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NTE56019 and NTE56020 TRIAC, 25 Amp

Description:

The NTE56019 and NTE56020 are 25 Amp TRIACs with a repetitive peak blocking of 200V and 400V respectively. These devices may be gate triggered from a blocking to conduction state for either polarity of applied voltage and are designed for AC switching and phase control applications such as speed and temperature modulation controls, lighting controls, and static switching relays. The triggering signal is normally applied between the Gate and MT₁.

Features:

- Electrically Isolated TO220 Type Package
- Glass-Passivated Junctions
- Surge Capability: Up to 400A

Absolute Maximum Ratings: (T_A = +25°C, 60Hz, with a resistive load unless otherwise specified)

Repetitive Peak Blocking Voltage (Note 1), V_{DRM}

NTE56019 200V

NTE56020 400V

RMS On-State Current (Conduction Angle of 360°, T_C = -40° to +125°C), I_{T(RMS)} 25A

Non-Repetitive On-State Current (One Cycle), I_{TSM}

60Hz 250A

50Hz 208A

Fusing Current (t = 8.3ms), I²t 259A²s

Peak Gate Current (Pulse Width ≤ 10μs Max), I_{GM} 2A

Peak Gate Dissipation (Pulse Width ≤ 10μs, I_{GT} ≤ I_{GT(M)}), P_{GM} 20W

Gate Dissipation, P_{G(AV)} 500mW

Operating Junction Temperature Range, T_J -40° to +125°C

Storage Temperature Range, T_{stg} -40° to +125°C

Thermal Resistance, Junction-to-Case, R_{thJC} 1.5K/W

Thermal Resistance, Junction-to-Ambient, R_{thJA} 60K/W

Lead Temperature (During Soldering, 1/16" from case, 10sec max), T_L +230°C

Note 1. For either polarity of MT₂ with reference to MT₁ terminal.

Electrical Characteristics: (T_A = +25°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Off-State Leakage Current	I _{DRM}	V _D = V _{DRM} , T _J = +25°C, Note 1	—	—	0.1	mA
		V _D = V _{DRM} , T _J = +125°C, Note 1	—	—	3	mA
On-State Voltage	V _{TM}	I _{T(RMS)} = 25A, Note 1	—	—	1.8	V

Note 1. For either polarity of MT₂ with reference to MT₁ terminal.



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}	$V_D = 12\text{V}$, $T_C = -40^\circ$ to $+125^\circ\text{C}$	–	–	80	mA
Gate Trigger Voltage	V_{GT}	$V_D = 12\text{V}$, Quadrants I, II, and III, Note 2	–	–	2.5	V
Holding Current	I_H	Gate Open, Note 1, Note 3	–	–	100	mA
Gate Controlled Turn-On Time	t_{gt}	$I_{GT} = 500\text{mA}$, $0.1\mu\text{s}$ Rise Time	–	4	–	μs
Critical Rate-of-Rise	dv/dt	$V_D = V_{DRM}$, Gate Open, $T_C = +125^\circ\text{C}$, Note 1	250	–	–	$\text{V}/\mu\text{s}$
Critical Rate-of-Rise, Off-State	dv/dt_c	$V_D = V_{DRM}$, $I_T = 25\text{A}$, $di/dt = 13.5\text{A/ms}$, Gate Unenergized, Note 1	5	–	–	$\text{V}/\mu\text{s}$

Note 1. For either polarity of MT_2 with reference to MT_1 terminal.

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

Note 3. Initial On-State Current = 400mA (DC).

