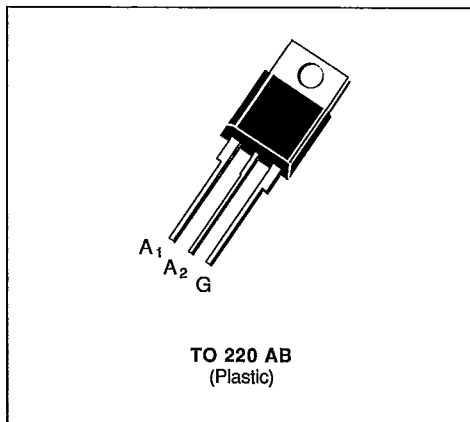


- GLASS PASSIVATED CHIP
- I_{GT} SPECIFIED IN FOUR QUADRANTS
- AVAILABLE IN INSULATED VERSION →
BTA SERIES (INSULATING VOLTAGE
2500 V_{RMS}) OR IN UNINSULATED VERSION
→ BTB SERIES
- UL RECOGNIZED FOR BTA SERIES (E81734)

**DESCRIPTION**

New range suited for applications such as phase control and static switching.

ABSOLUTE RATINGS (limiting values)

| Symbol | Parameter | Value | Unit |
|--------------------|---|---------------------------------------|--------------------------------------|
| $I_{T(RMS)}$ | RMS on-state Current (360° conduction angle) | $T_C = 75\text{ }^\circ\text{C}$ 8 | A |
| I_{TSM} | Non Repetitive Surge Peak on-state Current (T_j initial = 25 °C - Half sine wave) | $t = 8.3\text{ ms}$ | 84 |
| | | $t = 10\text{ ms}$ | 80 |
| I^2t | I^2t Value for Fusing | $t = 10\text{ ms}$ 32 | A^2s |
| di/dt | Critical Rate of Rise of on-state Current (1) | Repetitive $F = 50\text{ Hz}$ | 10 |
| | | Non Repetitive | 50 |
| T_{stg} T_j | Storage and Operating Junction Temperature Range | - 40 to 150 - 40 to 110 | $^\circ\text{C}$ $^\circ\text{C}$ |

| Symbol | Parameter | BTA/BTB 08- | | | | | Unit |
|-----------|---------------------------------------|-------------|------|------|------|------|------|
| | | 200A | 400A | 600A | 700A | 800A | |
| V_{DRM} | Repetitive Peak off-state Voltage (2) | 200 | 400 | 600 | 700 | 800 | V |

(1) $I_G = 250\text{ mA}$ di/dt = 1 A/ μs (2) $T_j = 110\text{ }^\circ\text{C}$.**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 | 5.1 | $^\circ\text{C/W}$ |
| $R_{th(j-c)}\text{ AC}$ | Junction to Case for 360 ° Conduction Angle ($F = 50\text{ Hz}$) | 3.8 | $^\circ\text{C/W}$ |

GATE CHARACTERISTICS (maximum values)

