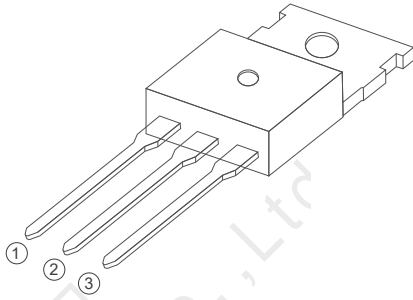


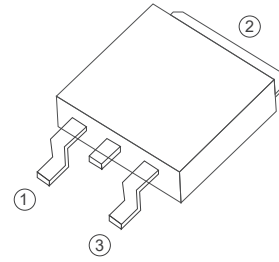
BT136 Series  
4A TRIACs  
4 Quadrants TRIACs



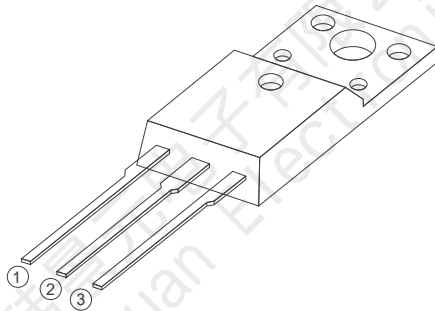
ShenZhenHanKingyuan  
Electronic CO.,Ltd



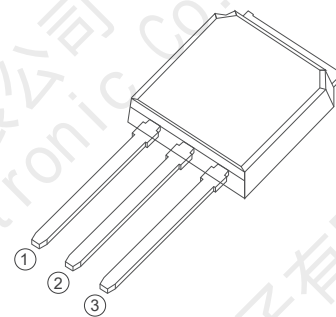
TO-220C



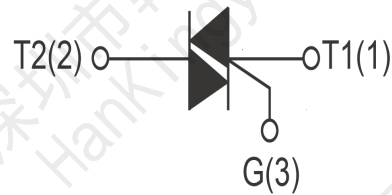
TO-252



TO-220F Insulated



TO-251



## FEATURES

- > IT(RMS): 4A
- > VGT: 1.5V
- > VDRM VRRM:600Vand800V

## APPLICATIONS

Washing machine,vacuums, massager,solid state relay, AC Motor speed regulation and so on.

### Absolute Maximum Ratings (T<sub>J</sub>=25°C unless otherwise specified)

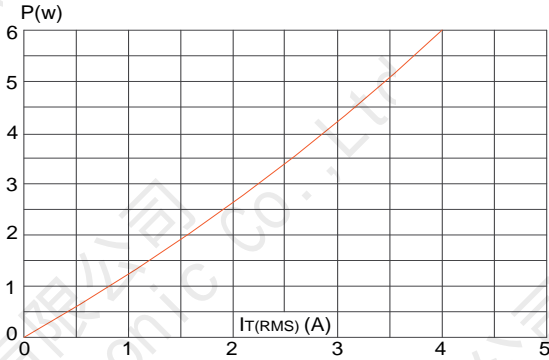
| Symbol         | Parameter                         | Conditions                    | Ratings | Unit             |
|----------------|-----------------------------------|-------------------------------|---------|------------------|
| VDRM<br>VRRM   | Repetitive Peak Off-State Voltage | BT136-600                     | 600     | V                |
|                |                                   | BT136-800                     | 800     |                  |
| IT(RMS)        | R.M.S On-State Current            | T <sub>c</sub> =110°C         | 4       | A                |
| ITSM           | Surge On-State Current            | tp=16.7ms/tp=10ms             | 25/27   | A                |
| I <sub>t</sub> | I <sub>t</sub> for fusing         | Tp=10ms                       | 3.1     | A <sup>2</sup> s |
| PG(AV)         | Average Gate Power Dissipation    | T <sub>J</sub> =125°C         | 1       | W                |
| IGM            | Peak Gate Current                 | tp=20us T <sub>J</sub> =125°C | 2       | A                |
| T <sub>J</sub> | Operating Junction Temperature    |                               | ~40~125 | °C               |
| TSTG           | Storage Temperature               |                               | ~40~150 | °C               |

