ELECTRONICS, INC.
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NTE5671
TRIAC – 800V_{RM}, 20A
TO220 (Isolated)

Description:

The NTE5671 TRIAC is designed for use in applications requiring high bidirectional transient and blocking voltage capability. Typical applications include AC power control circuits such as lighting, industrial and domestic heating, motor control and switching systems..

Absolute Maximum Ratings:

Non–Repetitive Peak Off–State Voltage (Either Direction, t ≤ 10ms), V_{DSM} 800V
Repetitive Peak Off–State Voltage (Either Direction, δ ≤ 0.01), V_{DRM} 800V
Crest Working Off–State Voltage (Either Direction), V_{DWM} 400V
RMS On–State Current (Conduction Angle 360°, T_H = +67°C), $I_{T(RMS)}$ 16A
Repetitive Peak On–State Current, I_{TRM} 140A
Non–Repetitive Peak On–State Current, I_{TSM}
(T_J = +120°C Prior to Surge, t = 20ms, Full Sine Wave) 140A
I^2t for Fusing (t = 10ms), I^2t . . . . 95A^2s
Rate of Rise of On–State Current After Triggering, dI_T/dt
(I_G = 200mA to I_T = 20A, dI_Gdt = 0.2A/µs) 30A/µs
Average Power Dissipation (Averaged Over any 20ms Period), $P_{G(AV)}$ 0.5W
Peak Power Dissipation, P_{GM} 5.0W
RMS Isolation Voltage (From All Three Terminals to External Heatsink[Peak]), $V_{(ISO)}$ 1000V
Isolation Capacitance (From T_2 to External Heatsink), $C_{(ISO)}$ 12pF
Full Operating Temperature, T_J . . . . +120°C
Storage Temperature Range, T_{stg} . . . . –40° to +125°C
Typical Thermal Resistance, Junction–to–Heatsink (See Mounting Instructions), R_{thJH}
With Heatsink Compound 3.5K/W
Without Heatsink Compound 4.5K/W
Thermal Resistance, Junction–to–Ambient (Note 1), R_{thJA} 55K/W

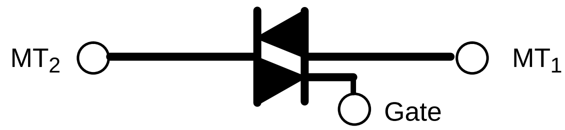
Note 1. Mounted on a printed circuit board at any lead length. The quoted value of R_{thJA} should be used only when no leads of other dissipating components run to the same tie–point.

