



## BTA08/BTB08 Series 8A TRIACs

### DESCRIPTION:

High current density due to double mesa technology; SIPOS and Glass Passivation.

BTA08/BTB08 series triacs 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 light dimmers, motor speed controllers.

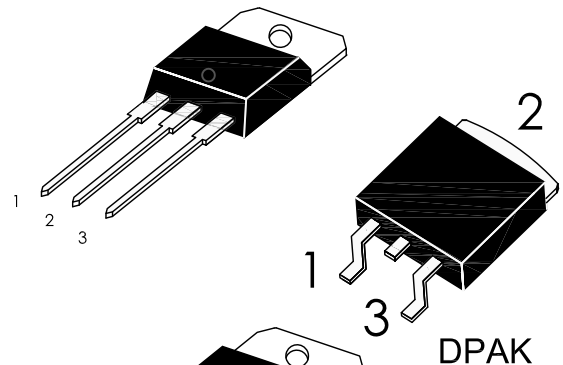
BTA08/BTB08- $\times\times\times$ SW, - $\times\times\times$ CW, - $\times\times\times$ BW are 3 Quadrants triacs, They are specially recommended for use on inductive loads.

BTA08 are isolated internally, they provides a 2500V RMS isolation voltage from all three terminals to external heatsink.

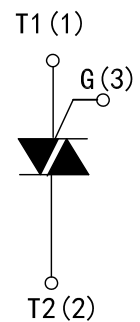
### MAIN FEATURES

| Symbol            | Value       | Unit |
|-------------------|-------------|------|
| $I_{T(RMS)}$      | 8           | A    |
| $V_{DRM}/V_{RRM}$ | 600and800   | V    |
| $V_{TM}$          | $\leq 1.55$ | V    |

TO-220AB(BTB08)



TO-220AB insulated (BTA08)



### ABSOLUTE MAXIMUM RATINGS

| Parameter                                                                                                                        |                                           | Symbol       | Value       | Unit                 |
|----------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|--------------|-------------|----------------------|
| Storage junction temperature range                                                                                               |                                           | $T_{stg}$    | -40 to +150 | $^{\circ}\text{C}$   |
| Operating junction temperature range                                                                                             |                                           | $T_j$        | -40 to +125 | $^{\circ}\text{C}$   |
| Repetitive Peak Off-state Voltage                                                                                                | $T_j=25^{\circ}\text{C}$                  | $V_{DRM}$    | 600and800   | V                    |
| Repetitive Peak Reverse Voltage                                                                                                  |                                           | $V_{RRM}$    | 600and800   | V                    |
| Non repetitive Surge Peak Off-state Voltage                                                                                      | $T_j=25^{\circ}\text{C}$                  | $V_{DSM}$    | 700and900   | V                    |
| Non repetitive Peak Reverse Voltage                                                                                              |                                           | $V_{RSM}$    | 700and900   | V                    |
| RMS on-state current<br>(full sine wave)                                                                                         | DPAK / TO-220AB $T_c=110^{\circ}\text{C}$ | $I_{T(RMS)}$ | 8           | A                    |
|                                                                                                                                  | TO-220AB Ins $T_c=100^{\circ}\text{C}$    |              |             |                      |
| Non repetitive surge peak on-state<br>current (full cycle, $T_j=25^{\circ}\text{C}$ )                                            | f = 50 Hz t=20ms                          | $I_{TSM}$    | 80          | A                    |
|                                                                                                                                  | f = 60 Hz t=16.7ms                        |              | 84          |                      |
| $I^2t$ Value for fusing $t_p=10\text{ms}$                                                                                        |                                           | $I^2t$       | 36          | $\text{A}^2\text{s}$ |
| Critical rate of rise of on-state current<br>$I_G=2\times I_{GT}$ , $t_r\leq 100\text{ ns}$ , f=120Hz, $T_j=125^{\circ}\text{C}$ |                                           | $di/dt$      | 50          | A/us                 |
| Peak gate current $t_p=20\mu\text{s}$ , $T_j=125^{\circ}\text{C}$                                                                |                                           | $I_{GM}$     | 4           | A                    |
| Average gate power dissipation $T_j=125^{\circ}\text{C}$                                                                         |                                           | $P_{G(AV)}$  | 1           | W                    |

