

NTE56065 TRIAC, 600V_{RM}, 12A, High Commutation

Description:

The NTE56065 is a glass passivated, high commutation TRIAC in an isolated full-pack type package designed for use in circuits where high static and dynamic dV/dt and high dI/dt can occur. This device will commute the full rated RMS current at the maximum rated junction temperature, without the aid of a snubber.

Absolute Maximum Ratings:

Repetitive Peak Off-State Voltage (Note 1), V _{DRM}	600V
RMS On-State Current (Full Sine Wave, T _{HS} ≤ 56°C), I _T (RMS)	12A
Non-Repetitive Peak On-State Current, I _{TSM} (Full Sine Wave, T _J = +25°C prior to Surge)	
t = 20ms	95A
t = 16.7ms	105A
I ² t for Fusing (t = 10ms), I ² t	45A ² sec
Repetitive Rate-of-Rise of On-State Current after Triggering, dI _T /dt (I _{TM} = 20A, I _G = 0.2A, dI _G /dt = 0.2A/μs)	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-Heatsink (Full or Half Cycle), R _{thJHS} With Heatsink Compound	4.0K/W
Without Heatsink Compound	5.5K/W
Typical Thermal Resistance, Junction-to-Ambient, R _{thJA}	55K/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: ($T_J = +25^{\circ}\text{C}$ 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, 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 = 17A	–	1.3	1.6	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 = 600V, T _J = +125°C	–	0.1	0.5	mA
Dynamic Characteristics						
Critical Rate-of-Rise of Off-State Voltage	dV _D /dt	V _{DM} = 402V, 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 _T RMS = 12A, without Snubber, Gate Open	–	24	–	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
Isolation Characteristics						
RMS Isolation Voltage from All 3 Pins to External Heatsink	V _{ISOL}	f = 50 – 60Hz, Sinusoidal Waveform, R.H. ≤ 65%, Clean and Dustfree	–	–	2500	V
Capacitance from T2 to External Heatsink	C _{ISOL}	f = 1MHz	–	10	–	pF

Note 2. Device does not trigger in the MT₂ (–), G (+) quadrant.

