = +125^\circ\text{C}$), I_{GM}	8A
Average Gate Power Dissipation ($T_J = +125^\circ\text{C}$), $P_{G(AV)}$	1W
Isolation Voltage, V_{ISO}	2500V _{RMS}
Operating Junction Temperature Range, T_J	-40° to $+125^\circ\text{C}$
Storage Temperature Range, T_{stg}	-40° to $+150^\circ\text{C}$

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Peak Off-State Current	I_{DRM}	$T_J = +25^\circ\text{C}$, $V_{DRM} = V_{RRM}$	–	–	5	μA
Peak Reverse Current	I_{RRM}	$T_J = +125^\circ\text{C}$, $V_{DRM} = V_{RRM}$	–	5	3	mA
Gate Trigger Current Quadrant I, II, III	I_{GT}	$V_D = 12\text{V}$, $R_L = 30\Omega$, Note 1	–	–	50	mA
Quadrant IV			–	–	100	mA

Note 1. Minimum I_{GT} is guaranteed at 5% of I_{GTmax} .

Note 2. For both polarities of A2 referenced to A1.

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Gate Trigger Voltage	V_{GT}	$V_D = 12\text{V}$, $R_L = 30\Omega$	–	–	1.3	V
Gate Non-Trigger Voltage	V_{GD}	$V_D = V_{DRM}$, $T_J = +125^\circ\text{C}$, $R_L = 3.3\text{k}\Omega$	0.2	–	–	V
Holding Current	I_H	$I_T = 100\text{mA}$, Note 2	–	–	80	mA
Latching Current Quadrant I, III, IV	I_L	$I_G = 1.2I_{GT}$	–	–	75	mA
Quadrant II			–	–	160	mA
Critical Rate of Rise of Off-State Voltage	dv/dt	$V_D = 67\%V_{DRM}$, Gate Open, $T_J = +125^\circ\text{C}$, Note 2	500	–	–	V/ μs
Critical Rate of Rise of Commutation Voltage	$dv/dt(c)$	$di/dt(c) = 13.3\text{A/ms}$, $T_J = +125^\circ\text{C}$, Note 2	10	–	–	V/ μs
Peak On-State Voltage	V_{TM}	$I_{TM} = 35\text{A}$, $t_p = 380\mu\text{s}$, Note 2	–	–	1.55	V
Threshold Voltage	V_{TO}	$T_J = +125^\circ\text{C}$, Note 2	–	–	0.85	V
Dynamic Resistance	r_D	$T_J = +125^\circ\text{C}$, Note 2	–	–	10	$\text{m}\Omega$

Note 1. Minimum I_{GT} is guaranteed at 5% of $I_{GT\text{max}}$.

Note 2. For both polarities of A2 referenced to A1.

