

## Product Summary

| Symbol            | Value     | Unit |
|-------------------|-----------|------|
| $I_{T(RMS)}$      | 16        | A    |
| $V_{DRM} V_{RRM}$ | 600 / 800 | V    |
| $V_{TM}$          | 1.55      | V    |

## Feature

With high ability to withstand the shock loading of large current, With high commutation performances, 3 quadrants products especially recommended for use on inductive load.

## Application

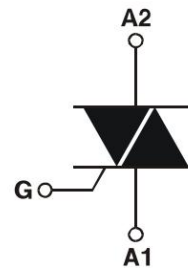
Washing machine, vacuums, massager, solid state relay, AC Motor speed regulation and so on.

## Package

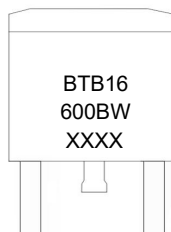


TO-263AB

## Circuit diagram



## Marking



### Absolute maximum ratings (Ta=25°C unless otherwise noted)

| Parameter   | Symbol       | Value             | Unit             |
|---|--------------|-------------------|------------------|
| Repetitive peak off-state voltage                                     | $V_{DRM}$    | 600 / 800         | V                |
| Repetitive peak reverse voltage                                       | $V_{RRM}$    | 600 / 800         | 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)                                     | $I^2t$       | 140               | A <sup>2</sup> s |
| Critical rate of rise of on-state current ( $I_G = 2 \times I_{GT}$ ) | $di_T/dt$    | I - II - III   50 | A/ $\mu$ s       |
| Peak gate current   | $I_{GM}$     | 4                 | A                |
| Average gate power dissipation  | $P_{G(AV)}$  | 1                 | W                |
| Junction Temperature  | $T_J$        | -40 ~ +125        | °C               |
| Storage Temperature   | $T_{STG}$    | -40 ~ +150        | °C               |

### Electrical characteristics (Ta=25°C, unless otherwise noted)

| Parameter                                    | Symbol        | Test Condition                                      | Value               |             | Unit        |            |
|--|---------------|---|---------------------|-------------|-------------|------------|
|  |               |   | CW                  | BW          |             |            |
| Gate trigger current                         | $I_{GT}$      | $V_D = 12V$ $R_L = 33\Omega$                        | I - II - III        | $\leq 35$   | $\leq 50$   | mA         |
| Gate trigger voltage                         | $V_{GT}$      | $T_J = 25^\circ C$                                  | I - II - III        | $\leq 1.3$  |             | V          |
| Gate non-trigger voltage                     | $V_{GD}$      | $V_D = V_{DRM}$ $T_J = 125^\circ C$                 |                     | $\geq 0.2$  |             | V          |
| latching current                             | $I_L$         | $I_G = 1.2I_{GT}$                                   | I - III             | $\leq 50$   | $\leq 70$   | mA         |
|  |               |   | II                  | $\leq 60$   | $\leq 80$   |            |
| Holding current                              | $I_H$         | $I_T = 500mA$                                       |                     | $\leq 30$   | $\leq 50$   | mA         |
| Critical-rate of rise of commutation voltage | $dV_D/dt$     | $V_D = 2/3V_{DRM}$<br>Gate Open $T_J = 125^\circ C$ |                     | $\geq 500$  | $\geq 1000$ | V/ $\mu$ s |
| <b>STATIC CHARACTERISTICS</b>                |               |   |                     |             |             |            |
| Forward "on" voltage                         | $V_{TM}$      | $I_{TM} = 23A$ $tp = 380\mu s$                      |                     | $\leq 1.55$ |             | V          |
| Repetitive Peak Off-State Current            | $I_{DRM}$     | $V_D = V_{DRM}$ $V_R = V_{RRM}$                     | $T_J = 25^\circ C$  | $\leq 5$    |             | $\mu A$    |
| Repetitive Peak Reverse Current              | $I_{RRM}$     |   | $T_J = 125^\circ C$ | $\leq 1$    |             | mA         |
| <b>THERMAL RESISTANCES</b>                   |               |   |                     |             |             |            |
| Thermal resistance                           | $R_{th(j-c)}$ | Junction to case(AC)                                |                     | 1.2         |             | °C/W       |
|  | $R_{th(j-a)}$ | Junction to ambient                                 |                     | 45          |             | °C/W       |

