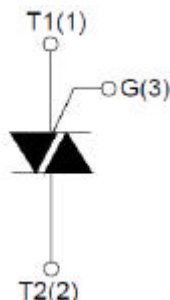
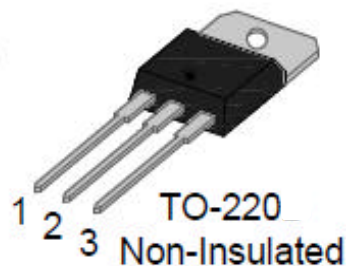


16A TRIACs



BTB16 - 600/800/1200

TO-220
Non Insulated
Plastic Package

BTB16 Series Triacs, with high ability to withstand the shock loading of large current, provide high dV/dt rate with strong resistance to electromagnetic interference. With high commutation performances, 3 Quadrants products especially recommended for use on Inductive Load.

ABSOLUTE MAXIMUM RATINGS

| PARAMETER | SYMBOL | VALUE | UNIT |
|--|--------------|------------------|------------------------|
| Repetitive Peak Off-State Voltage ($T_j=25^\circ\text{C}$) | V_{DRM} | 600 / 800 / 1200 | V |
| Repetitive Peak Reverse Voltage ($T_j=25^\circ\text{C}$) | V_{RRM} | 600 / 800 / 1200 | V |
| Non Repetitive Surge Peak Off-State Voltage | V_{DSM} | $V_{DRM} + 100$ | V |
| Non Repetitive Peak Reverse Voltage | V_{RSM} | $V_{RRM} + 100$ | V |
| RMS On-State Current ($T_c = 107^\circ\text{C}$) | $I_{T(RMS)}$ | 16 | A |
| Non Repetitive Surge Peak On-State Current (Full Cycle, $f = 50\text{MHz}$) | I_{TSM} | 160 | A |
| I^2t Value For Fusing ($t_p=10\text{ms}$) | I^2t | 128 | A^2s |
| Critical Rate of Rise of On-State Current ($I_G = 2 \times I_{GT}$) | di/dt | 50 | $\text{A}/\mu\text{s}$ |
| Peak Gate Current | I_{GM} | 4 | A |
| Average Gate Power Dissipation | $P_{G(AV)}$ | 1 | W |
| Peak Gate Power | P_{GM} | 5 | W |
| Storage Junction Temperature Range | T_{STG} | -40 to +150 | $^\circ\text{C}$ |
| Operating Junction Temperature Range | T_J | -40 to +125 | $^\circ\text{C}$ |

THERMAL RESISTANCE

| | | | |
|---|---------------|-----|---------------------------|
| Maximum Thermal Resistance Junction to case | $R_{th(j-c)}$ | 1.2 | $^\circ\text{C}/\text{W}$ |
|---|---------------|-----|---------------------------|

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

Quadrants I - II - III (V_{DRM} / V_{RRM} : 600/800V)

| PARAMETER | TEST CONDITION | SYMBOL | QUADRANT | VALUES | | | | UNIT |
|--|---|-----------------|--------------|------------------|-------|-------|-------|------|
| | | | | BTB16 - 600 /800 | | | | |
| | | | | BW | CW | SW | TW | |
| Gate Trigger Current | V _D =12V, R _L =33Ω | I _{GT} | I - II - III | < 50 | < 35 | < 10 | < 5 | mA |
| Gate Trigger Voltage | | V _{GT} | I - II - III | <1.3 | | | | |
| Off-State Gate Voltage | V _D =V _{DRM} , T _j =125°C, R _L = 3.3KΩ | V _{GD} | I - II - III | >0.2 | | | | V |
| Latching Current | I _G =1.2 X I _{GT} | I _L | I - III | < 70 | < 50 | < 30 | < 15 | mA |
| | | | II | < 80 | < 60 | < 40 | < 20 | |
| Holding Current | I _T = 100mA | I _H | | < 60 | < 40 | < 25 | < 15 | mA |
| Critical Rate of Rise of Off-State Voltage | V _D = 2/3 V _{DRM} , Gate Open, T _j =125°C | dV/dt | | > 1000 | > 500 | > 200 | > 100 | V/μs |

