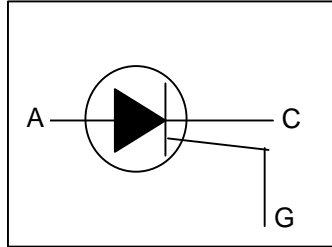
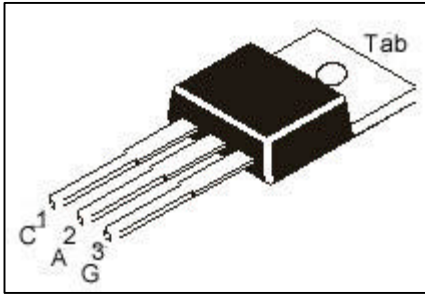


THYRISTORS

BT151



**TO-220
Plastic Package**

For use in Applications Requiring high Bidirectional Blocking Voltage Capability and high Thermal Cycling Performance. Typical Applications include Motor Control, Industrial and Domestic Lighting, Heating and Static Switching

ABSOLUTE MAXIMUM RATINGS

| PARAMETER | SYMBOL | TEST CONDITION | VALUE | | UNIT |
|--|--------------------|---|--------------|-----------|-------------|
| | | | BT151-500 | BT151-650 | |
| Repetitive Peak Off State Voltage | V_{DRM}, V_{RRM} | | *500 | *650 | V |
| Average On State Current | $I_{T(AV)}$ | half sine wave, $T_{mb} \leq 109^{\circ}C$ | 7.5 | | A |
| RMS On State Current | $I_{T(RMS)}$ | all conduction angles | 12 | | A |
| Non Repetitive Peak On State Current | I_{TSM} | half sine wave, $T_j=25^{\circ}C$ prior to surge $t=10ms$ | 100 | | A |
| | | $t=8.3ms$ | 110 | | A |
| I^2t for Fusing | I^2t | $t=10ms$ | 50 | | A^2s |
| Repetitive Rate of Rise of On State Current After Triggering | di_T/dt | $I_{TM}=20A, I_G=50mA,$ $di_G/dt=50mA/\mu s$ | 50 | | $A/\mu s$ |
| Peak Gate Current | I_{GM} | | 2.0 | | A |
| Peak Gate Voltage | V_{GM} | | 5.0 | | V |
| Peak Reverse Gate Voltage | V_{RGM} | | 5.0 | | V |
| Peak Gate Power | P_{GM} | | 5.0 | | W |
| Average Gate Power | $P_{G(AV)}$ | Over any 20ms period | 0.5 | | W |
| Storage Temperature | T_{stg} | | - 40 to +150 | | $^{\circ}C$ |
| Operating Junction Temperature | T_j | | 125 | | $^{\circ}C$ |

THERMAL RESISTANCE

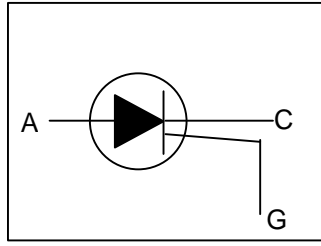
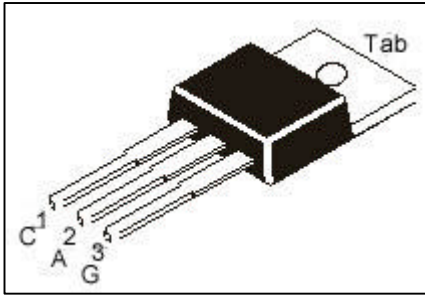
| | | | | |
|---------------------------|----------------|-------------|---------|-----|
| Junction to Mounting Base | $R_{th(j-mb)}$ | | 1.3 max | K/W |
| Junction to Ambient | $R_{th(j-a)}$ | in free air | 60 typ | K/W |

***Although not recommended, off state voltage upto 800V may be applied without damage, but the thyristor may switch to the on state. The rate of rise of current should not exceed 15A/ms**

THYRISTORS

BT151

**TO-220
Plastic Package**



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

| PARAMETER | SYMBOL | TEST CONDITION | MIN | MAX | UNIT |
|---------------------------|---------------------------------|---|------|------|------|
| Gate Trigger Current | I _{GT} | V _D =12V, I _T =0.1A | | 15 | mA |
| Latching Current | I _L | V _D =12V, I _{GT} =0.1A | | 40 | mA |
| Holding Current | I _H | V _D =12V, I _{GT} =0.1A | | 20 | mA |
| On State Voltage | V _T | I _T =23A | | 1.75 | V |
| Gate Trigger Voltage | V _{GT} | V _D =12V, I _T =0.1A V _D =V _{DRM} (max), I _T =0.1A, T _J =125°C | 0.25 | 1.5 | V |
| Off State Leakage Current | I _D , I _R | V _D = V _{DRM} (max), V _R =V _{RRM} (max) T _J =125°C | | 0.5 | mA |

