



**PRODUCT NAME** : BTA12-600 12A 600V T  
RIAC

**PRICE** : Rs 29.00

**SKU** : RM2010



## DESCRIPTION

www.robomart.com Copyrights by Robomart.com

## Features

- Gate Turn-On Voltage (Vgt): 1.3V
- Peak Off-State Voltage(Vdrm): 600V
- On-State Current (It): 12.0A
- Gate Current (Igt): 35mA
- Av. Gate Power Dissipation (Pg): 1W
- Typical Voltage Change over Time (dV/dT): 500V/μs



## BTA/BTB12 and T12 Series

SNUBBERLESS™, LOGIC LEVEL & STANDARD

12A TRIACs

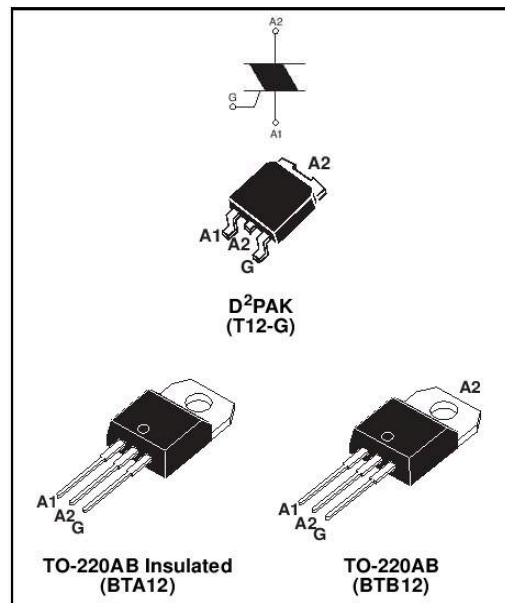
### MAIN FEATURES:

| Symbol            | Value       | Unit |
|-------------------|-------------|------|
| $I_{T(RMS)}$      | 12          | A    |
| $V_{DRM}/V_{RRM}$ | 600 and 800 | V    |
| $I_{GT}(Q_1)$     | 10 to 50    | mA   |

### DESCRIPTION

Available either in through-hole or surface-mount packages, the BTA/BTB12 and T12 triac series is suitable for general purpose AC switching. They can be used as an ON/OFF function in applications such as static relays, heating regulation, induction motor starting circuits... or for phase control operation in light dimmers, motor speed controllers,...

The snubberless versions (BTA/BTB...W and T12 series) are specially recommended for use on inductive loads, thanks to their high commutation performances. By using an internal ceramic pad, the BTA series provides voltage insulated tab (rated at 2500V RMS) complying with UL standards (File ref.: E81734)



### ABSOLUTE MAXIMUM RATINGS

| Symbol                      | Parameter                                                                                       | Value                                                  | Unit                           |                  |
|-----------------------------|-------------------------------------------------------------------------------------------------|--------------------------------------------------------|--------------------------------|------------------|
| $I_{T(RMS)}$                | RMS on-state current (full sine wave)                                                           | D <sup>2</sup> PAK/TO-220AB<br>T <sub>c</sub> = 105 °C | 12                             | A                |
|                             |                                                                                                 | TO-220AB Ins.<br>T <sub>c</sub> = 90 °C                |                                |                  |
| $I_{TSM}$                   | Non repetitive surge peak on-state current (full cycle, T <sub>j</sub> initial = 25 °C)         | F = 50 Hz<br>t = 20 ms                                 | 120                            | A                |
|                             |                                                                                                 | F = 60 Hz<br>t = 16.7 ms                               |                                |                  |
| $I^2t$                      | I <sup>2</sup> t Value for fusing                                                               | tp = 10 ms                                             | 100                            | A <sup>2</sup> s |
| dI/dt                       | Critical rate of rise of on-state current<br>I <sub>G</sub> = 2 × I <sub>GT</sub> , tr ≤ 100 ns | F = 120 Hz<br>T <sub>j</sub> = 125 °C                  | 50                             | A/μs             |
| $V_{DSM}/V_{RSM}$           | Non repetitive surge peak off-state voltage                                                     | tp = 10 ms<br>T <sub>j</sub> = 25 °C                   | $V_{DRM}/V_{RRM} + 100$        | V                |
| $I_{GM}$                    | Peak gate current                                                                               | tp = 20 μs<br>T <sub>j</sub> = 125 °C                  | 4                              | A                |
| $P_{G(AV)}$                 | Average gate power dissipation                                                                  | T <sub>j</sub> = 125 °C                                | 1                              | W                |
| $T_{stg}$<br>T <sub>j</sub> | Storage junction temperature range<br>Operating junction temperature range                      |                                                        | - 40 to + 150<br>- 40 to + 125 | °C               |