Quadrant IV (V_{DRM} / V_{RRM} : 600/800V)

| PARAMETER | TEST CONDITION | SYMBOL | QUADRANT | VALUES | | UNIT |
|--|---|-----------------|--------------|------------------|-------|------|
| | | | | BTB16 - 600 /800 | | |
| | | | | B | C | |
| Gate Trigger Current | V _D =12V, R _L =33Ω | I _{GT} | I - II - III | < 50 | < 25 | mA |
| | | | IV | < 70 | < 50 | |
| Gate Trigger Voltage | | V _{GT} | ALL | <1.5 | | V |
| Off-State Gate Voltage | V _D =V _{DRM} , T _j =125°C, R _L = 3.3KΩ | V _{GD} | ALL | >0.2 | | V |
| Latching Current | I _G =1.2 X I _{GT} | I _L | I - III - IV | < 70 | < 50 | mA |
| | | | II | < 100 | < 80 | |
| Holding Current | I _T = 100mA | I _H | | < 60 | < 40 | mA |
| Critical Rate of Rise of Off-State Voltage | V _D = 2/3 V _{DRM} , Gate Open, T _j =125°C | dV/dt | dV/dt | > 500 | > 200 | V/μs |

Quadrants I - II - III ($V_{DRM} / V_{RRM} : 1200V$)

| PARAMETER | TEST CONDITION | SYMBOL | QUADRANT | VALUES | | UNIT |
|--|--|----------|--------------|--------------|--|------------|
| | | | | BTB16 - 1200 | | |
| Gate Trigger Current | $V_D=12V, R_L=33\Omega$ | I_{GT} | I - II - III | < 50 | | mA |
| Gate Trigger Voltage | | V_{GT} | I - II - III | <1.5 | | V |
| Off-State Gate Voltage | $V_D=V_{DRM}, T_j=125^\circ C, R_L = 3.3K\Omega$ | V_{GD} | I - II - III | >0.2 | | V |
| Latching Current | $I_G=1.2 \times I_{GT}$ | I_L | I - III | < 70 | | mA |
| | | | II | < 90 | | |
| Holding Current | $I_T = 100mA$ | I_H | | < 60 | | mA |
| Critical Rate of Rise of Off-State Voltage | $V_D = 2/3 V_{DRM}, \text{Gate Open}, T_j=125^\circ C$ | dV/dt | dV/dt | > 1500 | | V/ μs |

STATIC CHARACTERISTICS

| PARAMETER | TEST CONDITION | SYMBOL | | VALUE | | | UNIT |
|---------------------------|--------------------------------|-----------|---------------------|-------|-----|------|---------|
| | | | | BTB16 | | | |
| | | | | 600 | 800 | 1200 | |
| On-State Voltage | $I_{TM}=22.5A, t_p=380\mu s$ | V_{TM} | $T_J=25^\circ C$ | <1.5 | | | V |
| Off-State Leakage Current | $V_D = V_{DRM}, V_R = V_{RRM}$ | I_{DRM} | $T_J = 25^\circ C$ | <5 | <5 | <10 | μA |
| | | I_{DRM} | $T_J = 125^\circ C$ | <2 | <2 | <1 | mA |