ELECTRICAL CHARACTERISTICS (T<sub>j</sub>=25°C unless otherwise specified)

## ● 3 Quadrants

| Symbol               | Test Condition                                                                  | Quadrant     |       | BTA08/BTB08 |      |      | Unit |
|----------------------|---------------------------------------------------------------------------------|--------------|-------|-------------|------|------|------|
|                      |                                                                                 |              |       | SW          | CW   | BW   |      |
| I <sub>GT</sub>      | V <sub>D</sub> =12V R <sub>L</sub> =30Ω                                         | I - II - III | MAX.  | 10          | 35   | 50   | mA   |
| V <sub>GT</sub>      |                                                                                 | I - II - III | MAX.  | 1.3         |      |      | V    |
| V <sub>GD</sub>      | V <sub>D</sub> =V <sub>DRM</sub> R <sub>L</sub> =3.3KΩ<br>T <sub>j</sub> =125°C | I - II - III | MIN.. | 0.2         |      |      | V    |
| I <sub>L</sub>       | I <sub>G</sub> =1.2I <sub>GT</sub>                                              | I - III      | MAX.  | 25          | 50   | 70   | mA   |
|                      |                                                                                 | II           |       | 30          | 60   | 80   |      |
| I <sub>H</sub>       | I <sub>T</sub> =100mA                                                           |              | MAX.  | 15          | 35   | 50   | mA   |
| dV/dt                | V <sub>D</sub> =67%V <sub>DRM</sub> gate open<br>T <sub>j</sub> =125°C          |              | MIN.  | 40          | 500  | 1000 | V/μs |
| (dl/dt) <sub>c</sub> | (dV/dt) c=0.1V/μs T <sub>j</sub> =125°C                                         |              | MIN.  | 5.4         | ---- | ---- | A/ms |
|                      | (dV/dt) c=10V/μs T <sub>j</sub> =125°C                                          |              |       | 2.8         | ---- | ---- |      |
|                      | Without snubber T <sub>j</sub> =125°C                                           |              |       | ----        | 4.5  | 7.0  |      |

## ● 4 Quadrants

| Symbol               | Test Condition                                                                  | Quadrant           |      | BTA08/BTB08 |           | Unit |
|----------------------|---------------------------------------------------------------------------------|--------------------|------|-------------|-----------|------|
|                      |                                                                                 |                    |      | C           | B         |      |
| I <sub>GT</sub>      | V <sub>D</sub> =12V R <sub>L</sub> =30Ω                                         | I - II - III<br>IV | MAX. | 25<br>50    | 50<br>100 | mA   |
| V <sub>GT</sub>      |                                                                                 | ALL                | MAX. | 1.3         |           | V    |
| V <sub>GD</sub>      | V <sub>D</sub> =V <sub>DRM</sub> R <sub>L</sub> =3.3KΩ<br>T <sub>j</sub> =125°C | ALL                | MIN. | 0.2         |           | V    |
| I <sub>L</sub>       | I <sub>G</sub> =1.2I <sub>GT</sub>                                              | I - III - IV       | MAX. | 40          | 50        | mA   |
|                      |                                                                                 | II                 |      | 80          | 100       |      |
| I <sub>H</sub>       | I <sub>T</sub> =100mA                                                           |                    | MAX. | 25          | 50        | mA   |
| dV/dt                | V <sub>D</sub> =67%V <sub>DRM</sub> gate open<br>T <sub>j</sub> =125°C          |                    | MIN. | 200         | 400       | V/μs |
| (dl/dt) <sub>c</sub> | (dV/dt) c=0.1V/μs T <sub>j</sub> =125°C                                         |                    | MIN. | ---         | ---       | A/ms |
|                      | (dV/dt) c=10V/μs T <sub>j</sub> =125°C                                          |                    |      | ---         | ---       |      |
|                      | Without snubber T <sub>j</sub> =125°C                                           |                    |      | ---         | ---       |      |