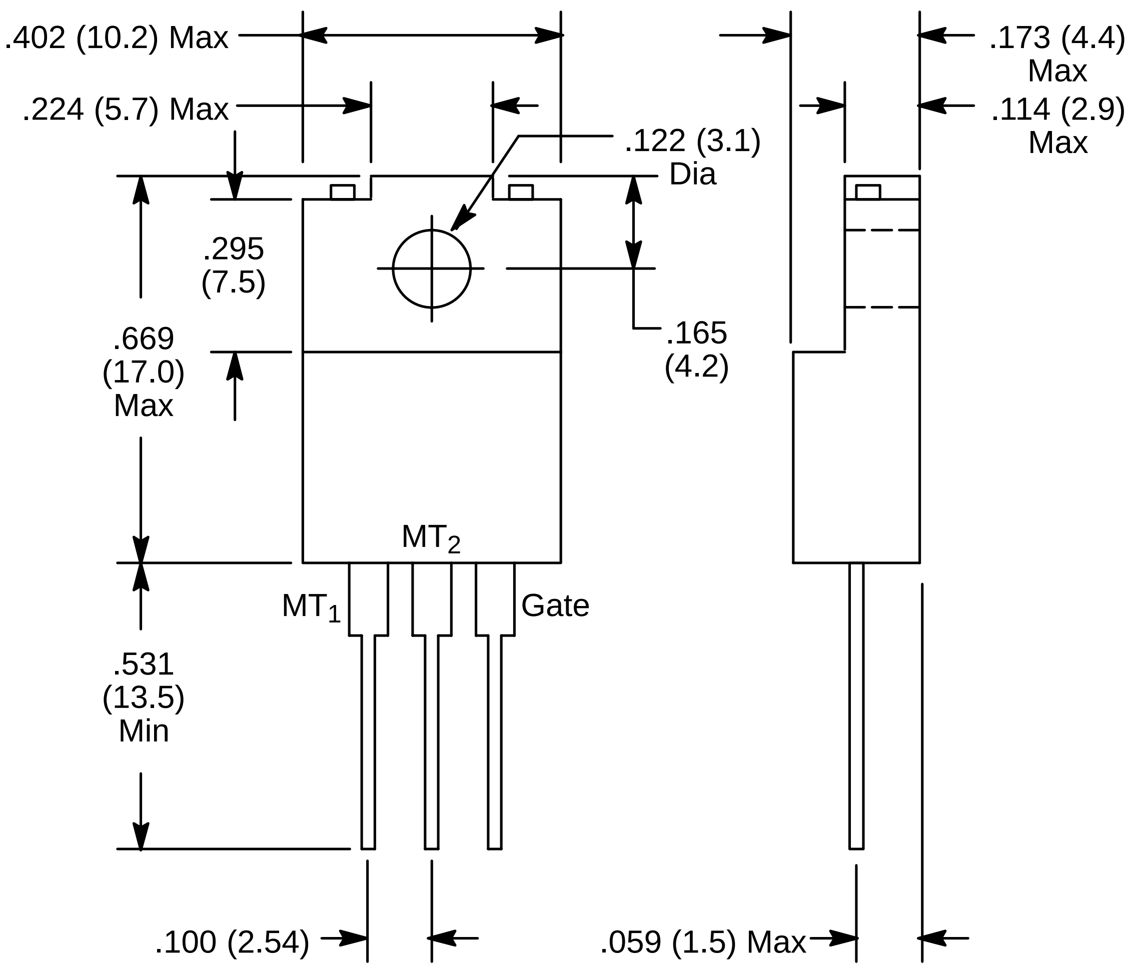
Electrical Characteristics: (T_J = +25°C, unless otherwise specified. Polarities, positive or negative, are identified with respect to MT_1.)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
On–State Voltage (Measured under pulse conditions to prevent excessive dissipation)	V_T	I_T = 20A	–	–	1.6	V
Rate of Rise of Off–State Voltage (That will not trigger any device)	dV_D/dt	T_J = +120°C, Gate Open	–	–	100	V/µs
Rate of Change of Commutating Voltage (That will not trigger any device)	dV_{com}/dt	$-dI_{com}/dt$ = 7.2A/ms, $I_{T(RMS)}$ = 16A, T_H = 70°C, V_D = 400V, Gate Open	–	10	–	V/µs
Off–State Current	I_D	V_D = 400V, T_J = +120°C	–	–	0.5	mA
Gate Voltage (That will trigger all devices)	V_{GT}		1.5	–	–	V
Gate Voltage (That will not trigger any device) MT_2 (+), G (+); MT_2 (–), G (–)	V_{GD}	V_D = 400V, T_J = +120°C	–	–	250	mV
Gate Current (That will trigger all devices) MT_2 (+), G (+)	I_{GT}	G to MT_1	35	–	–	Ma
MT_2 (+), G (–)			35	–	–	mA
MT_2 (–), G (–)			35	–	–	mA
MT_2 (–), G (+)			70	–	–	mA
Holding Current	I_H		–	–	30	mA
Latching Current MT_2 (+), G (+)	I_L	V_D = 12V	–	–	40	Ma
MT_2 (+), G (–)			–	–	60	mA
MT_2 (–), G (–)			–	–	40	mA
MT_2 (–), G (+)			–	–	60	mA

Mounting Instructions:

1. The TRIAC may be soldered directly into the circuit, but the maximum permissible temperature of the soldering iron or bath is +275°C; it must not be in contact with the joint for more than 5 seconds. Soldered joints must be at least .185” (4.7mm) from the seal.
2. The leads should not be bent less than .094” (2.4mm) from the seal, and should be supported during bending. The leads can be bent, twisted or straightened by 90° maximum. The minimum bending radius is .039” (1mm).
3. Mounting by means of a spring clip (not provided by NTE) is the best mounting method because if offers good thermal contact under the crystal area and slightly lower R_{thJH} values than screw mounting. However, if a screw is used, it should be an M3 cross–recess pan–head. Care should be taken to avoid damage to the plastic body.
4. For good thermal contact, heatsink compound should be used between the seating plane and the heatsink. values of R_{thJH} given for mounting with heatsink compound refer to the use of a metallic–oxide loaded compound. Ordinary silicone grease is not recommended.
5. Rivit mounting is not recommended.
6. The heatsink must have a flatness in the mounting area of .0007 (.02mm) maximum per .393 (10mm). Mounting holes must be deburred.


MT$_2$
MT$_1$
Gate


.402 (10.2) Max
.224 (5.7) Max
.173 (4.4) Max
.114 (2.9) Max
.122 (3.1) Dia
.295 (7.5)
.669 (17.0) Max
.165 (4.2)
MT$_2$
MT$_1$
Gate
.531 (13.5) Min
.100 (2.54)
.059 (1.5) Max