

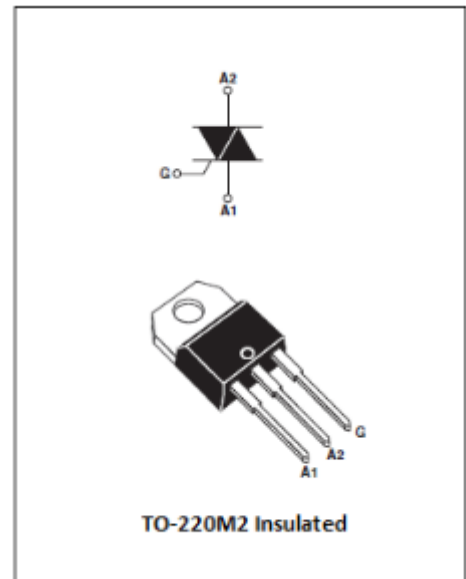
## DESCRIPTION:

Especially designed to operate in high power density or universal motor applications such as vacuum cleaner and washing machine drum motor, these 16A triacs provide a very high switching capability up to junction temperatures of 150°C

The heatsink can be reduced, compared to traditional triacs, according to the high performance at given junction temperatures

## MAIN FEATURES

| Symbol              | Value | Unit |
|---------------------|-------|------|
| $I_{T(RMS)}$        | 16    | A    |
| $V_{DRM}$ $V_{RRM}$ | 600   | V    |
| $I_{GT}$            | 50    | mA   |



## ABSOLUTE MAXIMUM RATINGS

| Parameter                                                       | Symbol       | Value    | Unit             |
|-----------------------------------------------------------------|--------------|----------|------------------|
| Storage junction temperature range                              | $T_{stg}$    | -40 ~150 | °C               |
| Operating junction temperature range                            | $T_j$        | -40~150  | °C               |
| Repetitive peak off-state voltage (T =25°C)                     | $V_{DRM}$    | 600      | V                |
| Repetitive peak reverse voltage (T =25°C)                       | $V_{RRM}$    | 600      | V                |
| RMS on-state current                                            | $I_{T(RMS)}$ | 16       | A                |
| Non repetitive surge peak on-state current (full cycle, F=50Hz) | $I_{TSM}$    | 160      | A                |
| $I^2t$ value for fusing (tp=10ms)                               | $I^2t$       | 169      | A <sup>2</sup> S |
| Critical rate of rise of on-state current (I =2× $I_{GT}$ )     | dI/dt        | 50       | A/μS             |
| Peak gate current                                               | $I_{GM}$     | 4        | A                |
| Average gate power dissipation                                  | $P_{G(AV)}$  | 1        | W                |

**ELECTRICAL CHARACTERISTICS (T=25°C unless otherwise specified)**

| Symbol   | Test Condition                                          | Quadrant |      | Value |       | Unit       |
|----------|---------------------------------------------------------|----------|------|-------|-------|------------|
|          |                                                         |          |      | T1635 | T1650 |            |
| $I_{GT}$ | $V = 12V$ $R = 33\Omega$                                | I II III | MAX. | 35    | 50    | mA         |
| $V_{GT}$ |                                                         | I II III | MAX. | 1.3   |       | V          |
| $V_{GD}$ | $V_D = V_{DRM}$ $T_j = 125^\circ C$<br>$R = 3.3K\Omega$ | I II III | MIN. | 0.2   |       | V          |
| $I_L$    | $I_G = 1.2I_{GT}$                                       | III III  | MAX. | 80    | 110   | mA         |
| $I_H$    | $I_T = 100mA$                                           |          | MAX. | 50    | 75    | mA         |
| dV/dt    | $V_D = 2/3V_{DRM}$ Gate Open<br>$T_j = 125^\circ C$     |          | MIN. | 1000  | 1500  | V/ $\mu s$ |