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

T-25-15

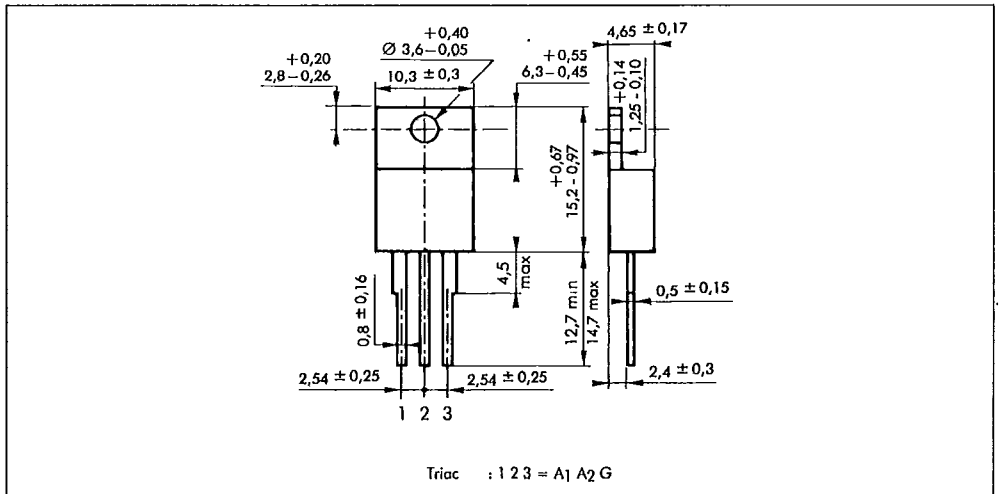
ELECTRICAL CHARACTERISTICS

| Symbol | Test Conditions | | | Quadrants | Min. | Typ. | Max. | Unit |
|---------------|--|-----------------------------------|------------------------------------|-------------|------|------|------|------------------|
| I_{GT} | $T_J = 25 \text{ }^\circ\text{C}$ Pulse Duration > 20 μs | $V_D = 12 \text{ V}$ | $R_L = 33 \text{ } \Omega$ | I-II-III | | | 10 | mA |
| | | | | IV | | | 25 | |
| V_{GT} | $T_J = 25 \text{ }^\circ\text{C}$ Pulse Duration > 20 μs | $V_D = 12 \text{ V}$ | $R_L = 33 \text{ } \Omega$ | I-II-III-IV | | | 1.5 | V |
| V_{GD} | $T_J = 110 \text{ }^\circ\text{C}$ | $V_D = V_{DRM}$ | $R_L = 3.3 \text{ k}\Omega$ | I-II-III-IV | 0.2 | | | V |
| I_H^* | $T_J = 25 \text{ }^\circ\text{C}$ | $I_T = 100 \text{ mA}$ | Gate Open | | | | 25 | mA |
| I_L | $T_J = 25 \text{ }^\circ\text{C}$ Pulse Duration > 20 μs | $V_D = 12 \text{ V}$ | $I_G = 50 \text{ mA}$ | I-III-IV | 25 | | | mA |
| | | | | II | 50 | | | |
| V_{TM}^* | $T_J = 25 \text{ }^\circ\text{C}$ | $I_{TM} = 11 \text{ A}$ | $t_p = 10 \text{ ms}$ | | | | 1.75 | V |
| I_{DRM}^* | V_{DRM} Specified | $T_J = 25 \text{ }^\circ\text{C}$ | $T_J = 110 \text{ }^\circ\text{C}$ | | | | 0.01 | mA |
| | | | | | | | 0.5 | |
| dv/dt^* | $T_J = 110 \text{ }^\circ\text{C}$ | Gate Open | | | 10 | | | V/ μs |
| | Linear Slope up to $V_D = 67 \% V_{DRM}$ | | | | | | | |
| $(dv/dt)_c^*$ | $T_C = 75 \text{ }^\circ\text{C}$ | $V_D = V_{DRM}$ | $I_T = 11 \text{ A}$ | | | 5 | | V/ μs |
| | $(di/dt)_c = 3.5 \text{ A/ms}$ | | | | | | | |
| t_{gt} | $T_J = 25 \text{ }^\circ\text{C}$ $I_G = 40 \text{ mA}$ | $V_D = V_{DRM}$ | $I_T = 11 \text{ A}$ | I-II-III-IV | | 2 | | μs |
| | | | | | | | | |
| | $di_G/dt = 0.45 \text{ A}/\mu\text{s}$ | | | | | | | |

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

PACKAGE MECHANICAL DATA

TO 220 AB Plastic



Cooling method : by conduction (method C)
 Marking : type number
 Weight : 2 g

T-25-15

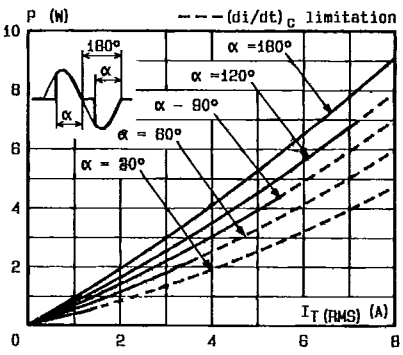


Fig.1 - Maximum mean power dissipation versus RMS on-state current (F = 60 Hz).

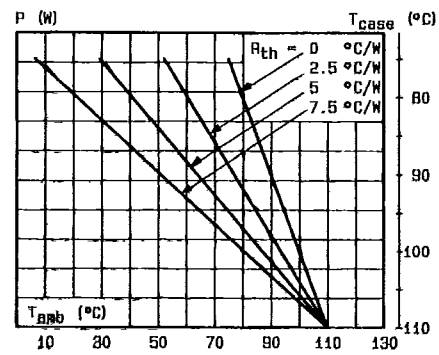


Fig.2 - Correlation between maximum mean power dissipation and maximum allowable temperatures (T_{amb} and T_{case}) for different thermal resistances heat sink + contact.

