ELECTRONICS, INC.
44 FARRAND STREET
BLOOMFIELD, NJ 07003
(973) 748–5089

NTE56070 & NTE56071
TRIAC, 25A, High Commutation

Description:

The NTE56070 and NTE56071 are glass passivated, high commutation TRIACs in a TO220 type package designed for use in circuits where high static and dynamic dV/dt and high dI/dt can occur. These devices will commutate the full rated RMS current at the maximum rated junction temperature, without the aid of a snubber.

Absolute Maximum Ratings:

Repetitive Peak Off–Sate Voltage (Note 1), V_{DRM}
- NTE56070 . . . . . 600V
- NTE56071 . . . . . 800V

RMS On–State Current (Full Sine Wave, $T_{MB} \le 91°C$), $I_T(RMS)$ 25A

Non–Repetitive Peak On–State Current, I_{TSM}
(Full Sine Wave, $T_J = +25°C$ prior to Surge)
- t = 20ms 190A
- t = 16.7ms 209A

I^2t for Fusing (t = 10ms), I^2t . . . . . $180A^2sec$

Repetitive Rate–of–Rise of On–State Current after Triggering, dI_T/dt
($I_{TM} = 30A$, $I_G = 0.2A$, $dI_G/dt = 0.2A/\mu s$) 100A/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 1.0K/W
- Half Cycle 1.4K/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 15A/μs.

Electrical Characteristics: (T_J = +25°C unless otherwise specfied)

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, Note 2	2	18	50	mA
MT_2 (+), G (–)			2	21	50	mA
MT_2 (–), G (–)			2	34	50	mA
Latching Current MT_2 (+), G (+)	I_L	V_D = 12V, I_T = 0.1A	–	31	60	mA
MT_2 (+), G (–)			–	34	90	mA
MT_2 (–), G (–)			–	30	60	mA
Holding Current	I_H	V_D = 12V, I_T = 0.1A	–	31	60	mA
On–State Voltage	V_T	I_T = 30A	–	1.3	1.55	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	1000	4000	–	V/µs
Critical Rate–of–Change of Commutating Current	dI_{com}/dt	V_{DM} = 400V, T_J = +125°C, I_TRMS = 25A, without Snubber, Gate Open	–	44	–	A/ms
Gate Controlled Turn–On Time	t_{gt}	I_{TM} = 12A, $V_D = V_{DRM}$max, I_G = 0.1A, dI_G/dt = 5A/µs	–	2	–	µs

Note 2. Device does not trigger in the MT_2 (–), G (+) quadrant.