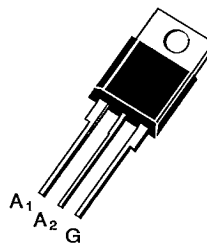


**LOGIC LEVEL TRIACS**

- $I_{T_{RMS}} = 8\text{ A}$  at  $T_c = 80\text{ }^{\circ}\text{C}$ .
- $V_{DRM} : 200\text{ V to } 800\text{ V}$ .
- $I_{GT} = 5\text{ mA}$  (QI-II-III).
- $(di/dt)_c = 3.5\text{ A/ms @ } (dv/dt)_c = 20\text{ V/}\mu\text{s}$ .
- SUITED FOR LOW POWER TRIGGER CIRCUITS (INTEGRATED CIRCUITS AND MICROPROCESSORS).
- GLASS PASSIVATED CHIP.
- HIGH EFFICIENCY SWITCHING.
- AVAILABLE IN INSULATED VERSION → BTA SERIES (INSULATING VOLTAGE :  $2500\text{ V}_{RMS}$ ) OR IN UNINSULATED VERSION → BTB SERIES.
- UL RECOGNIZED FOR BTA SERIES (E81734).

**DESCRIPTION**

New range suited for applications such as phase control and static switching on inductive or resistive load.



**TO 220 AB**  
(CB-415 Plastic)

**ABSOLUTE RATINGS** (limiting values)

| Symbol             | Parameter                                                                                   |                                    | Value                      | Unit                                     |
|--------------------|---------------------------------------------------------------------------------------------|------------------------------------|----------------------------|------------------------------------------|
| $I_{T_{RMS}}$      | RMS on-state current (360 ° conduction angle)                                               | $T_c = 80\text{ }^{\circ}\text{C}$ | 8                          | A                                        |
| $I_{TSM}$          | Non repetitive surge peak on-state current ( $T_j$ initial = $25\text{ }^{\circ}\text{C}$ ) | $t = 8.3\text{ ms}$                | 95                         | A                                        |
|                    |                                                                                             | $t = 10\text{ ms}$                 | 85                         |                                          |
| $I^2 t$            | $I^2 t$ value                                                                               | $t = 10\text{ ms}$                 | 36                         | $\text{A}^2\text{ s}$                    |
| $di/dt$            | Critical rate of rise of on-state current (1)                                               | Repetitive<br>$F = 50\text{ Hz}$   | 20                         | A / $\mu\text{s}$                        |
|                    |                                                                                             | Non Repetitive                     | 100                        |                                          |
| $T_{stg}$<br>$T_j$ | Storage and operating junction temperature range                                            |                                    | - 40, + 150<br>- 40, + 110 | $^{\circ}\text{C}$<br>$^{\circ}\text{C}$ |

| Symbol    | Parameter                             | BTA/BTB 08- |        |        |        |        | Unit |
|-----------|---------------------------------------|-------------|--------|--------|--------|--------|------|
|           |                                       | 200 TW      | 400 TW | 600 TW | 700 TW | 800 TW |      |
| $V_{DRM}$ | Repetitive peak off-state voltage (2) | ± 200       | ± 400  | ± 600  | ± 700  | ± 800  | V    |

(1) Gate supply :  $I_G = 50\text{ mA}$  –  $di_G/dt = 1\text{ A/}\mu\text{s}$ .

(2)  $T_j = 110\text{ }^{\circ}\text{C}$ .

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## THERMAL RESISTANCES

| Symbol                   | Parameter                                                                   | Value | Unit                 |
|--------------------------|-----------------------------------------------------------------------------|-------|----------------------|
| $R_{th(j-a)}$            | Junction to ambient                                                         | 60    | $^{\circ}\text{C/W}$ |
| $R_{th(j-c)} \text{ DC}$ | Junction to case for DC                                                     | 3.5   | $^{\circ}\text{C/W}$ |
| $R_{th(j-c)} \text{ AC}$ | Junction to case for $360^{\circ}$ conduction angle ( $F = 50 \text{ Hz}$ ) | 2.6   | $^{\circ}\text{C/W}$ |

## GATE CHARACTERISTICS (maximum values)

$P_{GM} = 40 \text{ W}$  ( $t = 10 \mu\text{s}$ )    $P_{G(AV)} = 1 \text{ W}$     $I_{GM} = 4 \text{ A}$  ( $t = 10 \mu\text{s}$ )    $V_{GM} = 16 \text{ V}$  ( $t = 10 \mu\text{s}$ ).

