

DESCRIPTION:

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

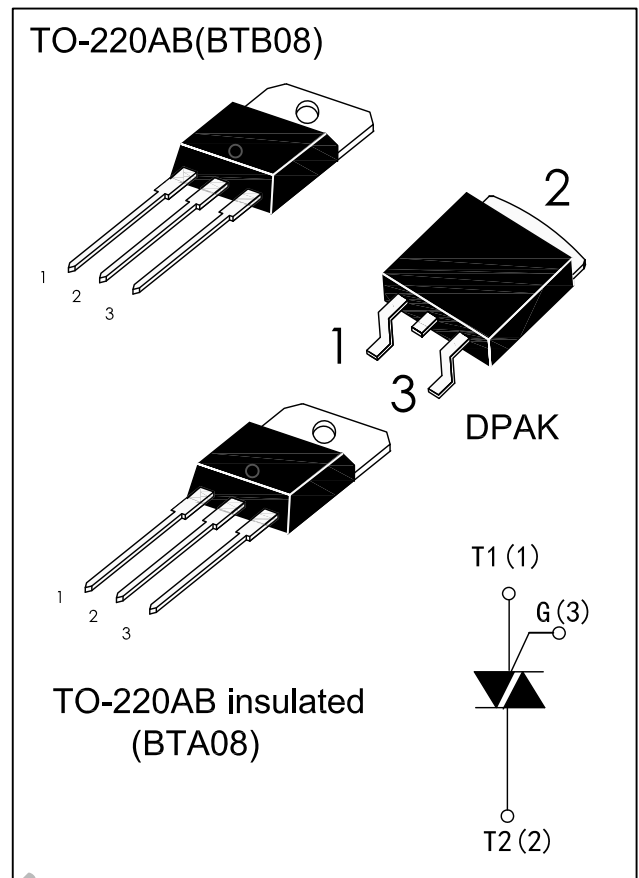
BTA08/BTB08 series triacs is suitable for general purpose AC switching. They can be used as an ON/OFF Function in applications such as static relays, heating regulation, induction motor starting circuits... or for phase control operation light dimmers, motorspeed controllers.

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} | ≤ 1.55 | V |



ABSOLUTE MAXIMUM RATINGS

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

ELECTRICAL CHARACTERISTICS (T_j=25°C unless otherwise specified)

● 3 Quadrants

| Symbol | Test Condition | Quadrant | | BTA08/BTB08 | | | Unit |
|----------------------|---|--------------|-------|-------------|-----|------|------|
| | | | | SW | CW | BW | |
| I _{GT} | V _D =12V R _L =30Ω | I - II - III | MAX. | 10 | 35 | 50 | mA |
| V _{GT} | | I - II - III | MAX. | 1.3 | | | V |
| V _{GD} | V _D =V _{DRM} R _L =3.3KΩ T _j =125°C | I - II - III | MIN.. | 0.2 | | | V |
| I _L | I _G =1.2I _{GT} | I - III | MAX. | 25 | 50 | 70 | mA |
| | | II | | 30 | 60 | 80 | |
| I _H | I _T =100mA | | MAX. | 15 | 35 | 50 | mA |
| dV/dt | V _D =67%V _{DRM} gate open T _j =125°C | | MIN. | 40 | 500 | 1000 | V/μs |
| (dl/dt) _c | (dV/dt) c=0.1V/μs T _j =125°C | | MIN. | 5.4 | --- | --- | A/ms |
| | (dV/dt) c=10V/μs T _j =125°C | | | 2.8 | --- | --- | |
| | Without snubber T _j =125°C | | | --- | 4.5 | 7.0 | |