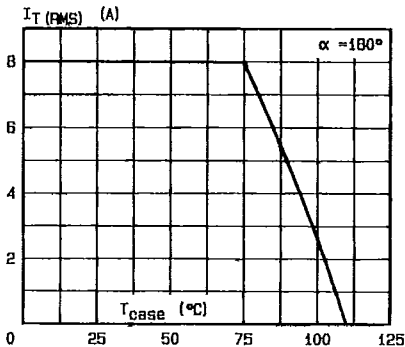


Fig.3 - RMS on-state current versus case temperature.

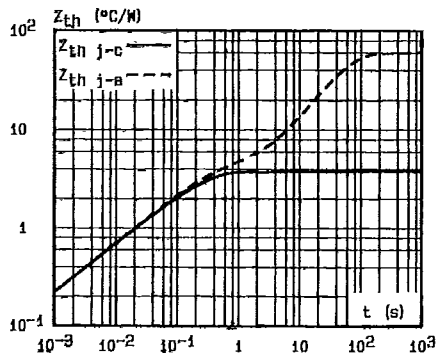


Fig.4 - Thermal transient impedance junction to case and junction to ambient versus pulse duration.

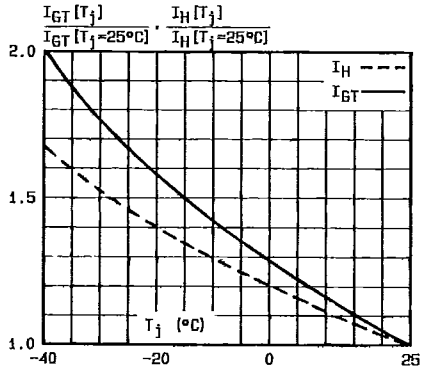


Fig.5 - Relative variation of gate trigger current and holding current versus junction temperature.

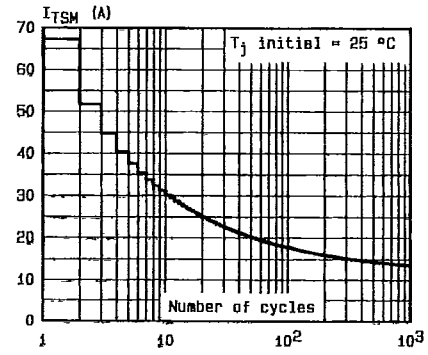


Fig.6 - Non repetitive surge peak on-state current versus number of cycles.

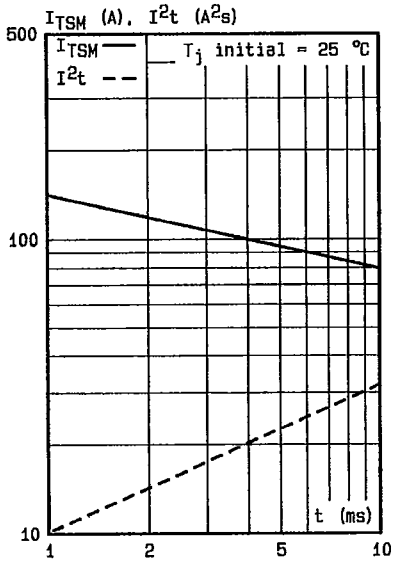


Fig.7 - Non repetitive surge peak on-state current for a sinusoidal pulse with width : $t \leq 10$ ms, and corresponding value of I^2t .

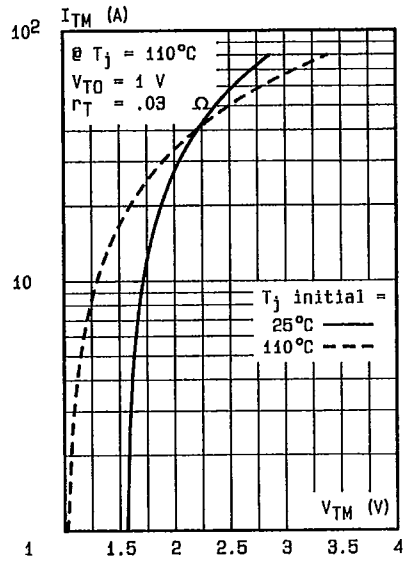


Fig.8 - On-state characteristics (maximum values).