## ELECTRICAL CHARACTERISTICS

| Symbol        | Test Conditions                                                  |                                                                    | Quadrants | Min. | Typ. | Max. | Unit             |
|---------------|------------------------------------------------------------------|--------------------------------------------------------------------|-----------|------|------|------|------------------|
| $I_{GT}$      | $T_J = 25^{\circ}\text{C}$<br>Pulse duration $> 20 \mu\text{s}$  | $V_D = 12 \text{ V}$<br>$R_L = 33 \Omega$                          | I-II-III  |      |      | 5    | mA               |
| $V_{GT}$      | $T_J = 25^{\circ}\text{C}$<br>Pulse duration $> 20 \mu\text{s}$  | $V_D = 12 \text{ V}$<br>$R_L = 33 \Omega$                          | I-II-III  |      |      | 1.5  | V                |
| $V_{GD}$      | $T_J = 110^{\circ}\text{C}$<br>Pulse duration $> 20 \mu\text{s}$ | $V_D = V_{DRM}$<br>$R_L = 3.3 \text{ k}\Omega$                     | I-II-III  | 0.2  |      |      | V                |
| $I_H^*$       | $T_J = 25^{\circ}\text{C}$<br>Gate open                          | $I_T = 100 \text{ mA}$<br>$R_L = 140 \Omega$                       |           |      |      | 15   | mA               |
| $I_L$         | $T_J = 25^{\circ}\text{C}$<br>Pulse duration $> 20 \mu\text{s}$  | $V_D = 12 \text{ V}$<br>$R_L = 33 \Omega$<br>$I_G = 25 \text{ mA}$ | I-III     |      | 15   |      | mA               |
|               |                                                                  |                                                                    | II        |      | 30   |      |                  |
| $V_{TM}^*$    | $T_J = 25^{\circ}\text{C}$                                       | $I_{TM} = 11 \text{ A}$<br>$t_p = 10 \text{ ms}$                   |           |      |      | 1.75 | V                |
| $I_{DRM}^*$   | $T_J = 25^{\circ}\text{C}$                                       | $V_{DRM}$ rated<br>Gate open                                       |           |      |      | 10   | $\mu\text{A}$    |
|               | $T_J = 110^{\circ}\text{C}$                                      |                                                                    |           |      |      | 500  |                  |
| $dv/dt^*$     | $T_J = 110^{\circ}\text{C}$<br>Linear slope up to $0.67 V_{DRM}$ | Gate open                                                          |           | 20   |      |      | V/ $\mu\text{s}$ |
| $(di/dt)_c^*$ | $T_J = 110^{\circ}\text{C}$                                      | $(dv/dt)_c = 0.1 \text{ V}/\mu\text{s}$                            |           | 3.5  | 5    |      | A/ms             |
|               | $T_J = 110^{\circ}\text{C}$                                      | $(dv/dt)_c = 20 \text{ V}/\mu\text{s}$                             |           | 1.8  | 3.5  |      |                  |
| $t_{gt}$      | $T_J = 25^{\circ}\text{C}$<br>$I_T = 11 \text{ A}$               | $di_G/dt = 1 \text{ A}/\mu\text{s}$<br>$V_D = V_{DRM}$             | I-II-III  |      | 2    |      | $\mu\text{s}$    |

\* For either polarity of electrode  $A_2$  voltage with reference to electrode  $A_1$ .

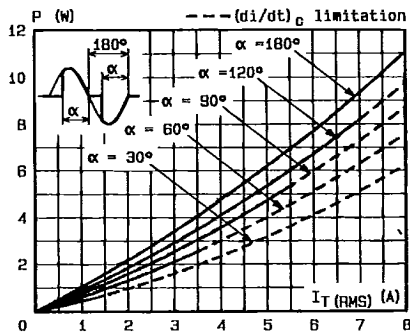


Fig.1 - Maximum mean power dissipation versus RMS on-state current ( $F = 60$  Hz).

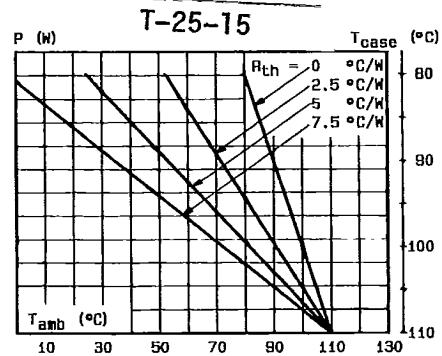


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures ( $T_{amb}$  and  $T_{case}$ ) for different thermal resistances heatsink + contact.

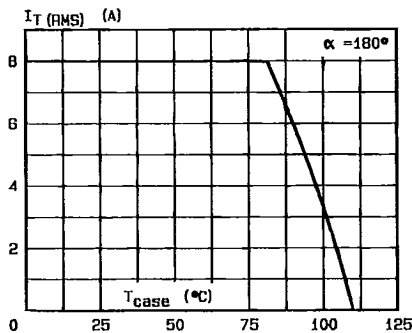


Fig.3 - RMS on-state current versus case temperature.

