NTE56058 thru NTE56060
TRIAC, 16A

Description:

The NTE56058 through NTE56060 are glass passivated TRIACs in an isolated full–pack type package designed for use in applications requiring high bidirectional transient and blocking voltage capability and high thermal cycling performance. Typical applications include motor control, industrial and domestic lighting, heating and static switching.
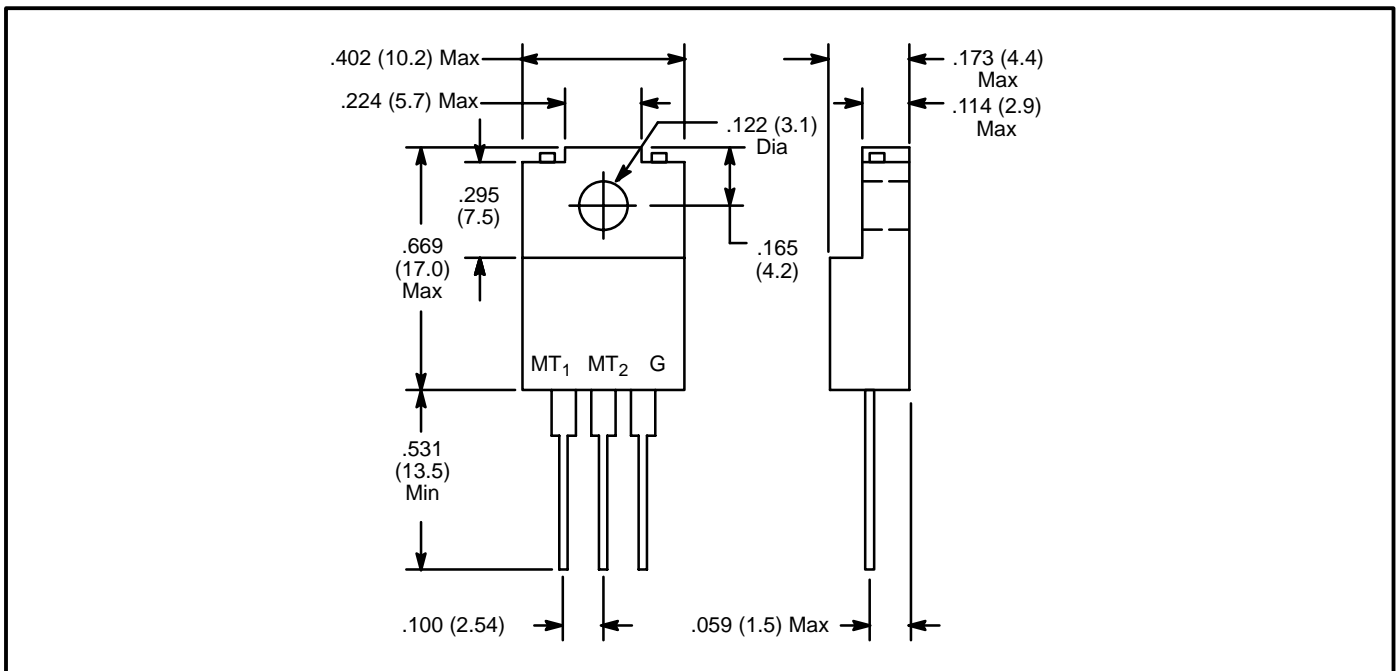
Absolute Maximum Ratings:

Repetitive Peak Off–Sate Voltage, V_{DRM}

     NTE56058 (Note 1) 500V

     NTE56059 (Note 1) 600V

     NTE56060 . . . . 800V

RMS On–State Current (Full Sine Wave, $T_{HS} \leq 38°C$), $I_T(RMS)$ 16A

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

     (Full Sine Wave, $T_J = +125°C$ prior to Surge, with Reapplied V_{DRM}max)

          t = 20ms 140A

          t = 16.7ms 150A

I^2t for Fusing (t = 10ms), I^2t . . . . 98A^{2}sec

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

     ($I_{TM} = 20A$, $I_G = 0.2A$, $dI_G/dt = 0.2A/\mu s$)

          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–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°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	–	5	35	mA
MT_2 (+), G (−)			–	8	35	mA
MT_2 (−), G (−)			–	10	35	mA
MT_2 (−), G (+)			–	22	70	mA
Latching Current 　MT_2 (+), G (+)	I_L	V_D = 12V, I_T = 0.1A	–	7	40	mA
MT_2 (+), G (−)			–	20	60	mA
MT_2 (−), G (−)			–	8	40	mA
MT_2 (−), G (+)			–	10	60	mA
Holding Current	I_H	V_D = 12V, I_T = 0.1A	–	6	30	mA
On–State Voltage	V_T	I_T = 20A	–	1.2	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 = 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	100	250	–	V/µs
Critical Rate–of–Change of 　Commutating Voltage	dV_{com}/dt	V_{DM} = 400V, T_J = +95°C, I_TRMS = 16A, dI_{com}/dt = 7.2A/ms, Gate Open	–	20	–	V/µs
Gate Controlled Turn–On Time	t_{gt}	I_{TM} = 20A, 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}	R.H. ≤ 65%, Clean and Dustfree	–	–	1500	V
Capacitance from T2 to 　External Heatsink	C_{ISOL}	f = 1MHz	–	12	–	pF

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