### Electrical Characteristics (T<sub>J</sub>=25°C unless otherwise specified)

| Symbol          | Parameter                                     | Test Conditions                                                        | Value      |     |     |     | Unit  |    |
|-----------------|-----------------------------------------------|------------------------------------------------------------------------|------------|-----|-----|-----|-------|----|
|                 |                                               |                                                                        | D          | E   | F   | G   |       |    |
| IDRM            | Repetitive Peak Off-State Current             | T <sub>J</sub> =25°C                                                   | ≤10        |     |     |     | uA    |    |
|                 |                                               | T <sub>J</sub> =125°C                                                  | ≤0.5       |     |     |     | mA    |    |
| IRRM            | Repetitive Peak Reverse Current               | T <sub>J</sub> =25°C                                                   | ≤10        |     |     |     | uA    |    |
|                 |                                               | T <sub>J</sub> =125°C                                                  | ≤0.5       |     |     |     | mA    |    |
| V <sub>TM</sub> | Forward "on" voltage                          | I <sub>T</sub> =5A tp=380us                                            | ≤1.7       |     |     |     | V     |    |
| V <sub>GD</sub> | gate non-trigger voltage                      | V <sub>D</sub> =12V, T <sub>J</sub> =125°C                             | ≥0.2       |     |     |     | V     |    |
| I <sub>H</sub>  | Holding current                               | I <sub>T</sub> =100mA                                                  | ≤10        | ≤25 | ≤30 | ≤60 | mA    |    |
| V <sub>GT</sub> | Gate trigger voltage                          | V <sub>D</sub> =12V                                                    | ≤1.5       |     |     |     | V     |    |
| IGT             | Gate trigger current                          | V <sub>D</sub> =12V, I <sub>GT</sub> =0.1A                             | I, II, III | 5   | 10  | 25  | 50    | mA |
|                 |                                               |                                                                        | IV         | 10  | 25  | 70  | 100   | mA |
| di/dt           | Critical-rate of rise of commutation current. | I <sub>T</sub> =6A, I <sub>GT</sub> =0.2A, dI <sub>G</sub> /dt=0.2A/us | ≥50        |     |     |     | A /us |    |
|                 |                                               |                                                                        | ≥10        |     |     |     | A /us |    |
| dv/dt           | Critical-rate of rise of commutation voltage  | T <sub>J</sub> =125°C<br>V <sub>D</sub> =2/3V <sub>DRM</sub> Gate      | 5          | 10  | 50  | 200 | V/us  |    |

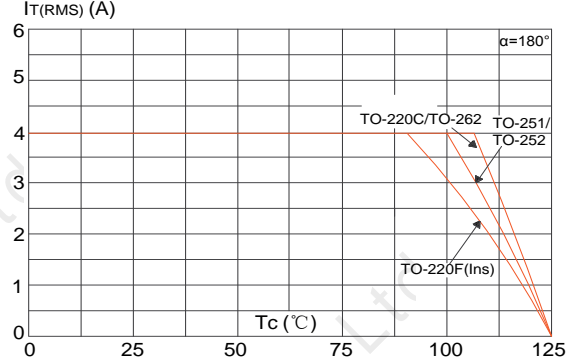
**FIG1**

Maximum power dissipation versus RMS on-state current



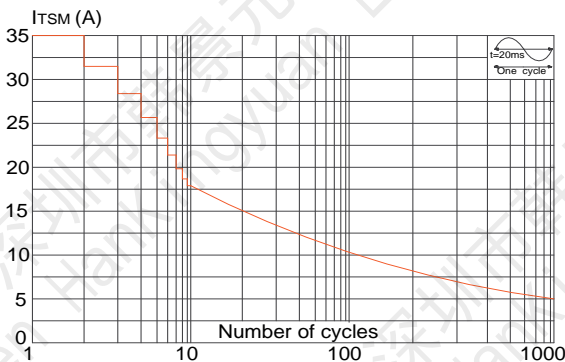
**FIG2**

RMS on-state current versus case temperature



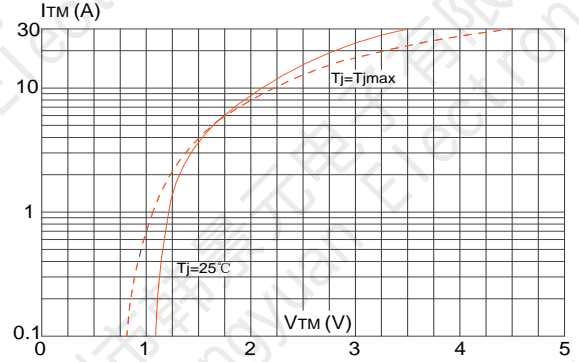
**FIG3**

Surge peak on-state current versus number of cycles



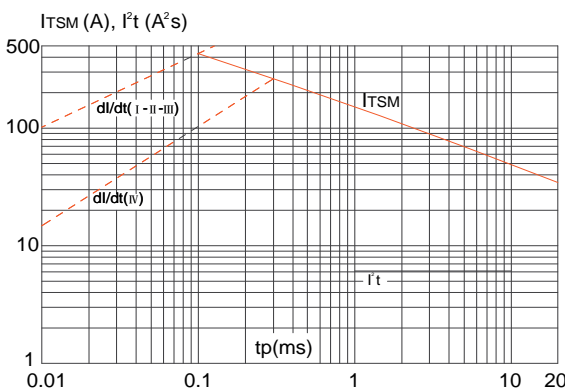
**FIG4**

On-state characteristics (maximum values)