● 4 Quadrants

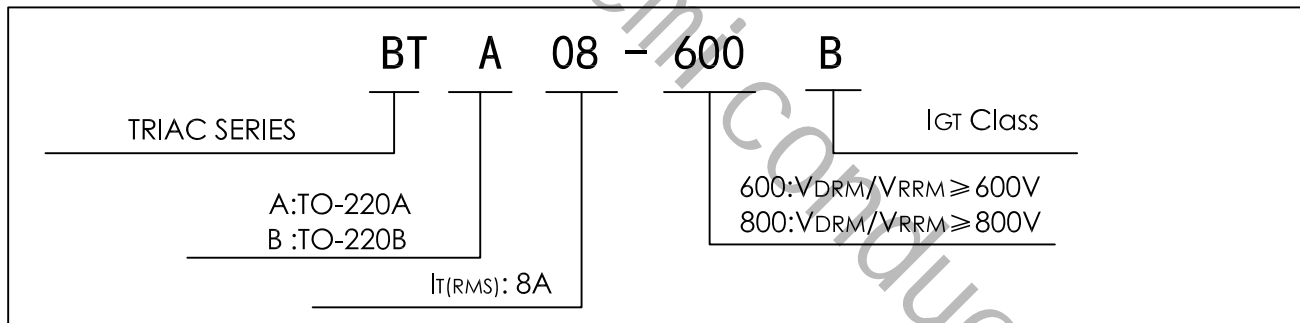
| Symbol | Test Condition | Quadrant | | BTA08/BTB08 | | Unit |
|----------------------|---|--------------------|------|-------------|-----------|------|
| | | | | C | B | |
| I _{GT} | V _D =12V R _L =30Ω | I - II - III IV | MAX. | 25 50 | 50 100 | mA |
| V _{GT} | | ALL | MAX. | 1.3 | | V |
| V _{GD} | V _D =V _{DRM} R _L =3.3KΩ T _j =125°C | ALL | MIN. | 0.2 | | V |
| I _L | I _G =1.2I _{GT} | I - III - IV | MAX. | 40 | 50 | mA |
| | | II | | 80 | 100 | |
| I _H | I _T =100mA | | MAX. | 25 | 50 | mA |
| dV/dt | V _D =67%V _{DRM} gate open T _j =125°C | | MIN. | 200 | 400 | V/μs |
| (dl/dt) _c | (dV/dt) c=0.1V/μs T _j =125°C | | MIN. | --- | --- | A/ms |
| | (dV/dt) c=10V/μs T _j =125°C | | | --- | --- | |
| | Without snubber T _j =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 | μA |
| I_{RRM} | $V_R=V_{RRM}$ | $T_j=125^\circ C$ | 1 | mA |