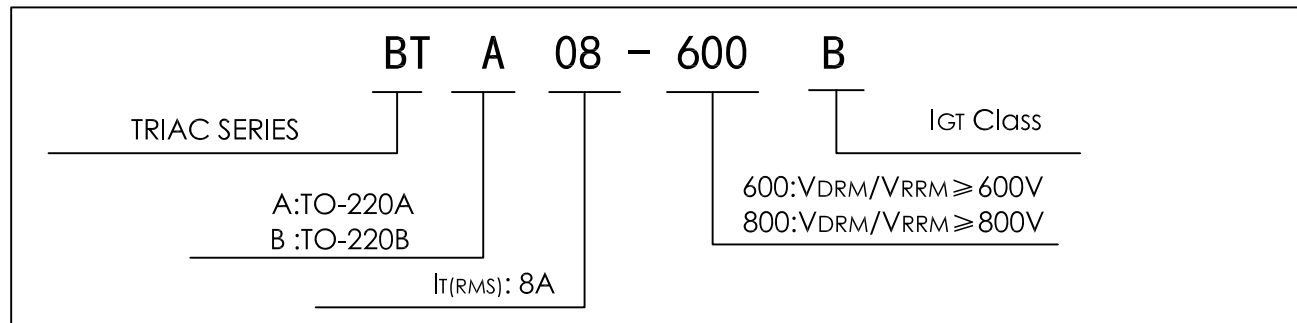
## STATIC CHARACTERISTICS

| Symbol    | Test Conditions               |                    | Value (MAX) | Unit    |
|-----------|-------------------------------|--------------------|-------------|---------|
| $V_{TM}$  | $I_{TM}=11A$ , $t_p=380\mu S$ | $T_j=25^{\circ}C$  | 1.55        | V       |
| $I_{DRM}$ | $V_D=V_{DRM}$                 | $T_j=25^{\circ}C$  | 5           | $\mu A$ |
| $I_{RRM}$ | $V_R=V_{RRM}$                 | $T_j=125^{\circ}C$ | 1           | mA      |

## THERMAL RESISTANCES

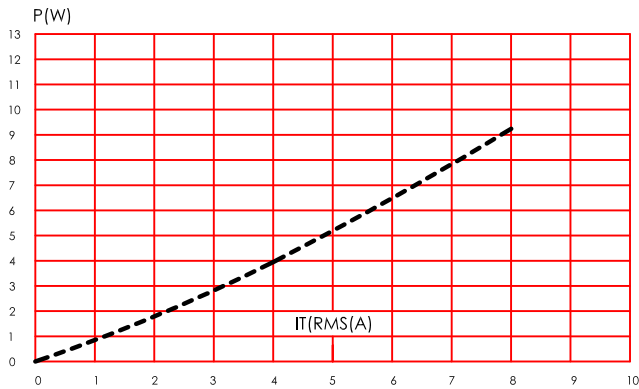
| Symbol        | Parameter             |                    | Value | Unit          |
|---------------|-----------------------|--------------------|-------|---------------|
| $R_{th(j-c)}$ | Junction to case (AC) | DPAK/TO-220AB      | 1.6   | $^{\circ}C/W$ |
|               |                       | TO-220AB Insulated | 2.5   |               |

