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NTE56040 & NTE56041 TRIAC, 4A Sensitive Gate

Description:

The NTE56040 and NTE56041 are glass passivated, sensitive gate TRIACs in a TO220 type package designed for use in general purpose bidirectional switching and phase control applications, where high sensitivity is required in all four quadrants.

Absolute Maximum Ratings:

Repetitive Peak Off-State Voltage (Note 1), V_{DRM}

NTE56040	500V
NTE56041	600V

RMS On-State Current (Full Sine Wave, $T_{MB} \leq 107^{\circ}C$), $I_T(RMS)$ 4A

Non-Repetitive Peak On-State Current, I_{TSM}

(Full Sine Wave, $T_J = +125^{\circ}C$ prior to Surge, with Reapplied V_{DRMmax})

$t = 20ms$	25A
$t = 16.7ms$	27A

I^2t for Fusing ($t = 10ms$), I^2t 3.1A²sec

Repetitive Rate-of-Rise of On-State Current after Triggering, dI_T/dt

($I_{TM} = 6A$, $I_G = 0.2A$, $dI_G/dt = 0.2A/\mu s$)

MT ₂ (+), G (+)	50A/ μs
MT ₂ (+), G (-)	50A/ μs
MT ₂ (-), G (-)	50A/ μs
MT ₂ (-), G (+)	10A/ μs

Peak Gate Current, I_{GM} 2A

Peak Gate Voltage, V_{GM} 5V

Peak Gate Power, P_{GM} 5W

Average Gate Power (Over Any 20ms Period), $P_{G(AV)}$ 500mW

Operating Junction Temperature, T_J +125°C

Storage Temperature Range, T_{stg} -40° to +150°C

Thermal Resistance, Junction-to-Mounting Base, R_{thJMB}

Full Cycle	3.0K/W
Half Cycle	3.7K/W

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

Note 1: Although not recommended, off-state voltages up to 800V may be applied without damage, but the TRIAC may switch to the On-State. The rate-of-rise of current should not exceed 3A/ μs .



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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static Characteristics						
Gate Trigger Current MT ₂ (+), G (+)	I _{GT}	V _D = 12V, I _T = 0.1A	–	2.5	10	mA
MT ₂ (+), G (–)			–	4.0	10	mA
MT ₂ (–), G (–)			–	5.0	10	mA
MT ₂ (–), G (+)			–	11	25	mA
Latching Current MT ₂ (+), G (+)	I _L	V _D = 12V, I _T = 0.1A	–	3.0	15	mA
MT ₂ (+), G (–)			–	10	20	mA
MT ₂ (–), G (–)			–	2.5	15	mA
MT ₂ (–), G (+)			–	4.0	20	mA
Holding Current	I _H	V _D = 12V, I _T = 0.1A	–	2.2	15	mA
On–State Voltage	V _T	I _T = 5A	–	1.4	1.7	V
Gate Trigger Voltage	V _{GT}	V _D = 12V, I _T = 0.1A	–	0.7	1.5	V
		V _D = 400V, I _T = 0.1A, T _J = +125°C	0.25	0.4	–	V
Off–State Leakage Current	I _D	V _D = V _{DRM} max, T _J = +125°C	–	0.1	0.5	mA
Dynamic Characteristics						
Critical Rate–of–Rise of Off–State Voltage	dV _D /dt	V _{DM} = 67% V _{DRM} max, T _J = +125°C, Exponential Waveform, Gate Open	–	50	–	V/μs
Gate Controlled Turn–On Time	t _{gt}	I _{TM} = 6A, V _D = V _{DRM} max, I _G = 0.1A, dI _G /dt = 5A/μs	–	2	–	μs

