

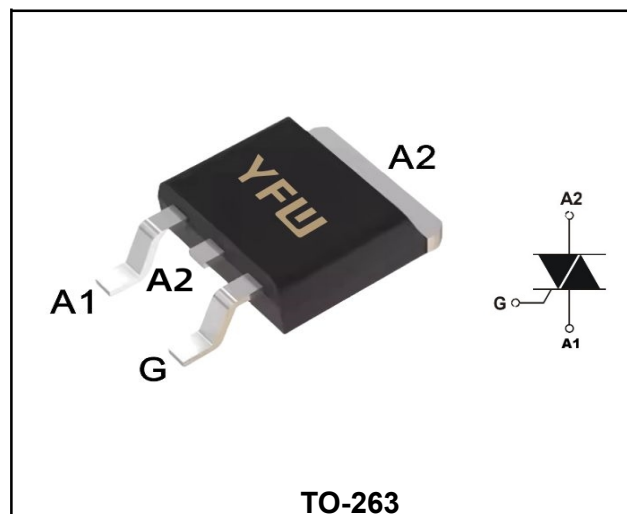
## 16A 3Quadrants TRIACs

### Product Summary

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

### Features

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



### Application

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

### Absolute maximum ratings ( $T_a=25^{\circ}\text{C}$ 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, $F=50\text{Hz}$ ) | $I_{TSM}$    | 160             | A                    |
| $I^2t$ value for fusing ( $t_p=10\text{ms}$ )                             | $I^2t$       | 140             | $\text{A}^2\text{s}$ |
| Critical rate of rise of on-state current ( $I_G = 2 \times  I_{GT} $ )   | $di_T/dt$    | I - II - III 50 | A/us                 |
| Peak gate current                                                         | $I_{GM}$     | 4               | A                    |
| Average gate power dissipation                                            | $P_G (AV)$   | 1               | W                    |
| Junction Temperature                                                      | $T_J$        | $-40 \sim +125$ | $^{\circ}\text{C}$   |
| Storage Temperature                                                       | $T_{STG}$    | $-40 \sim +150$ | $^{\circ}\text{C}$   |

**Electrical characteristics (TA=25°C, unless otherwise noted)**

| Parameter                                    | Symbol    | Test Condition                                  |          | Value      |             | Unit        |
|----------------------------------------------|-----------|-------------------------------------------------|----------|------------|-------------|-------------|
|                                              |           |                                                 |          | CW         | BW          |             |
| Gate trigger current                         | $I_{GT}$  | $V_D=12V$<br>$R_L=33\Omega$<br>$T_j=25^\circ C$ | I-II-III | $\leq 35$  | $\leq 50$   | <b>mA</b>   |
| Gate trigger voltage                         | $V_{GT}$  |                                                 | I-II-III | $\leq 1.3$ |             | <b>V</b>    |
| Gate non-trigger voltage                     | $V_{GD}$  | $V_D = V_{DRM}$ $T_j=125^\circ C$               |          | $\geq 0.2$ |             | <b>V</b>    |
| latching current                             | $I_L$     | $I_G = 1.2I_{GT}$                               | I-III    | $\leq 50$  | $\leq 70$   | <b>mA</b>   |
|                                              |           |                                                 | II       | $\leq 60$  | $\leq 80$   |             |
| Holding current                              | $I_H$     | $I_T = 500mA$                                   |          | $\leq 30$  | $\leq 50$   | <b>mA</b>   |
| Critical-rate of rise of commutation voltage | $dV_D/dt$ | $V_D=2/3V_{DRM}$ Gate Open $T_j=125^\circ C$    |          | $\geq 500$ | $\geq 1000$ | <b>V/us</b> |