## ORDERING INFORMATION

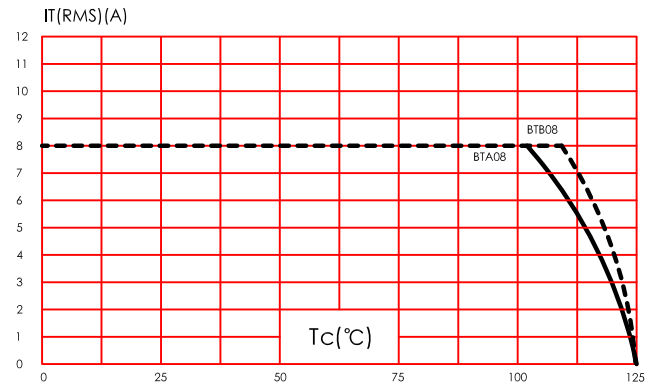




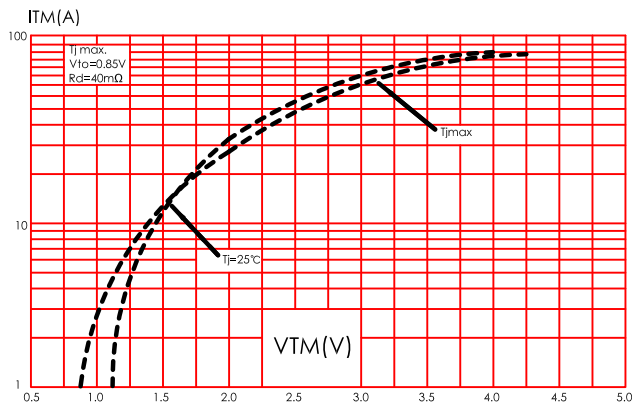
**FIG.1:** Maximum power dissipation versus RMS on-state current(full cycle)



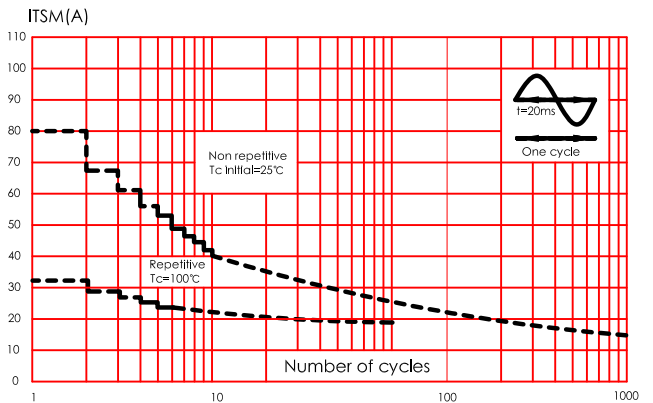
**FIG.2:** RMS on-state current versus case temperature(full cycle)



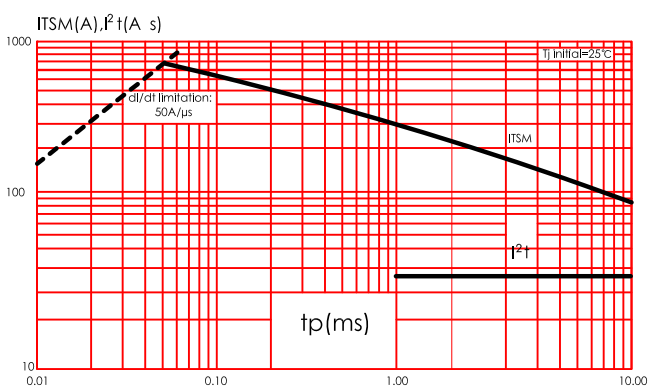
**FIG.3:** On-state characteristics (maximum values)



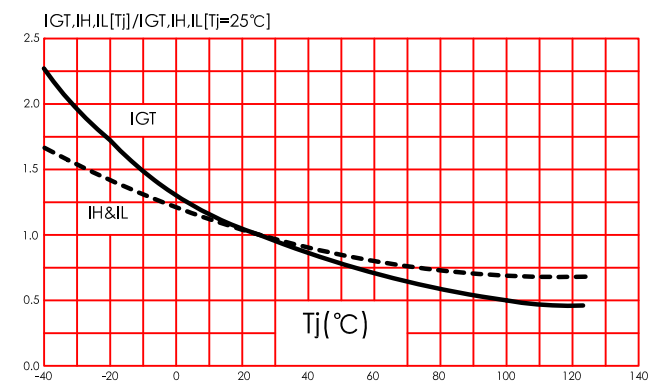
**FIG.4:** Surge peak on-state current versus number of cycles.



**FIG.5:** Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 10ms$ , and corresponding value of  $I^2t$



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





**ООО «НИОКРсистемс»** - это оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов. Реализуемая нашей компанией продукция насчитывает более полумиллиона наименований.

Благодаря этому наша компания предлагает к поставке практически не ограниченный ассортимент компонентов как оптовыми, мелкооптовыми партиями, так и в розницу.

Благодаря развитой сети поставщиков, помогаем в поиске и приобретении экзотичных или снятых с производства компонентов.

### **Наша компания это:**

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