September 2000 - Ed: 3

1/7

**BTA/BTB12 and T12 Series**

**ELECTRICAL CHARACTERISTICS** ( $T_j = 25^\circ\text{C}$ , unless otherwise specified)

■ **SNUBBERLESS™ and LOGIC LEVEL (3 Quadrants)**

| Symbol        | Test Conditions                                                          | Quadrant     |      | T12   | BTA/BTB12 |     |      | Unit             |
|---------------|--------------------------------------------------------------------------|--------------|------|-------|-----------|-----|------|------------------|
|               |                                                                          |              |      | T1235 | SW        | CW  | BW   |                  |
| $I_{GT}(1)$   | $V_D = 12\text{ V}$ $R_L = 30\ \Omega$                                   | I - II - III | MAX. | 35    | 10        | 35  | 50   | mA               |
| $V_{GT}$      |                                                                          | I - II - III | MAX. | 1.3   |           |     |      | V                |
| $V_{GD}$      | $V_D = V_{DRM}$ $R_L = 3.3\ \text{k}\Omega$<br>$T_j = 125^\circ\text{C}$ | I - II - III | MIN. | 0.2   |           |     |      | V                |
| $I_H(2)$      | $I_T = 100\ \text{mA}$                                                   |              | MAX. | 35    | 15        | 35  | 50   | mA               |
| $I_L$         | $I_G = 1.2 I_{GT}$                                                       | I - III      | MAX. | 50    | 25        | 50  | 70   | mA               |
|               |                                                                          | II           |      | 60    | 30        | 60  | 80   |                  |
| $dV/dt(2)$    | $V_D = 67\% V_{DRM}$ gate open<br>$T_j = 125^\circ\text{C}$              |              | MIN. | 500   | 40        | 500 | 1000 | V/ $\mu\text{s}$ |
| $(dI/dt)c(2)$ | $(dV/dt)c = 0.1\ \text{V}/\mu\text{s}$ $T_j = 125^\circ\text{C}$         |              | MIN. | -     | 6.5       | -   | -    | A/ms             |
|               | $(dV/dt)c = 10\ \text{V}/\mu\text{s}$ $T_j = 125^\circ\text{C}$          |              |      | -     | 2.9       | -   | -    |                  |
|               | Without snubber $T_j = 125^\circ\text{C}$                                |              |      | 6.5   | -         | 6.5 | 12   |                  |