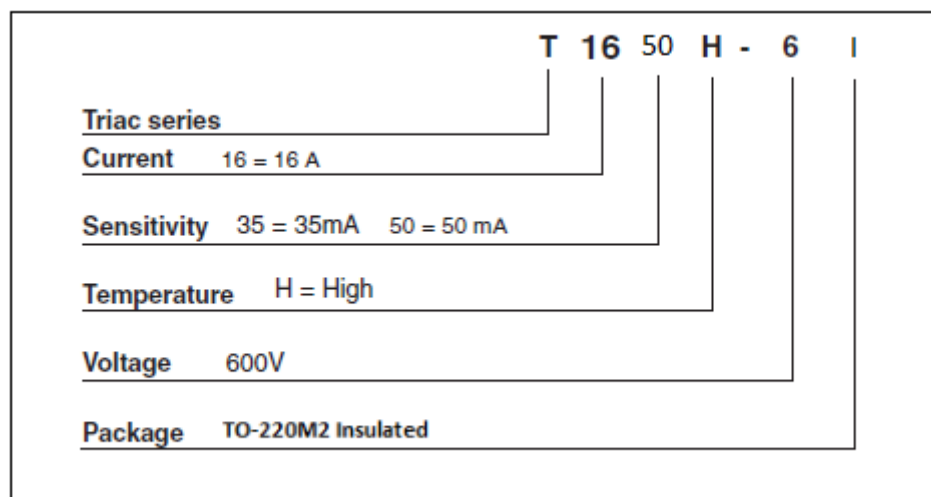
**STATIC CHARACTERISTICS**

| Symbol    | Parameter                       |                     | Value | Unit    |
|-----------|---------------------------------|---------------------|-------|---------|
| $V_{TM}$  | $I_{TM} = 23A$ $t_p = 380\mu s$ | $T_j = 25^\circ C$  | 1.55  | V       |
| $I_{DRM}$ | $V_D = V_{DRM}$ $V_R = V_{RRM}$ | $T_j = 25^\circ C$  | 5     | $\mu A$ |
| $I_{RRM}$ |                                 | $T_j = 125^\circ C$ | 5.5   | mA      |

**Thermal Resistances**

| Symbol        | Parameter            | Value | Unit         |
|---------------|----------------------|-------|--------------|
| $R_{th(j-a)}$ | junction to ambient  | 60    | $^\circ C/W$ |
| $R_{th(j-c)}$ | Junction to case(AC) | 2.1   |              |

