ELECTRONICS, INC.
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NTE5699
TRIAC – 800V_{RM}, 25A
TO220 Full Pack

Description:

The NTE5699 TRIAC is designed primarily for full–wave AC control applications, such as lighting systems, heater controls, motor controls, and power supplies; or wherever full wave silicon gate controlled solid state devices are needed. TRIAC type thyristors switch from a blocking to a conducting state for either polarity of applied voltage with positive or negative gate triggering.

Features:

- Blocking Voltage – 800 Volts
- All Diffused and Glass Passivated Junctions for Greater Parameter Uniformity and Stability
- Small, Rugged, TO220 Full Pack for Low Thermal Resistance, High Heat Dissipation, and Durability
- Gate Triggering Guaranteed in Four Modes

Absolute Maximum Ratings:

Peak Repetitive Off–State Voltage, V_{DRM}
(T_J = –40° to +125°C, 1/2 Sine Wave 50 to 60H_Z, Gate Open, Note 1) 800V
Peak Gate Voltage ($t \le 2\mu s$), V_{GM} . . . . . ±10V
On–State Current RMS, $I_{T(RMS)}$
(T_C = +80°C, Full Cycle Sine Wave 50 to 60H_Z, Note 2) 25A
Peak Non–Repetitive Surge Current, I_{TSM}
(One Full Cycle, 60Hz, T_C = +125°C, Preceded and followed by rated current) 250A
Peak Gate Power ($t \le 2\mu s$), P_{GM} 20W
Average Gate Power (T_C = +80°C, $t \le 8.3ms$), $P_{G(AV)}$ 500mW
Peak Gate Current ($t \le 2\mu s$), I_{GM} 2A
RMS Isolation Voltage (T_A = +25°C, Relative Humidity ≤ 20%), $V_{(ISO)}$ 1500V
Operating Junction Temperature Range, T_J . . . . . –40° to +125°C
Storage Temperature Range, T_{stg} . . . . . –40° to +150°C
Thermal Resistance, Junction–to–Case, R_{thJC} . . . . . 1.8°C/W
Typical Thermal Resistance, Case–to–Sink, R_{thCS} . . . . . 2.2°C/W
Thermal Resistance, Junction–to–Ambient, R_{thJA} . . . . . 60°C/W

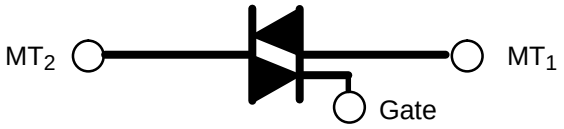
Note 1. Ratings apply for open gate conditions. Thyristor devices shall not be tested with a constant current source for blocking capability such that the voltage applied exceeds the rated blocking voltage.