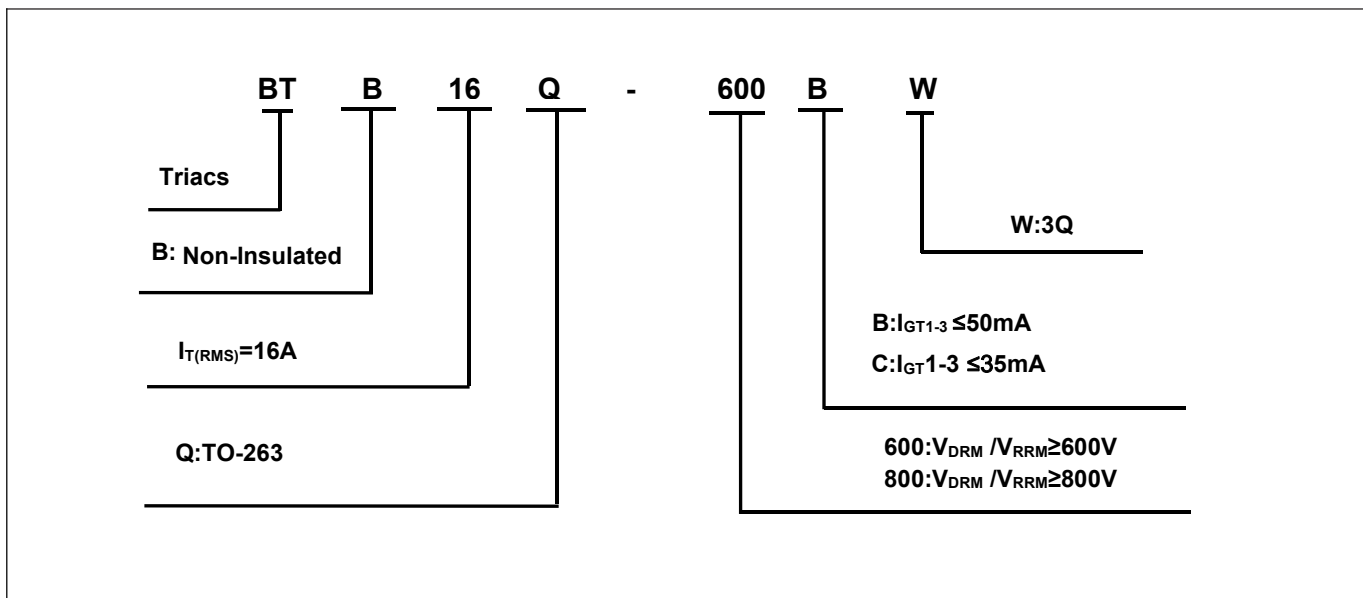
**STATIC CHARACTERISTICS**

|                                   |           |                             |                   |             |           |
|-----------------------------------|-----------|-----------------------------|-------------------|-------------|-----------|
| Forward "on" voltage              | $V_{TM}$  | $I_{TM} = 23A$ $t_p=380us$  |                   | $\leq 1.55$ | <b>V</b>  |
| Repetitive Peak Off-State Current | $I_{DRM}$ | $V_D=V_{DRM}$ $V_R=V_{RRM}$ | $T_j=25^\circ C$  | $\leq 5$    | <b>UA</b> |
| Repetitive Peak Reverse Current   | $I_{RRM}$ |                             | $T_j=125^\circ C$ | $\leq 1$    | <b>mA</b> |

**THERMAL RESISTANCES**

|                    |               |                      |     |             |
|--------------------|---------------|----------------------|-----|-------------|
| Thermal resistance | $R_{th(j-c)}$ | Junction to case(AC) | 1.2 | <b>°C/W</b> |
|                    | $R_{th(j-a)}$ | Junction to ambient  | 45  | <b>°C/W</b> |

**Ordering Information**



Typical Characteristics

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

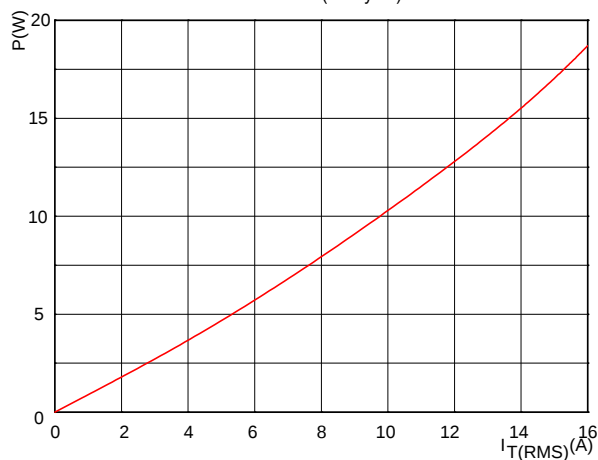


FIG.2: RMS on-state current versus case temperature (full cycle)