■ **STANDARD (4 Quadrants)**

| Symbol        | Test Conditions                                                       | Quadrant           |      | BTA/BTB06 |           | Unit             |
|---------------|-----------------------------------------------------------------------|--------------------|------|-----------|-----------|------------------|
|               |                                                                       |                    |      | C         | B         |                  |
| $I_{GT}(1)$   | $V_D = 12\text{ V}$ $R_L = 30\ \Omega$                                | I - II - III<br>IV | MAX. | 25<br>50  | 50<br>100 | mA               |
| $V_{GT}$      |                                                                       | ALL                | MAX. | 1.3       |           | V                |
| $V_{GD}$      | $V_D = V_{DRM}$ $R_L = 3.3\ \text{k}\Omega$ $T_j = 125^\circ\text{C}$ | ALL                | MIN. | 0.2       |           | V                |
| $I_H(2)$      | $I_T = 500\ \text{mA}$                                                |                    | MAX. | 25        | 50        | mA               |
| $I_L$         | $I_G = 1.2 I_{GT}$                                                    | I - III - IV       | MAX. | 40        | 50        | mA               |
|               |                                                                       | II                 |      | 80        | 100       |                  |
| $dV/dt(2)$    | $V_D = 67\% V_{DRM}$ gate open $T_j = 125^\circ\text{C}$              |                    | MIN. | 200       | 400       | V/ $\mu\text{s}$ |
| $(dV/dt)c(2)$ | $(dI/dt)c = 5.3\ \text{A}/\text{ms}$ $T_j = 125^\circ\text{C}$        |                    | MIN. | 5         | 10        | V/ $\mu\text{s}$ |

**STATIC CHARACTERISTICS**

| Symbol                 | Test Conditions                                  |                           |      | Value | Unit             |
|------------------------|--------------------------------------------------|---------------------------|------|-------|------------------|
| $V_T(2)$               | $I_{TM} = 17\ \text{A}$ $t_p = 380\ \mu\text{s}$ | $T_j = 25^\circ\text{C}$  | MAX. | 1.55  | V                |
| $V_{to}(2)$            | Threshold voltage                                | $T_j = 125^\circ\text{C}$ | MAX. | 0.85  | V                |
| $R_d(2)$               | Dynamic resistance                               | $T_j = 125^\circ\text{C}$ | MAX. | 35    | $\text{m}\Omega$ |
| $I_{DRM}$<br>$I_{RRM}$ | $V_{DRM} = V_{RRM}$                              | $T_j = 25^\circ\text{C}$  | MAX. | 5     | $\mu\text{A}$    |
|                        |                                                  | $T_j = 125^\circ\text{C}$ |      | 1     | mA               |

**Note 1:** minimum  $I_{GT}$  is guaranteed at 5% of  $I_{GT}$  max.

**Note 2:** for both polarities of A2 referenced to A1



**BTA/BTB12 and T12 Series**

**THERMAL RESISTANCES**

| Symbol        | Parameter             |                       | Value                          | Unit |      |
|---------------|-----------------------|-----------------------|--------------------------------|------|------|
| $R_{th(j-c)}$ | Junction to case (AC) |                       | D <sup>2</sup> PAK/TO-220AB    | 1.4  | °C/W |
|               |                       |                       | TO-220AB Insulated             | 2.3  |      |
| $R_{th(j-a)}$ | Junction to ambient   | S = 1 cm <sup>2</sup> | D <sup>2</sup> PAK             | 45   | °C/W |
|               |                       |                       | TO-220AB<br>TO-220AB Insulated | 60   |      |

S = Copper surface under tab

**PRODUCT SELECTOR**

| Part Number     | Voltage (xxx) |       | Sensitivity | Type        | Package            |
|-----------------|---------------|-------|-------------|-------------|--------------------|
|                 | 600 V         | 800 V |             |             |                    |
| BTA/BTB12-xxxB  | X             | X     | 50 mA       | Standard    | TO-220AB           |
| BTA/BTB12-xxxBW | X             | X     | 50 mA       | Snubberless | TO-220AB           |
| BTA/BTB12-xxxC  | X             | X     | 25 mA       | Standard    | TO-220AB           |
| BTA/BTB12-xxxCW | X             | X     | 35 mA       | Snubberless | TO-220AB           |
| BTA/BTB12-xxxSW | X             | X     | 10 mA       | Logic level | TO-220AB           |
| T1235-xxxG      | X             | X     | 35 mA       | Snubberless | D <sup>2</sup> PAK |

BTB: non insulated TO-220AB package

**ORDERING INFORMATION**