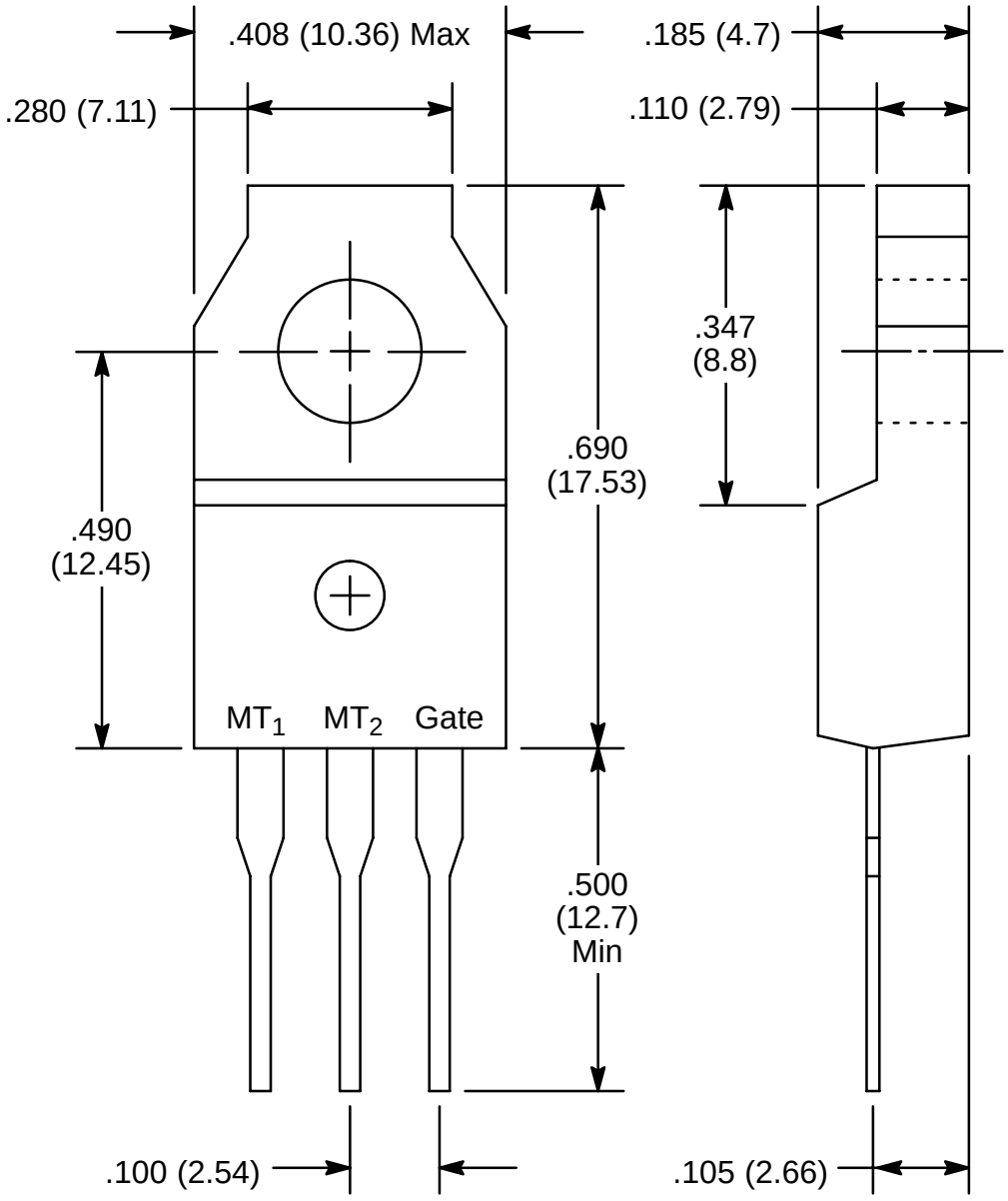
Note 2. The case temperature reference point for all T_C measurements is a point on the center lead of the package as close as possible to the plastic body.

Electrical Characteristics: (T_C = +25°C and either polarity of MT2 to MT1, unless otherwise specified)

Characteristics	Symbol	Min	Typ	Max	Unit
Peak Blocking Current (Rated V_{DRM}, Gate Open) T_J = +25°C T_J = +125°C	I_{DRM}	 – –	 – –	 10 2	 μA mA
Peak On–State Voltage (I_{TM} = 35A Peak; Peak Pulse Width ≤ 2ms, Duty Cycle ≤ 2%)	V_{TM}	–	1.4	1.85	V
Peak Gate Trigger Current (Main Terminal Voltage = 12Vdc, R_L = 100 Ohms) MT2(+), G(+) MT2(+), G(–) MT2(–), G(–) MT2(–), G(+)	I_{GT}	 – – – –	 20 20 20 30	 50 50 50 75	mA
Peak Gate Trigger Voltage (Main Terminal Voltage = 12Vdc, R_L = 100 Ohms) MT2(+), G(+) MT2(+), G(–) MT2(–), G(–) MT2(–), G(+) (Main Terminal Voltage = Rated V_{DRM}, R_L = 10kΩ, T_J = +110°C) MT2(+), G(+); MT2(+), G(–); MT2(–), G(–) MT2(–), G(+)	V_{GT}	 – – – – 0.2 0.2	 1.1 1.1 1.1 1.3 0.4 0.4	 2.0 2.0 2.0 2.5 – –	V
Holding Current (Main Terminal Voltage = 12Vdc, Gate Open I_T = 200mA)	I_H	–	10	50	mA
Turn–On Time (Rated V_{DRM}, I_{TM} = 35A, I_G = 120mA)	t_{gt}	–	1.5	–	μs
Critical Rate of Rise of Off–State Voltage (Rated V_{DRM}, Exponential Waveform, T_C = +125°C)	dv/dt	–	40	–	V/μs
Critical Rate of Rise of Commutation Voltage (Rated V_{DRM}, I_{TM} = 35A, Commutating di/dt = 13.4A/ms, Gate Unenergized, T_C = +80°C)	dv/dt(c)	–	5	–	V/μs

Note 1. Ratings apply for open gate conditions. Thyristor devices shall not be tested with a constant current source for blocking capability such that the voltage applied exceeds the rated blocking voltage.


MT2
MT1
Gate


.408 (10.36) Max
.280 (7.11)
.185 (4.7)
.110 (2.79)
.347
(8.8)
.690
(17.53)
.490
(12.45)
MT1
MT2
Gate
.500
(12.7)
Min
.100 (2.54)
.105 (2.66)