**Typical Characteristics**

FIG.1: Maximum power dissipation versus RMS on-state current (full cycle)

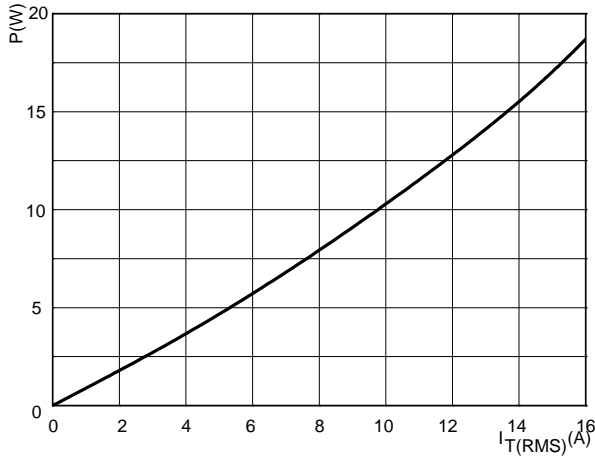


FIG.2: RMS on-state current versus case temperature (full cycle)

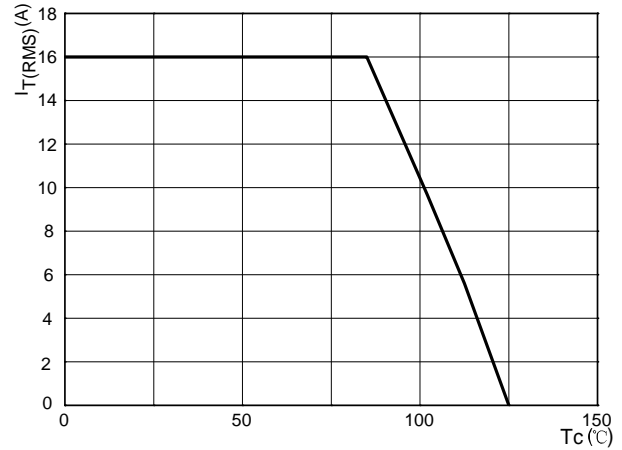


FIG.3: Surge peak on-state current versus number of cycles

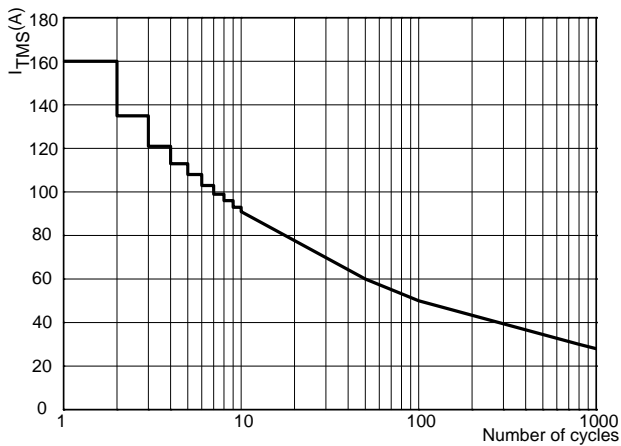


FIG.4: On-state characteristics (maximum values)

