

NTE5650 thru NTE5653 TRIAC – 100V_{RM}, 2.5A

Description:

The NTE5650 through NTE5653 sensitive gate TRIACs are designed to be driven directly with IC and MOS devices. These devices features a void-free glass passivated chip and are hermetically sealed in TO-5 outline cans.

The NTE5650 through NTE5653 are bi-directional triode thyristors and may be switched from off-state to conduction for either polarity of applied voltage with positive or negative gate-trigger current and are designed for control applications in lighting, heating, cooling and static switching relays.

Absolute Maximum Ratings:

Repetitive Peak Off-State Voltage ($T_J = +90^\circ\text{C}$, Gate Open, Note 1), V_{DROM}	
NTE5650	100V
NTE5651	200V
NTE5652	400V
NTE5653	600V
RMS On-State Current ($T_C = +75^\circ\text{C}$ and Conduction Angle of 360°), $I_{T(RMS)}$	3A
Peak Surge (Non-Repetitive) On-State Current (One-Cycle at 50Hz or 60Hz), I_{TSM}	30A
Peak Gate-Trigger Current (3 μsec , Max.), I_{GTM}	1A
Peak Gate-Power Dissipation ($I_{GT} \leq I_{GTM}$ for 3 μsec , Max.), P_{GM}	20W
Average Gate-Power Dissipation, $P_{G(AV)}$	0.2W
Operating Temperature Range (T_C), T_{opr}	-40° to $+90^\circ\text{C}$
Storage Temperature Range, T_{stg}	-40° to $+150^\circ\text{C}$
Typical Thermal Resistance, Junction-to-Case, R_{thJC}	4°C/W

Note 1. All values apply in either direction.

Electrical Characteristics: (At Maximum Ratings & Specified Case Temperature)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Peak Off-State Current	I_{DROM}	$T_J = +90^\circ\text{C}$, $V_{DROM} = \text{Max Rating}$, Gate Open, Note 1	–	–	0.75	mA
Maximum On-State Voltage	V_{TM}	$T_C = +25^\circ\text{C}$, $i_T = 5\text{A}$ (Peak), Note 1	–	–	1.85	V
DC Holding Current	I_{HO}	$T_C = +25^\circ\text{C}$, Gate Open	–	–	5	mA
Critical Rate-of-Rise of Off-State Voltage	Critical dv/dt	$T_C = +90^\circ\text{C}$, $v_D = V_{DROM}$, Gate Open, Note 1	–	3	–	V/ μs
DC Gate-Trigger Current MT ₂ (+) Gate (+), MT ₂ (–) Gate (–) MT ₂ (+) Gate (–), MT ₂ (–) Gate (+)	I_{GT}	$T_C = +25^\circ\text{C}$, $v_D = 6\text{V}$, $R_L = 39\Omega$	–	–	3	mA

Note 1. All values apply in either direction.

Electrical Characteristics (Cont'd): (At Maximum Ratings & Specified Case Temperature)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
DC Gate Trigger Voltage	V_{GT}	$T_C = +25^{\circ}\text{C}$, $v_D = 6\text{V}$, $R_L = 39\Omega$	–	–	2.2	V
Gate–Controlled Turn–On Time	t_{gt}	$T_C = +25^{\circ}\text{C}$, $v_D = V_{DROM}$, $I_{GT} = 80\text{mA}$, $t_r = 0.1\mu\text{s}$, $i_T = 10\text{A}$ (Peak)	–	2.2	–	μs
Fusing Current (For TRIAC Protection)	I^2t	$T = 1.25$ to 10ms	–	–	3	A^2s

