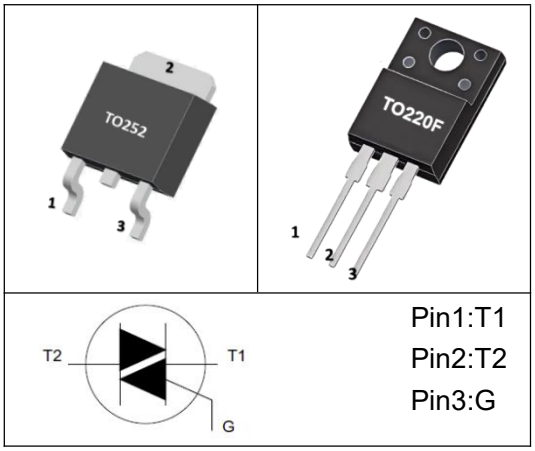
# BT136

*TRIAC*

## ■ GENERAL DESCRIPTION

Passivated, sensitive gate triacs in a plastic envelope, suitable for surface mounting, intended for use in general purpose bidirectional switching and phase control applications, where high sensitivity is required in all four quadrants.




## ■ MARKING


: HY LOGO
BT136=Device Code
800E:$V_{DRM}/V_{RRM}$=800V
XXXX=Date Code
Solid Dot=Green molding compound

## ■ ABSOLUTE MAXIMUM RATINGS (TC=25°C, unless otherwise specified)

| SYMBOL | PARAMETER | | TEST CONDITION | VALUE | UNIT |
|---|---|---|---|---|---|
| $V_{DRM}$ | Repetitive Peak off-state voltage | BT136-600 | ($T_j$=25℃) | 600 | V |
| | | BT136-800 | | 800 | |
| $I_{T(RMS)}$ | RMS forword current | | | 4 | A |
| $I_{TSM}$ | Non-repetitive peak on-state current | | t=20ms | 25 | A |
| | | | t=16.7ms | 27 | |
| $I^2t$ | $I^2t$ for fusing | | t=10ms | 3.1 | $A^2S$ |
| $V_{GM}$ | Peak gate voltage | | | 5 | V |
| $I_{GM}$ | Peak gate current | | | 2 | A |
| $P_{GM}$ | Peak gate Power | | | 5 | W |
| $P_{G(AV)}$ | Average gate Power | | | 0.5 | W |
| Tj | Junction Temperature | | | 125 | ℃ |
| Tstg | Storage Temperature Range | | | -40 to +150 | ℃ |

Notes: 1.Absolute maximum ratings are those values beyond which the device could be permanently damaged.
Absolute maximum ratings are stress ratings only and functional device operation is not implied.
2.Although not recommended, off-state voltages up to 800V may be applied without damage, but the traic may switch to the on-state. The rate of rise of current should not exceed 3A/μs.

# BT136

*TRIAC*

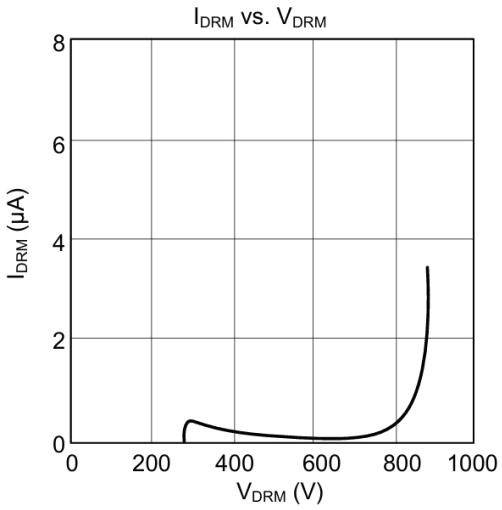
## ■ THERMAL DATA

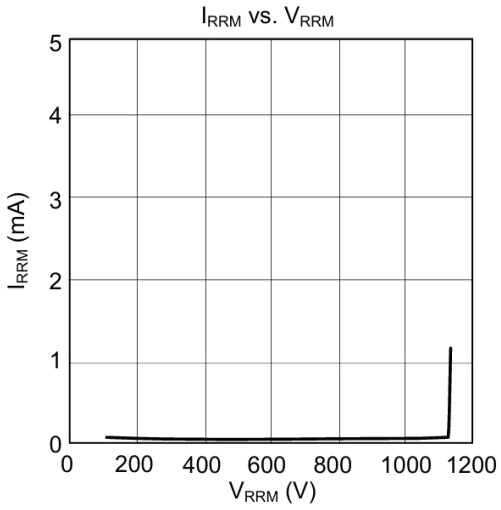
| PARAMETER | | | SYMBOL | RATINGS | UNIT |
|---|---|---|---|---|---|
| Junction to Ambient | Pcb Mounted | TO-220F | θJA | 60 | K/W |
| | | TO-252 | | 75 | K/W |
| Junction to Mounting Base | Full Cycle | | θJB | 3.0 | K/W |
| | Half Cycle | | | 3.7 | K/W |