CHARACTERISTICS CURVES

FIG.1 Maximum power dissipation versus RMS on-state current

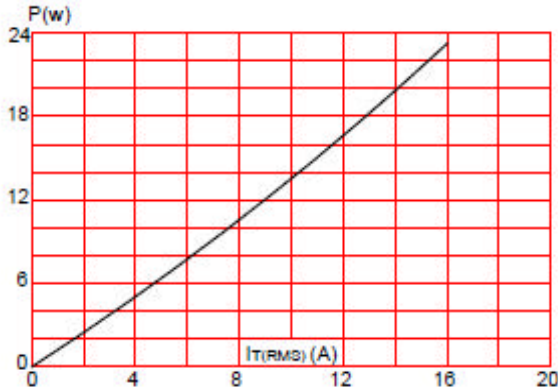


FIG.3: Surge peak on-state current versus number of cycles

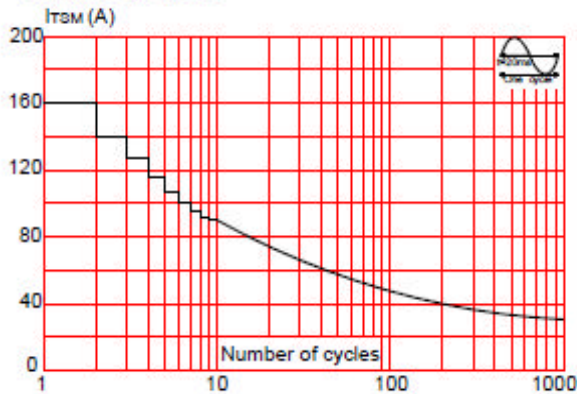


FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20ms$, and corresponding value of I^2t ($di/dt < 50A/\mu s$)

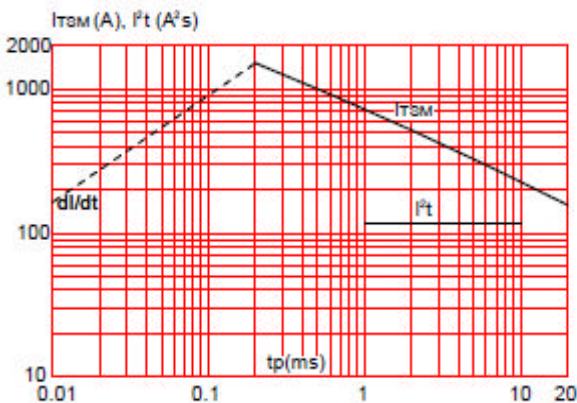


FIG.2: RMS on-state current versus case temperature

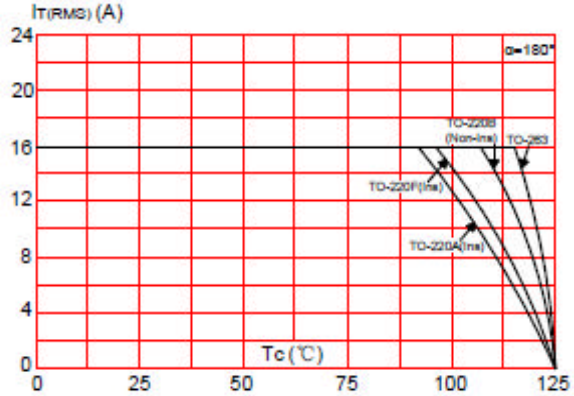


FIG.4: On-state characteristics (maximum values)