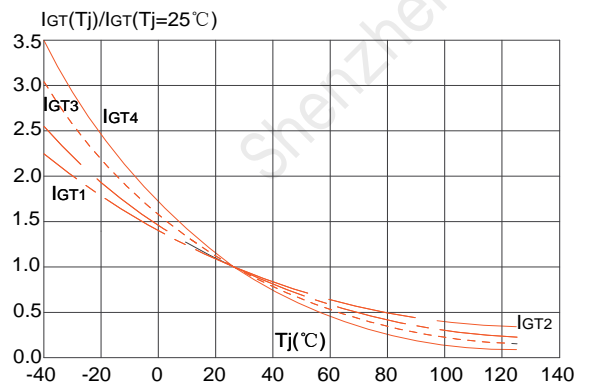
**FIG5**

Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 20ms$ , and corresponding value of  $I^2t$  ( $di/dt < 100A/\mu s$ )



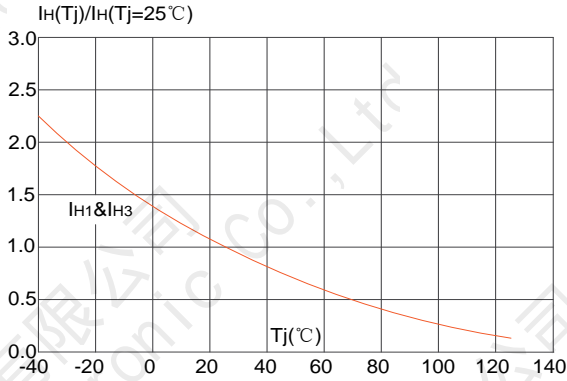
**FIG6**

Relative variations of gate trigger current, holding current and latching current versus junction temperature