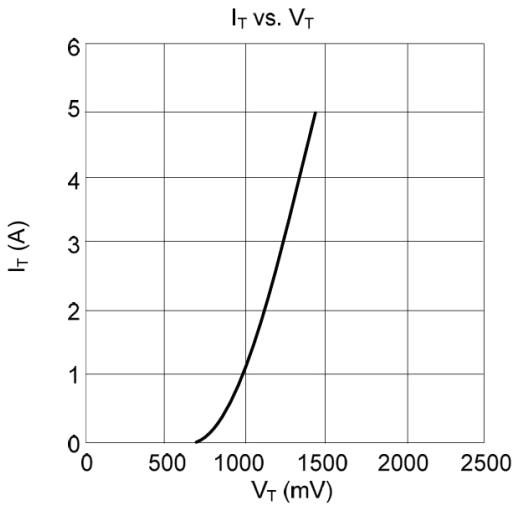
## ■ ELECTRICAL CHARACTERISTICS (TJ=25°C, unless otherwise specified)

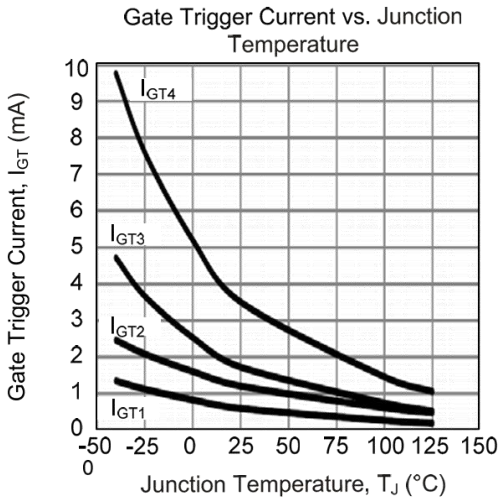
| PARAMETER | SYMBOL | TEST CONDITIONS | | MIN | TYP | MAX | UNIT |
|---|---|---|---|---|---|---|---|
| **STATIC** | | | | | | | |
| Gate trigger current | $I_{GT}$ | VD=12V; $I_T$=0.1A | T2+, G+ | | 2.5 | 10 | mA |
| | | | T2+, G - | | 4 | 10 | |
| | | | T2-, G - | | 5 | 10 | |
| | | | T2-, G+ | | 11 | 25 | |
| Gate trigger voltage | $I_L$ | VD=12V; $I_{GT}$=0.1A | T2+, G+ | | 3 | 15 | mA |
| | | | T2+, G - | | 10 | 20 | |
| | | | T2-, G - | | 2.5 | 15 | |
| | | | T2-, G+ | | 4 | 20 | |
| Holding current | $I_H$ | $V_D$=12V,$I_{GT}$=0.1A | | | 2.2 | 15 | mA |
| On-State Voltage | $V_T$ | $I_T$=5A | | | 1.4 | 1.7 | V |
| Gate Trigger Voltage | $V_{GT}$ | $V_D$=12V,$I_T$=0.1A | | | 0.7 | 1.5 | V |
| | | $V_D$=400V,$I_T$=0.1A;$T_j$=125℃ | | 0.25 | 0.4 | | |
| Off-state Leakage Current | $I_D$ | VD=VDRM(max) ,Tj=125℃ | | | 0.1 | 0.5 | mA |
| **DYNAMIC** | | | | | | | |
| Critical Rate of Rise of off-state Voltage | $dV_D/dt$ | $V_{DM}$=67%$V_{DRM(max)}$,$T_j$=125° Gate open circuit | | | 50 | | V/μs |
| Gate Controlled Turn-on Time | $t_{gt}$ | ITM=6A,VD=VDRM(max) IG=0.1A dIg/dt=5A/μs | | | 2 | | μs |

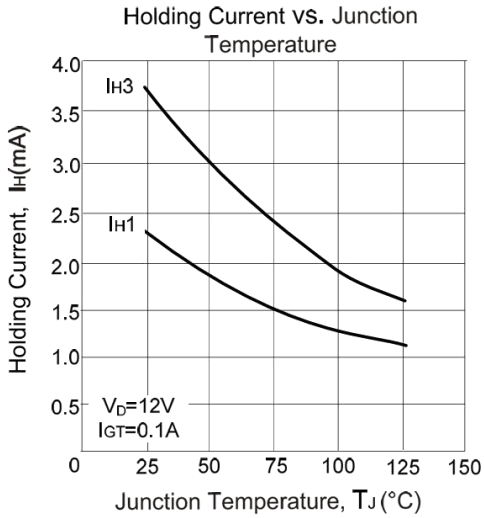
## ■ TYPICAL CHARACTERISTICS (1)