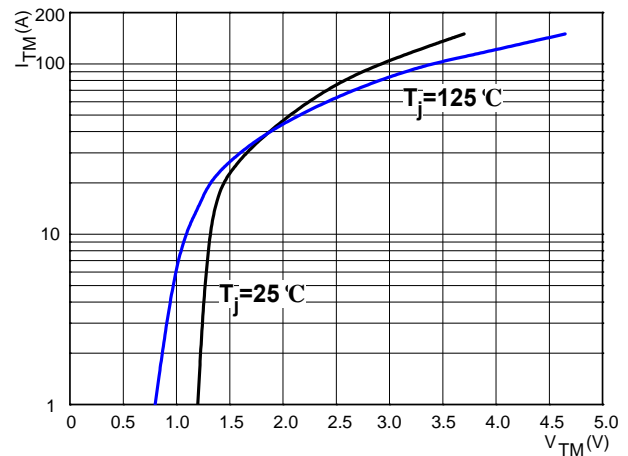


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 10\text{ms}$

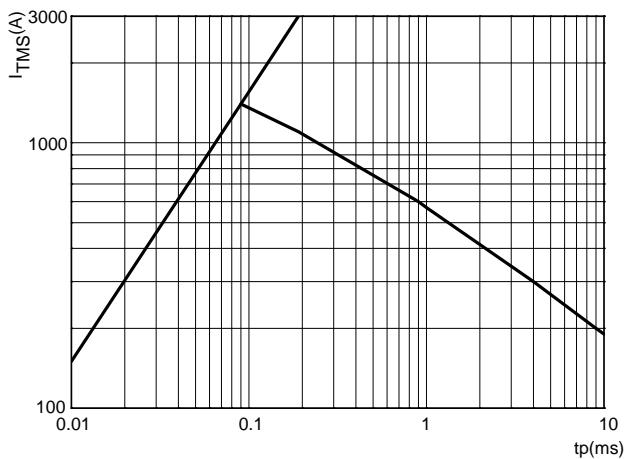
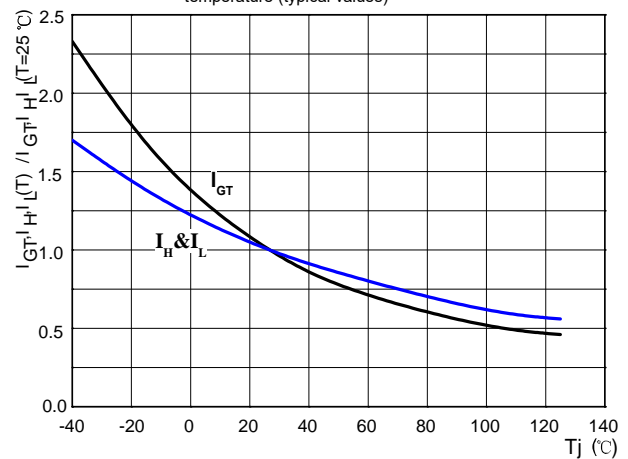
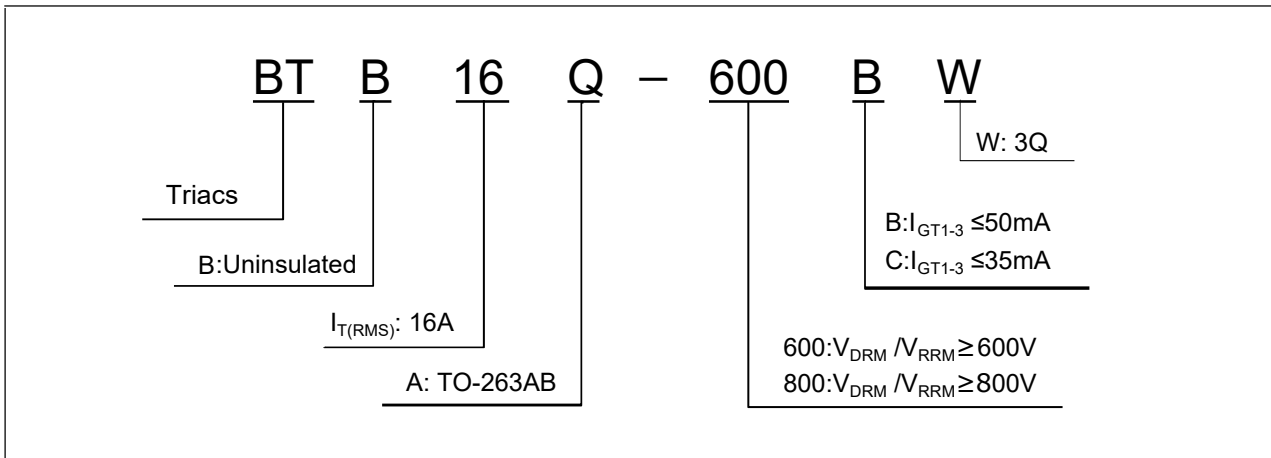