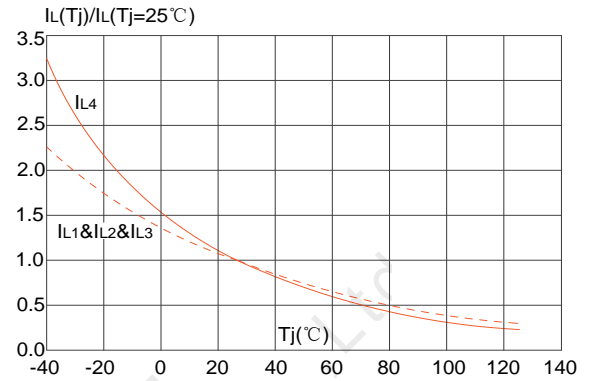
**FIG7**

**FIG.7:** Relative variations of holding current versus junction temperature

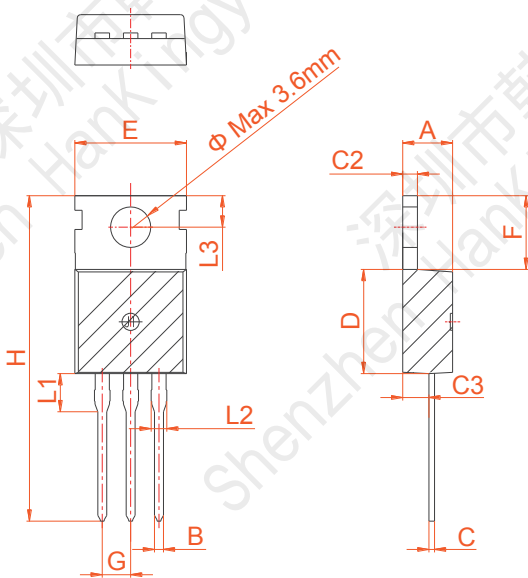


**FIG8**

**FIG.8:** Relative variations of latching current versus junction temperature



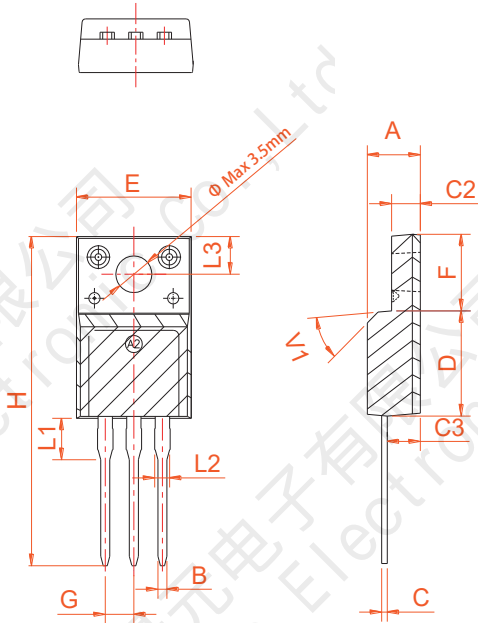
**PACKAGE MECHANICAL DATA**



TO-220C

| Ref. | Dimensions  |      |      |        |       |       |
|------|-------------|------|------|--------|-------|-------|
|      | Millimeters |      |      | Inches |       |       |
|      | Min.        | Typ. | Max. | Min.   | Typ.  | Max.  |
| A    | 4.40        |      | 4.60 | 0.173  |       | 0.181 |
| B    | 0.70        |      | 0.90 | 0.028  |       | 0.035 |
| C    | 0.45        |      | 0.60 | 0.018  |       | 0.024 |
| C2   | 1.23        |      | 1.32 | 0.048  |       | 0.052 |
| C3   | 2.20        |      | 2.60 | 0.087  |       | 0.102 |
| D    | 8.90        |      | 9.90 | 0.350  |       | 0.390 |
| E    | 9.90        |      | 10.3 | 0.390  |       | 0.406 |
| F    | 6.30        |      | 6.90 | 0.248  |       | 0.272 |
| G    |             | 2.54 |      |        | 0.1   |       |
| H    | 28.0        |      | 29.8 | 1.102  |       | 1.173 |
| L1   |             | 3.39 |      |        | 0.133 |       |
| L2   | 1.14        |      | 1.70 | 0.045  |       | 0.067 |
| L3   | 2.65        |      | 2.95 | 0.104  |       | 0.116 |
| Φ    |             | 3.6  |      |        | 0.142 |       |