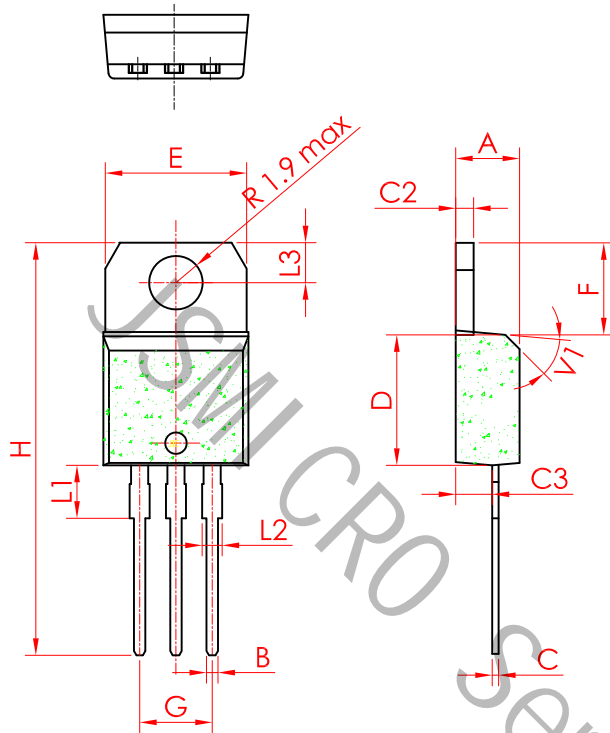
THERMAL RESISTANCES

| 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


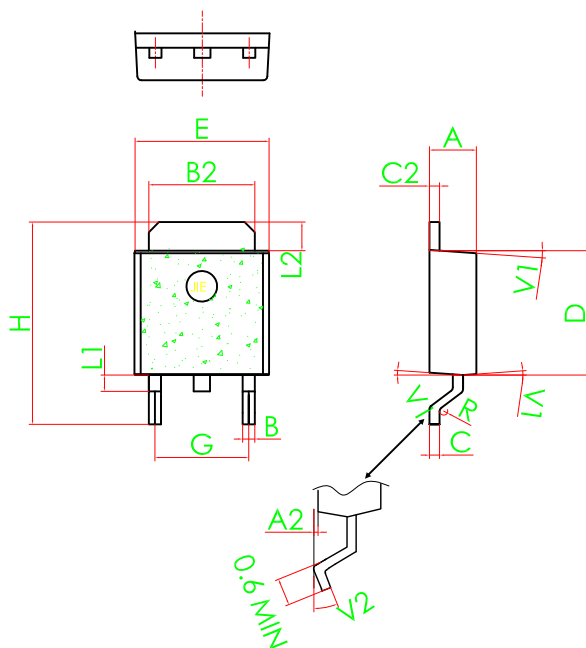
PACKAGE MECHANICAL DATA

TO-220AB



| Ref. | Dimensions | | | | | |
|------|-------------|------|------|--------|-------|-------|
| | Millimeters | | | Inches | | |
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| A | 4.4 | | 4.6 | 0.173 | | 1.181 |
| B | 0.61 | | 0.88 | 0.024 | | 0.034 |
| C | 0.49 | | 0.70 | 0.019 | | 0.027 |
| C2 | 1.23 | | 1.32 | 0.048 | | 0.051 |
| C3 | 2.4 | | 2.72 | 0.094 | | 0.107 |
| D | 8.6 | | 9.7 | 0.338 | | 0.382 |
| E | 10 | | 10.4 | 0.393 | | 0.409 |
| F | 6.2 | | 6.6 | 0.244 | | 0.259 |
| G | 4.8 | | 5.4 | 0.189 | | 0.213 |
| H | 28.0 | | 29.8 | 11.0 | | 11.7 |
| L1 | | 3.75 | | | 0.147 | |
| L2 | 1.14 | | 1.7 | 0.044 | | 0.066 |
| L3 | 2.65 | | 2.95 | 0.104 | | 0.116 |
| V1 | | 40° | | | 40° | |

DPAK



| Ref. | Dimensions | | | | | |
|------|-------------|------|------|--------|-------|-------|
| | Millimeters | | | Inches | | |
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| A | 2.2 | | 2.4 | 0.086 | | 0.095 |
| A2 | 0.03 | | 0.23 | 0.001 | | 0.009 |
| B | 0.55 | | 0.65 | 0.021 | | 0.026 |
| B2 | 5.2 | | 5.4 | 0.204 | | 0.212 |
| C | 0.45 | | 0.62 | 0.017 | | 0.024 |
| C2 | 0.48 | | 0.62 | 0.019 | | 0.024 |
| D | 6 | | 6.2 | 0.236 | | 0.244 |
| E | 6.4 | | 6.6 | 0.251 | | 0.259 |
| G | 4.40 | | 4.60 | 0.173 | | 0.181 |
| H | 9.35 | | 10.1 | 0.368 | | 0.397 |
| L1 | | 0.8 | | | 0.031 | |
| L2 | 1.37 | | 1.5 | 0.054 | | 0.059 |
| V1 | | 4° | | | 4° | |
| V2 | | 0° | 8° | | 0° | 8° |

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

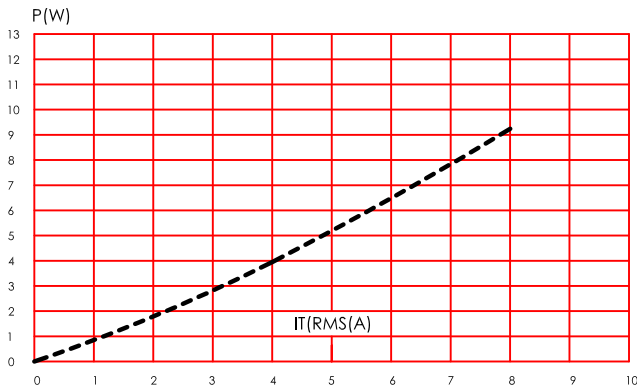


FIG.2: RMS on-state current versus case temperature (full cycle)