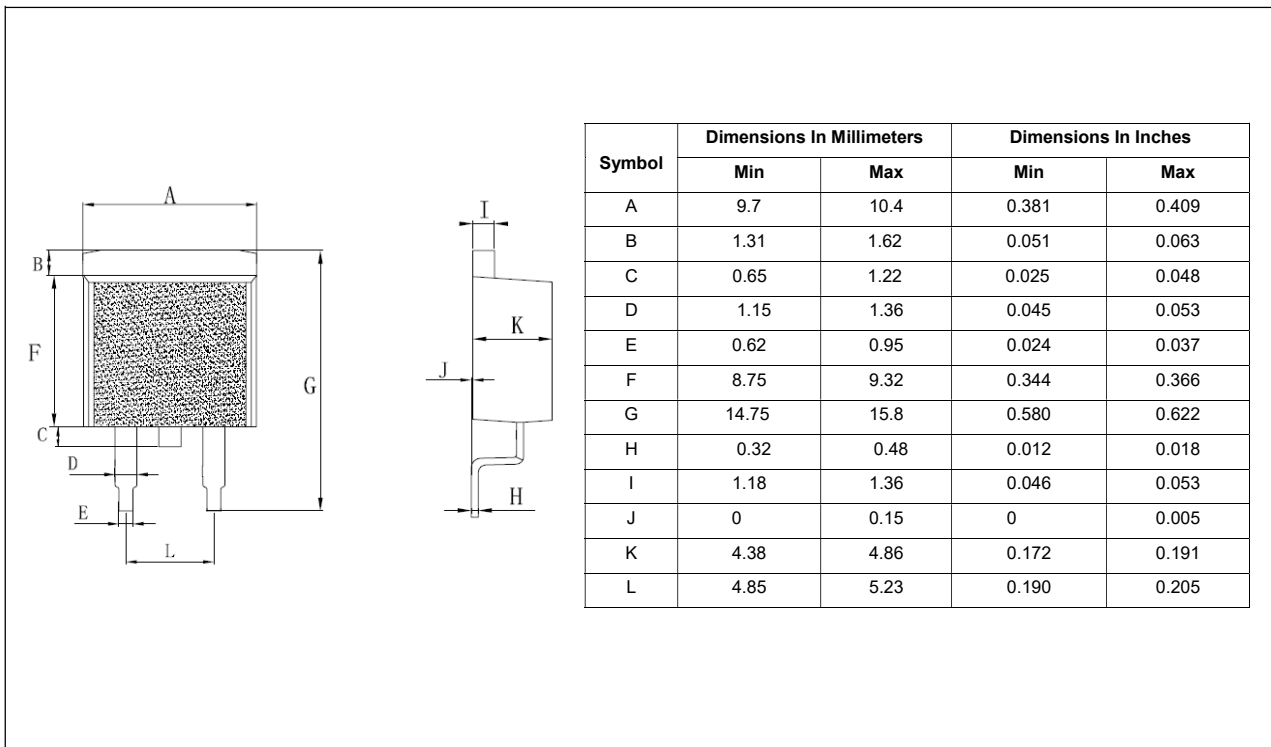
FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature (typical values)



**Ordering Information**



**TO-263AB Package Information**



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