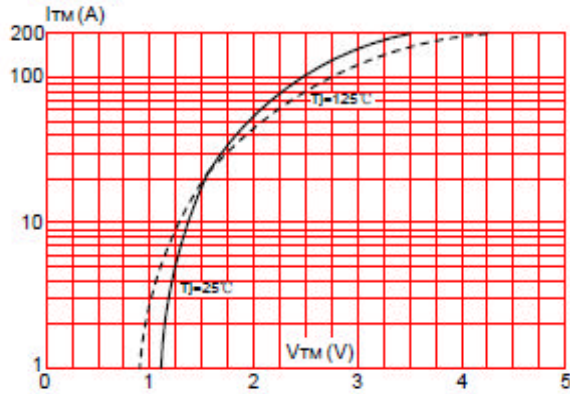
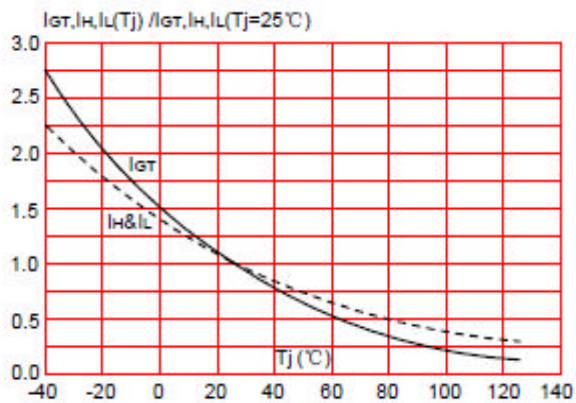
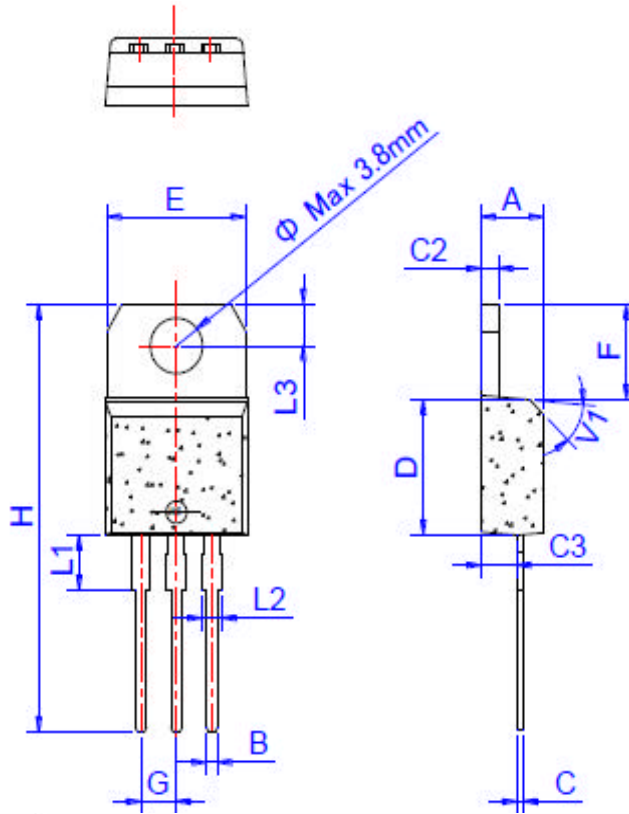


FIG.6: Relative variations of gate trigger current, holding current and latching current versus junction temperature



TO-220 PACKAGE OUTLINE AND DIMENSION



| Ref. | Dimensions | | | | | |
|------|-------------|------|------|--------|-------|-------|
| | Millimeters | | | Inches | | |
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| A | 4.40 | | 4.60 | 0.173 | | 0.181 |
| B | 0.61 | | 0.88 | 0.024 | | 0.035 |
| C | 0.46 | | 0.70 | 0.018 | | 0.028 |
| C2 | 1.21 | | 1.32 | 0.048 | | 0.052 |
| C3 | 2.40 | | 2.72 | 0.094 | | 0.107 |
| D | 8.60 | | 9.70 | 0.339 | | 0.382 |
| E | 9.60 | | 10.4 | 0.378 | | 0.409 |
| F | 6.20 | | 6.60 | 0.244 | | 0.260 |
| G | | 2.54 | | | 0.1 | |
| H | 28.0 | | 29.8 | 1.102 | | 1.173 |
| L1 | | 3.75 | | | 0.148 | |
| L2 | 1.14 | | 1.70 | 0.045 | | 0.067 |
| L3 | 2.65 | | 2.95 | 0.104 | | 0.116 |
| V1 | | 45° | | | 45° | |



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2. In Europe, please dispose as per EU Directive 2002/96/EC on Waste Electrical and Electronic Equipment (WEEE).

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Telephone + 91-11-2579 6150, 4141 1112 Fax + 91-11-2579 5290, 4141 1119

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