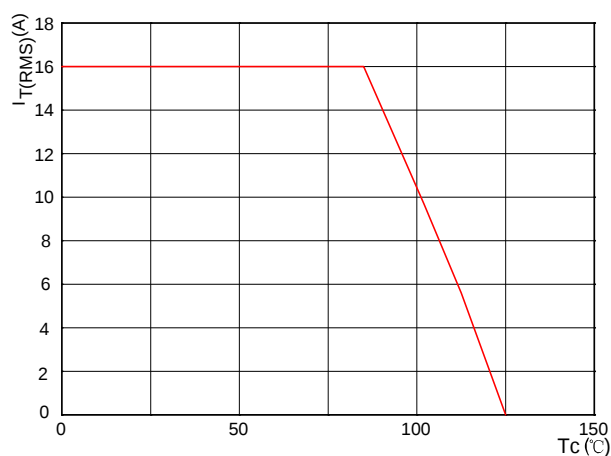


FIG.3: Surge peak on-state current versus number of cycles

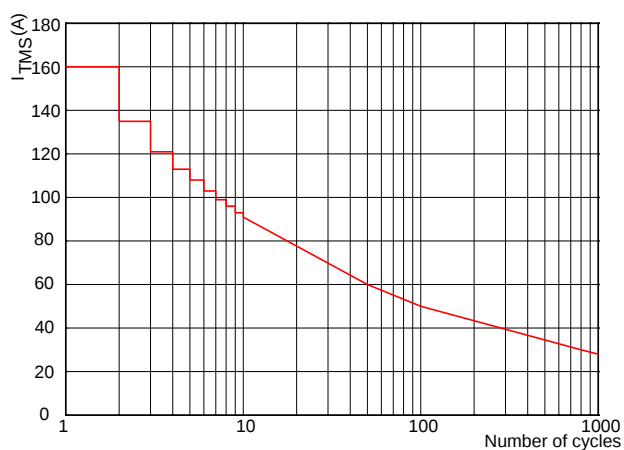


FIG.4: On-state characteristics (maximum values)