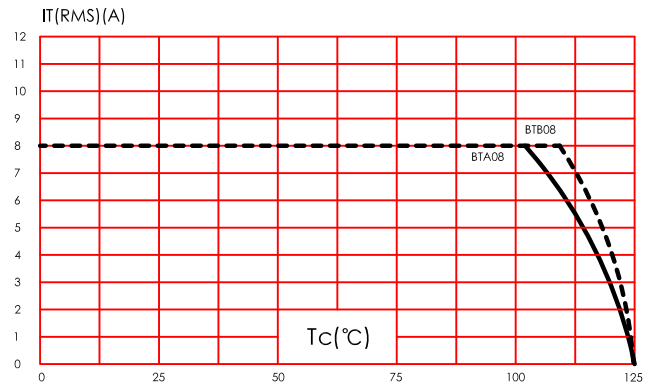


FIG.3: On-state characteristics (maximum values)

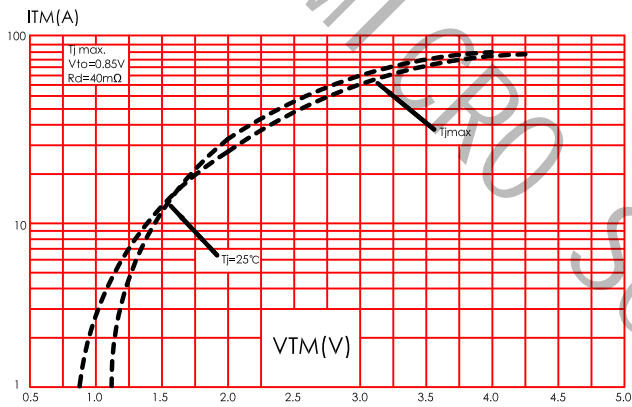


FIG.4: Surge peak on-state current versus number of cycles.

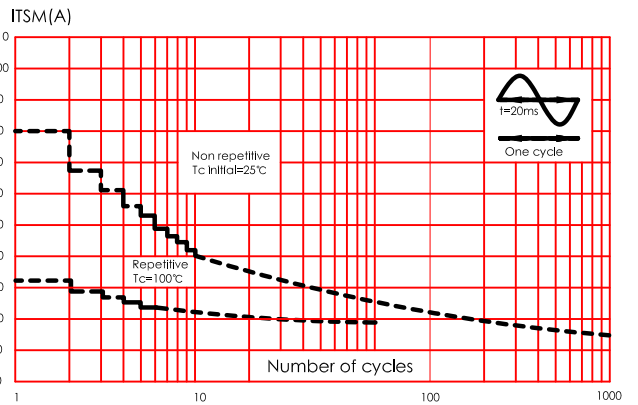


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10\text{ms}$, and corresponding value of I^2t

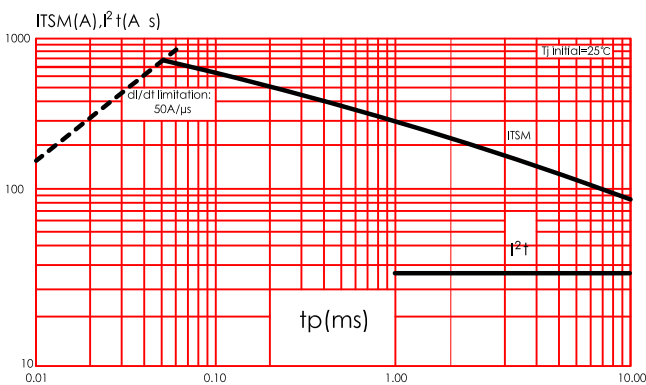


FIG.6: Relative variation of gate trigger current, holding current and latching current versus junction temperature (typical values).