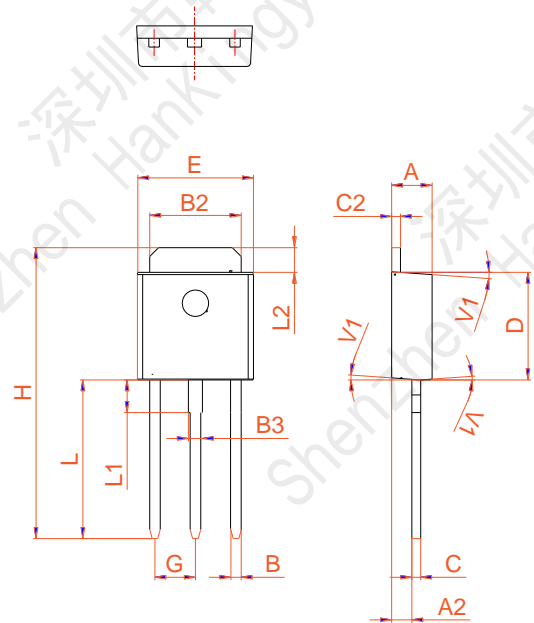
**PACKAGE MECHANICAL DATA**



TO-220F Ins

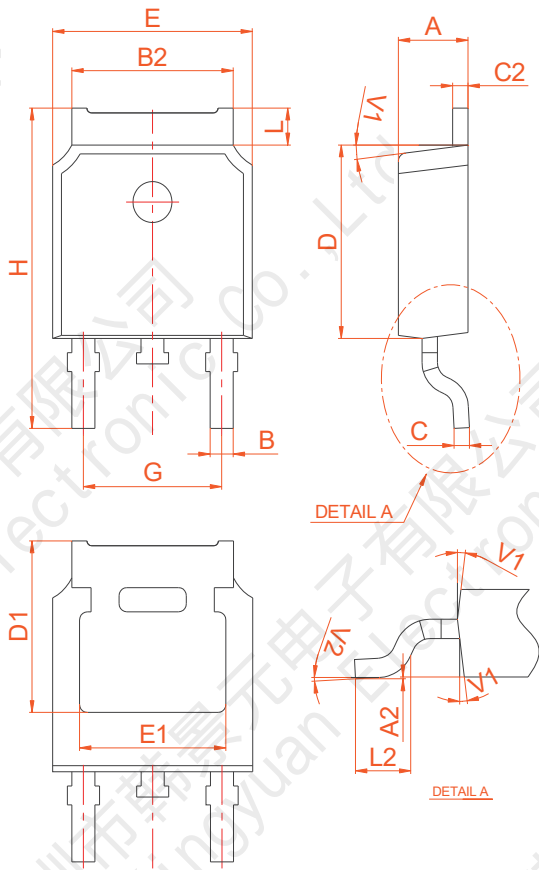
| Ref. | Dimensions  |      |      |        |       |       |
|------|-------------|------|------|--------|-------|-------|
|      | Millimeters |      |      | Inches |       |       |
|      | Min.        | Typ. | Max. | Min.   | Typ.  | Max.  |
| A    | 4.50        |      | 4.90 | 0.177  |       | 0.193 |
| B    | 0.74        | 0.80 | 0.83 | 0.029  | 0.031 | 0.033 |
| C    | 0.47        |      | 0.65 | 0.019  |       | 0.026 |
| C2   | 2.45        |      | 2.75 | 0.096  |       | 0.108 |
| C3   | 2.60        |      | 3.00 | 0.102  |       | 0.118 |
| D    | 8.80        |      | 9.30 | 0.346  |       | 0.366 |
| E    | 9.80        |      | 10.4 | 0.386  |       | 0.410 |
| F    | 6.40        |      | 6.80 | 0.252  |       | 0.268 |
| G    |             | 2.54 |      |        | 0.1   |       |
| H    | 28.0        |      | 29.8 | 1.102  |       | 1.173 |
| L1   |             | 3.63 |      |        | 0.143 |       |
| L2   | 1.14        |      | 1.70 | 0.045  |       | 0.067 |
| L3   |             | 3.30 |      |        | 0.130 |       |
| V1   |             | 45°  |      |        | 45°   |       |

| Ref. | Dimensions  |      |      |        |       |       |
|------|-------------|------|------|--------|-------|-------|
|      | Millimeters |      |      | Inches |       |       |
|      | Min.        | Typ. | Max. | Min.   | Typ.  | Max.  |
| A    | 2.20        |      | 2.40 | 0.086  |       | 0.095 |
| A2   | 0.90        |      | 1.20 | 0.035  |       | 0.047 |
| B    | 0.55        |      | 0.65 | 0.022  |       | 0.026 |
| B2   | 5.10        |      | 5.40 | 0.200  |       | 0.213 |
| B3   | 0.76        |      | 0.85 | 0.030  |       | 0.033 |
| C    | 0.45        |      | 0.62 | 0.018  |       | 0.024 |
| C2   | 0.48        |      | 0.62 | 0.019  |       | 0.024 |
| D    | 6.00        |      | 6.20 | 0.236  |       | 0.244 |
| E    | 6.40        |      | 6.70 | 0.252  |       | 0.264 |
| G    |             | 2.30 |      |        | 0.091 |       |
| H    | 16.0        |      | 17.0 | 0.630  |       | 0.669 |
| L    | 8.90        |      | 9.40 | 0.350  |       | 0.370 |
| L1   | 1.80        |      | 1.90 | 0.071  |       | 0.075 |
| L2   | 1.37        |      | 1.50 | 0.054  |       | 0.059 |
| V1   |             | 4°   |      |        | 4°    |       |



TO-251

**PACKAGE MECHANICAL DATA**



TO-252

| Ref. | Dimensions  |      |      |        |       |       |
|------|-------------|------|------|--------|-------|-------|
|      | Millimeters |      |      | Inches |       |       |
|      | Min.        | Typ. | Max. | Min.   | Typ.  | Max.  |
| A    | 2.20        |      | 2.40 | 0.086  |       | 0.095 |
| A2   | 0.03        |      | 0.23 | 0.001  |       | 0.009 |
| B    | 0.55        |      | 0.65 | 0.022  |       | 0.026 |
| B2   | 5.10        |      | 5.40 | 0.200  |       | 0.213 |
| C    | 0.45        |      | 0.55 | 0.018  |       | 0.022 |
| C2   | 2.70        |      | 2.90 | 0.106  |       | 0.114 |
| D    | 6.00        |      | 6.20 | 0.236  |       | 0.244 |
| E    | 6.40        |      | 6.70 | 0.252  |       | 0.264 |
| G    | 4.40        |      | 4.70 | 0.173  |       | 0.185 |
| H    | 9.35        |      | 10.6 | 0.368  |       | 0.417 |
| L1   | 1.30        |      | 1.70 | 0.051  |       | 0.067 |
| L2   | 1.37        |      | 1.50 | 0.054  |       | 0.059 |
| L3   |             | 0.8  |      |        | 0.031 |       |
| L4   |             | 0.8  |      |        | 0.031 |       |
| V1   |             | 4°   |      |        | 4°    |       |
| V2   | 0°          |      | 8°   | 0°     |       | 8°    |

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