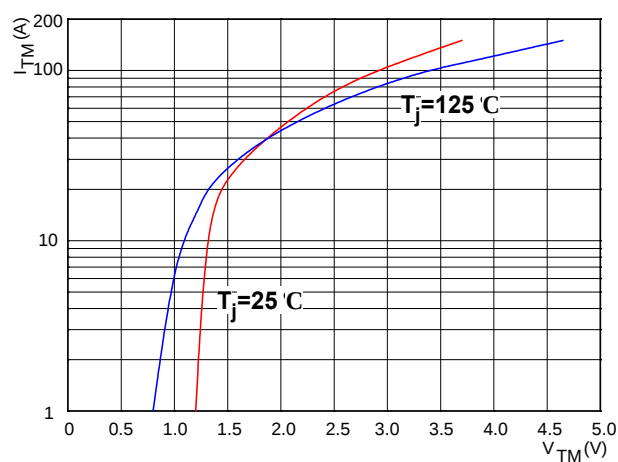


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 10ms$

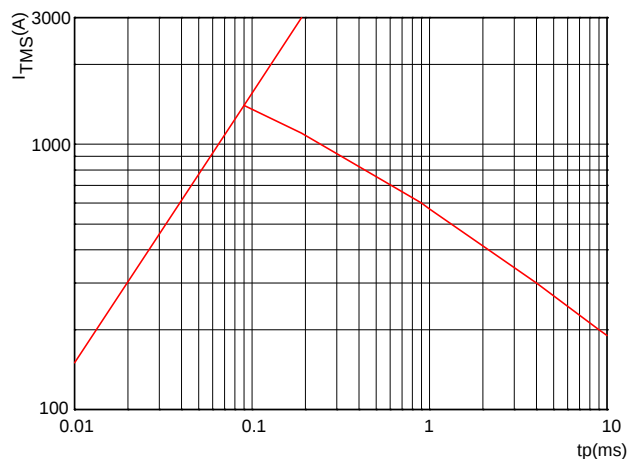
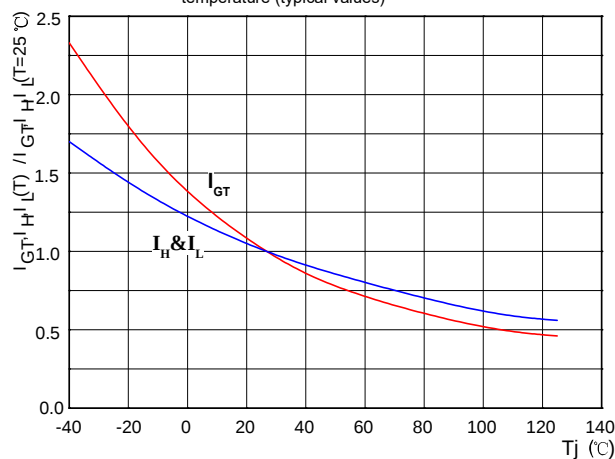
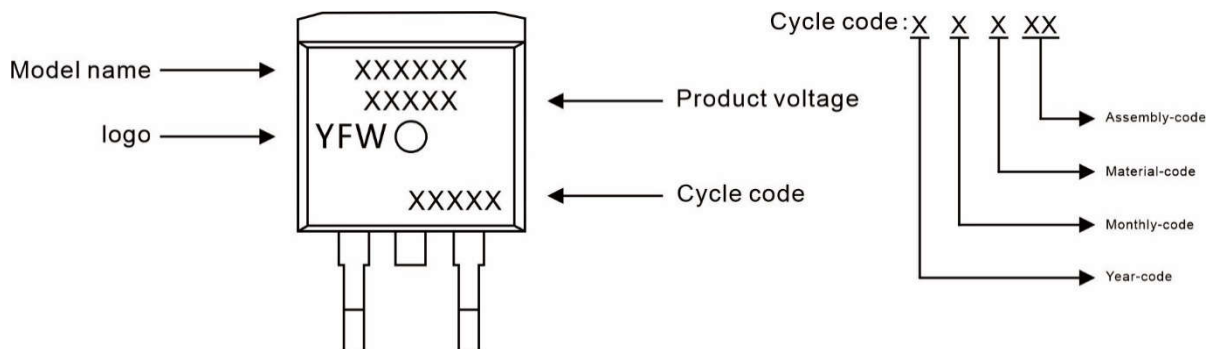


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature (typical values)



## Marking Diagram



## Ordering information

| Model name | Package | Unit Weight   | Base Quantity | Packing Quantity           |
|------------|---------|---------------|---------------|----------------------------|
| BTB16Q     | TO-263  | 0.04oz(1.16g) | 800pcs/reel   | 1600pcs/box 8000pcs/Carton |

## Package Dimensions

### TO-263

| Dim | Millimeter |       | Inches |       |
|-----|------------|-------|--------|-------|
|     | Min.       | Max.  | Min.   | Max.  |
| A   | 4.30       | 4.70  | 0.169  | 0.185 |
| A1  | 0.00       | 0.15  | 0.000  | 0.006 |
| A2  | 4.30       | 4.55  | 0.169  | 0.179 |
| B   | 1.10       | 1.50  | 0.043  | 0.059 |
| b   | 0.70       | 0.90  | 0.028  | 0.035 |
| b1  | 1.20       | 1.50  | 0.047  | 0.059 |
| c   | 0.30       | 0.60  | 0.012  | 0.024 |
| c1  | 1.17       | 1.37  | 0.046  | 0.054 |
| D   | 9.90       | 10.40 | 0.390  | 0.409 |
| E   | 8.50       | 8.90  | 0.335  | 0.350 |
| e   | 2.44       | 2.64  | 0.096  | 0.104 |
| e1  | 4.88       | 5.28  | 0.192  | 0.208 |
| L   | 15.00      | 15.30 | 0.591  | 0.602 |
| L1  | 5.20       | 5.40  | 0.205  | 0.213 |
| L2  | 2.40       | 2.60  | 0.094  | 0.102 |
| L3  | 1.60       | 1.80  | 0.063  | 0.071 |

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