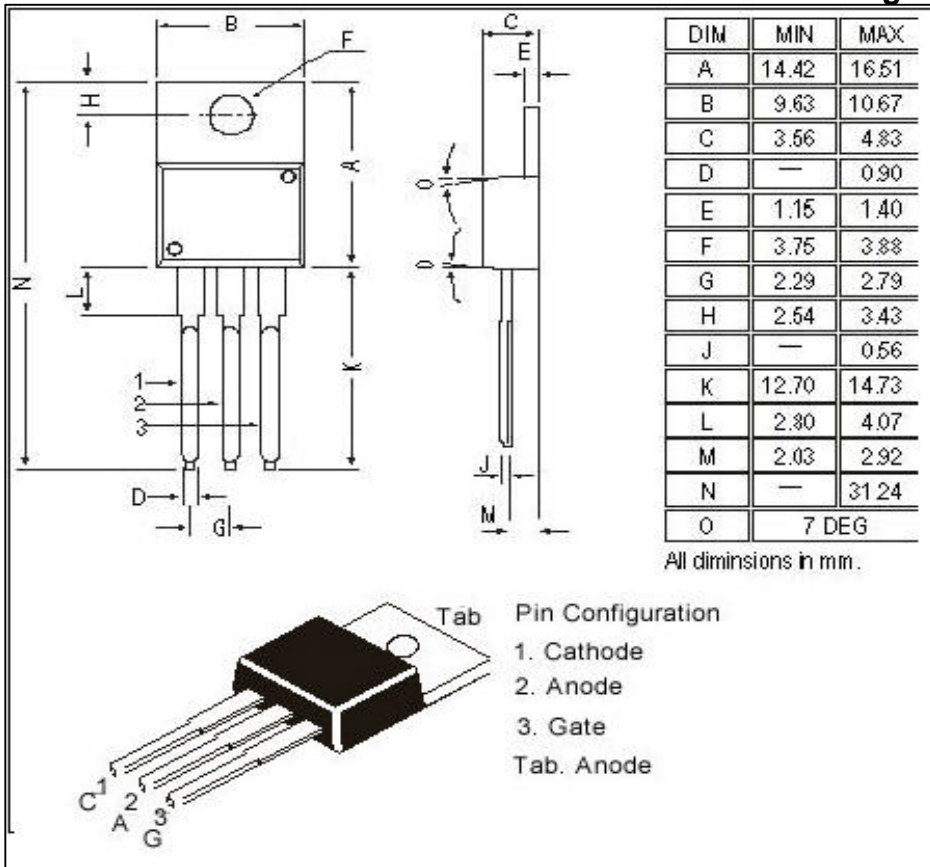
DYNAMIC CHARACTERISTICS

| PARAMETER | SYMBOL | TEST CONDITION | MIN | TYP | MAX | UNIT |
|--|---------------------|---|-----------|-----|-----|--------------|
| Critical Rate of Rise of Off State Voltage | dV _D /dt | V _{DM} =67% V _{DRM} (max), T _J =125°C, exponential waveform gate open circuit R _{GK} =100Ω | 50 200 | | | V/μs V/μs |
| Gate Controlled Turn On time | t _{gt} | I _{TM} =40A, V _D =V _{DRM} (max), I _G =0.1A, dI _G /dt=5A/μs | | 2.0 | | μs |
| Circuit Commutated Turn Off time | t _q | V _D =67% V _{DRM} (max), T _J =125°C, I _{TM} =20A, V _R =25V, dI _{TM} /dt=30A/μs, dV _D /dt=50V/μs, R _{GK} =100Ω | | 70 | | μs |

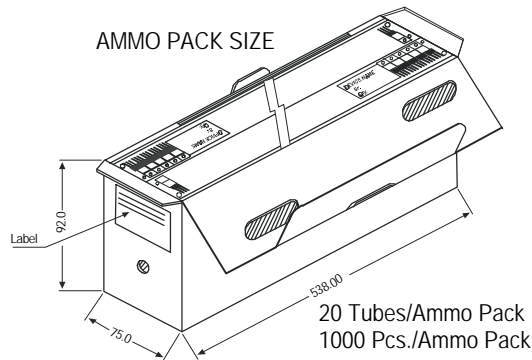
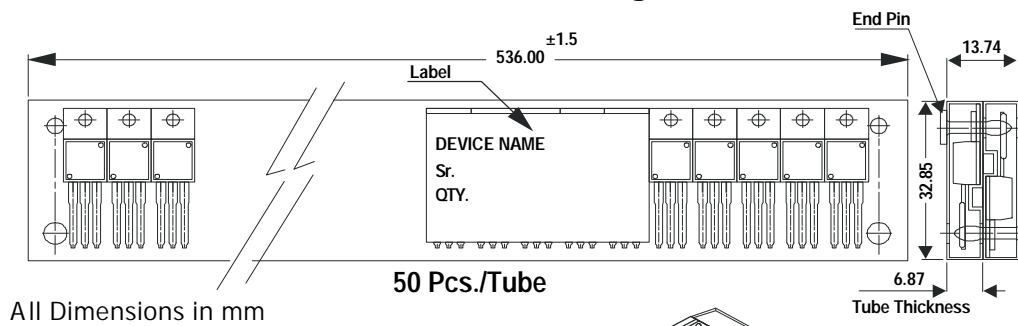
| Marking | BT151-500 | BT151-650 |
|--------------|-----------|-----------|
| | CDXX | CDXX |
| | BT151 | BT151 |
| | - 500 | - 650 |
| XX=Date Code | | |

BT151Rev020103E

TO-220 Plastic Package



TO-220 Tube Packing



Packing Detail

| PACKAGE | STANDARD PACK | | INNER CARTON BOX | | OUTER CARTON BOX | | |
|------------|-----------------|----------------|---------------------|------|-------------------|-------|--------|
| | Details | Net Weight/Qty | Size | Qty | Size | Qty | Gr Wt |
| TO-220 /FP | 200 pcs/polybag | 396 gm/200 pcs | 3" x 7.5" x 7.5" | 1.0K | 17" x 15" x 13.5" | 16.0K | 36 kgs |
| | 50 pcs/tube | 120 gm/50 pcs | 3.5" x 3.7" x 21.5" | 1.0K | 19" x 19" x 19" | 10.0K | 29 kgs |

Disclaimer

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