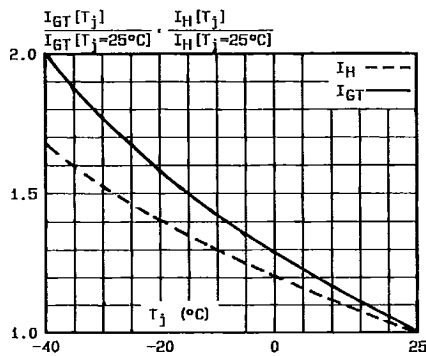


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

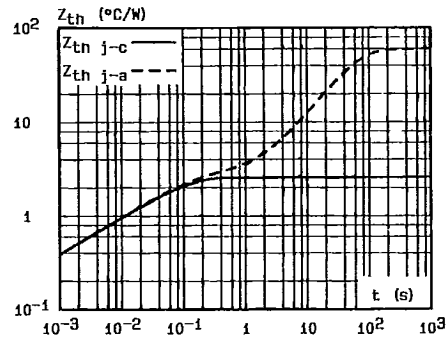


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

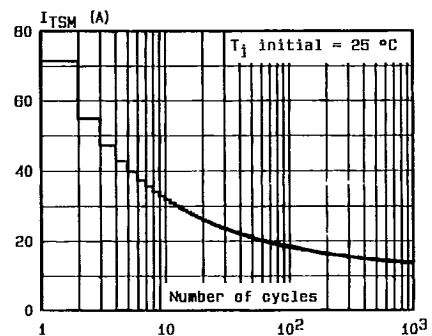


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

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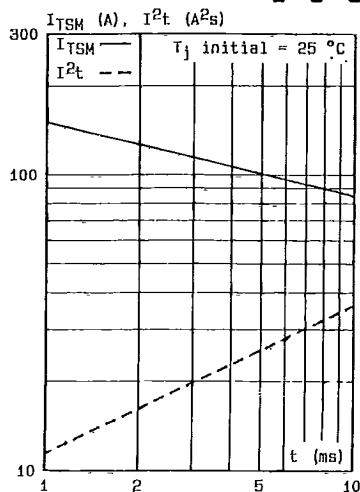


Fig. 7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width:  $t \leq 10$  ms, and corresponding value of  $I^2t$ .

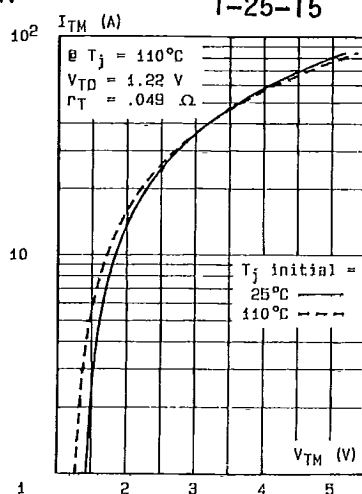


Fig. 8 - On-state characteristics (maximum values).

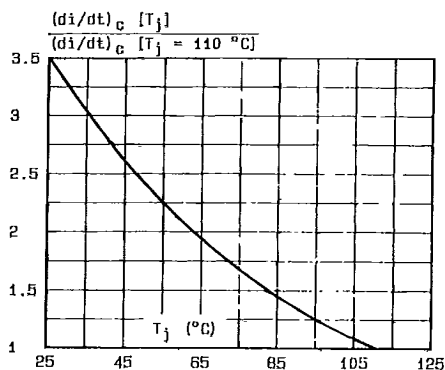


Fig. 9 - Relative variation of  $(di/dt)_c$  versus junction temperature.

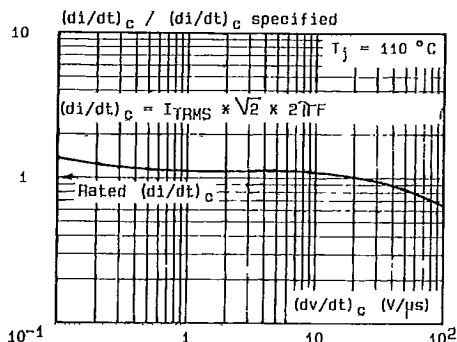


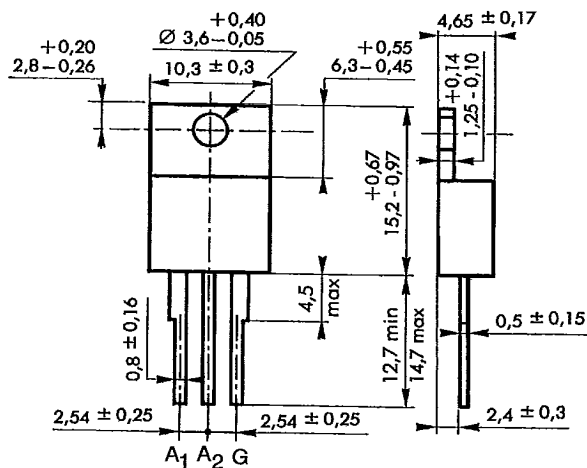
Fig. 10 - Relative variation of  $(di/dt)_c$  versus  $(dv/dt)_c$  (inductive load) (typical values).

## PACKAGE MECHANICAL DATA

TO 220 AB (CB-415) Plastic

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Cooling method : by conduction (method C)

Marking : type number

Weight : 2 g