## Ordering Information Scheme



## TO-220M2 Package Mechanical Data

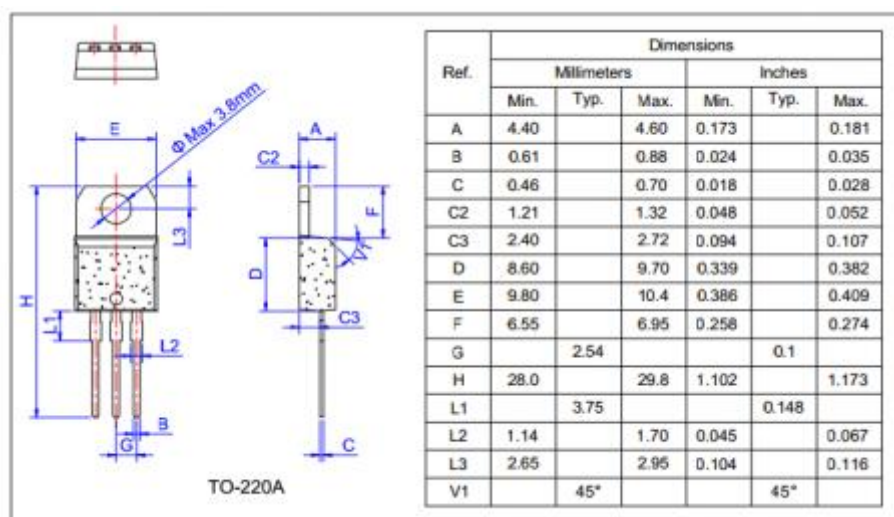


FIG.1 Maximum power dissipation versus RMS on-state current

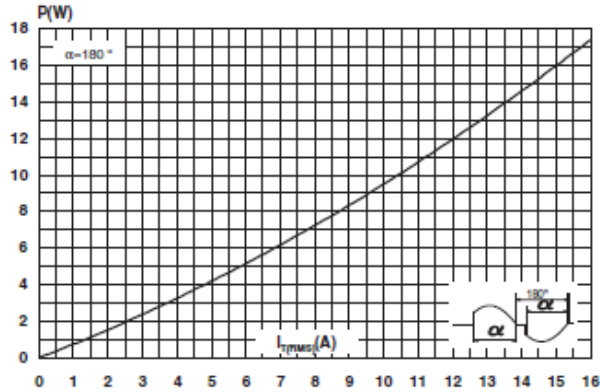


FIG.2: RMS on-state current versus ambient temperature

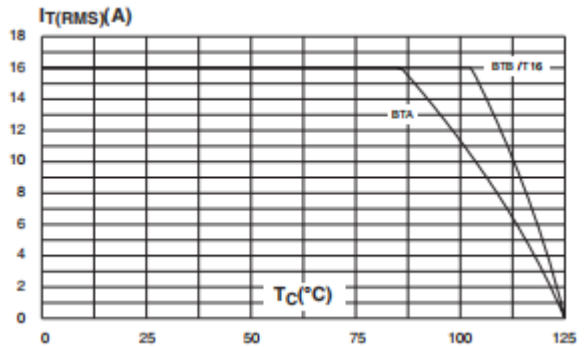


FIG.3: Surge peak on-state current versus number of cycles

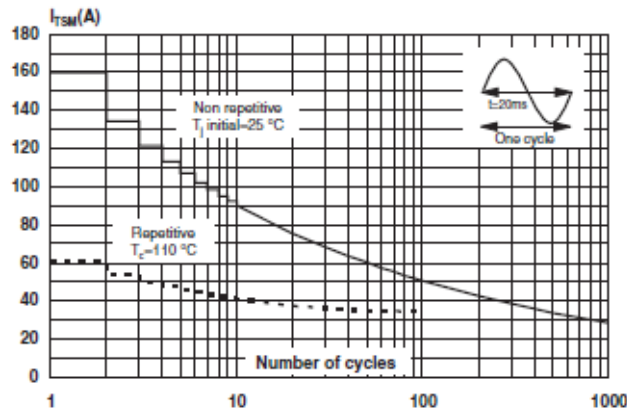


FIG.4: On-state characteristics (maximum values)

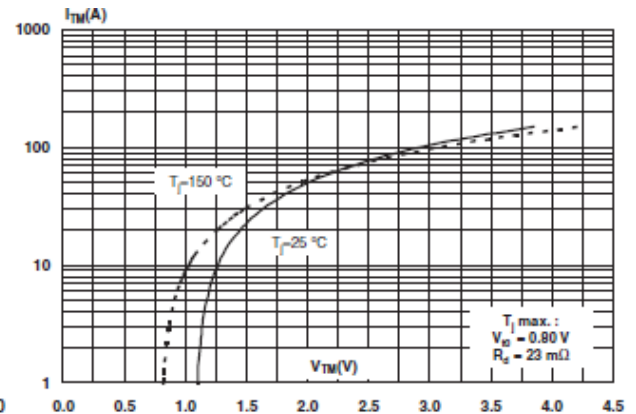


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 20\text{ms}$ , and corresponding value of  $I^2 t$  ( $dI/dt < 50\text{A}/\mu\text{s}$ )

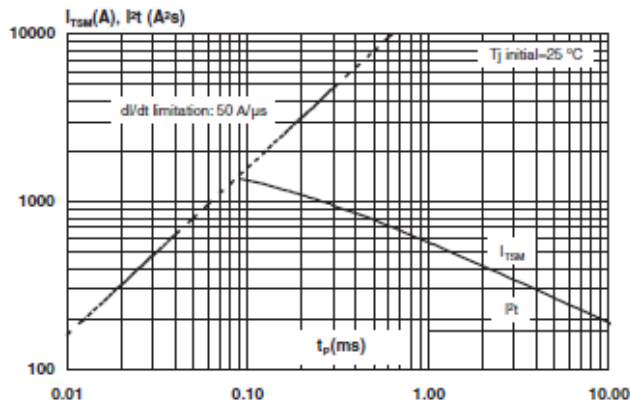


FIG.6: Relative variations of gate trigger current holding current and latching current versus junction temperature