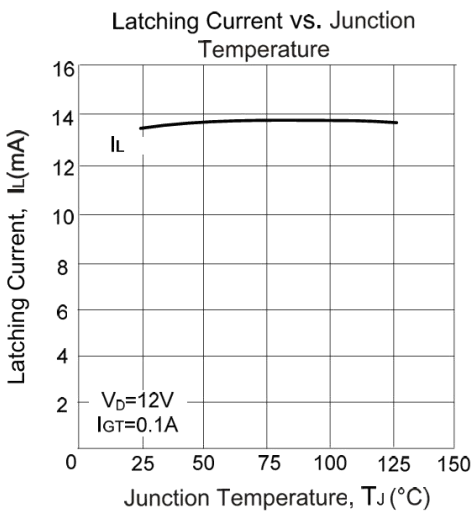


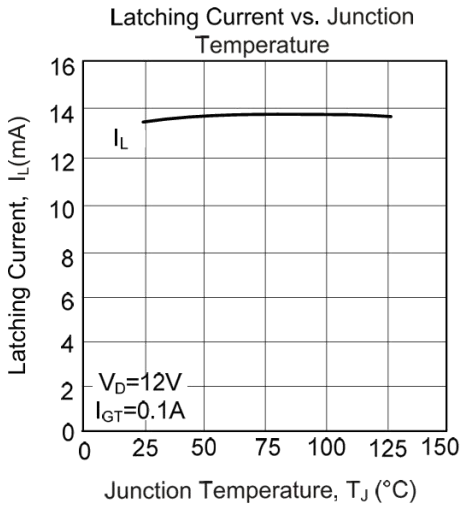



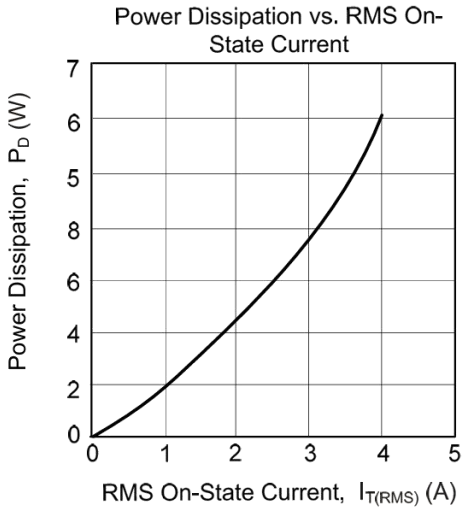



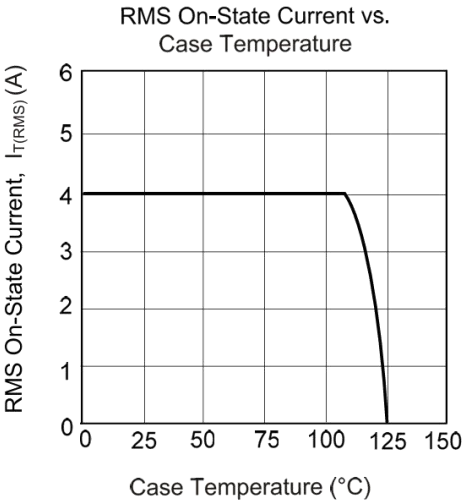



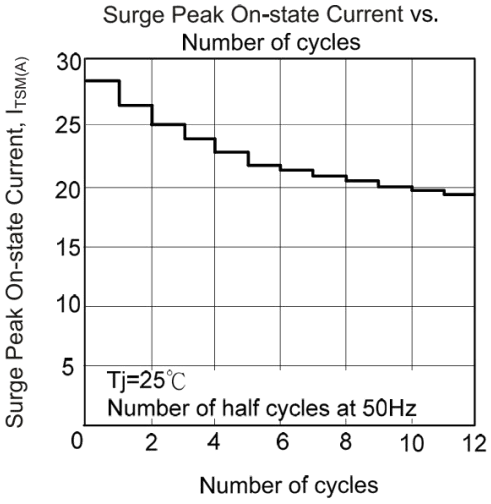



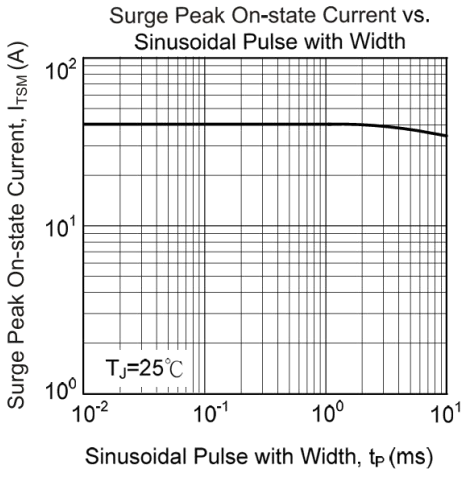
## ■ TYPICAL CHARACTERISTICS (Con.t)



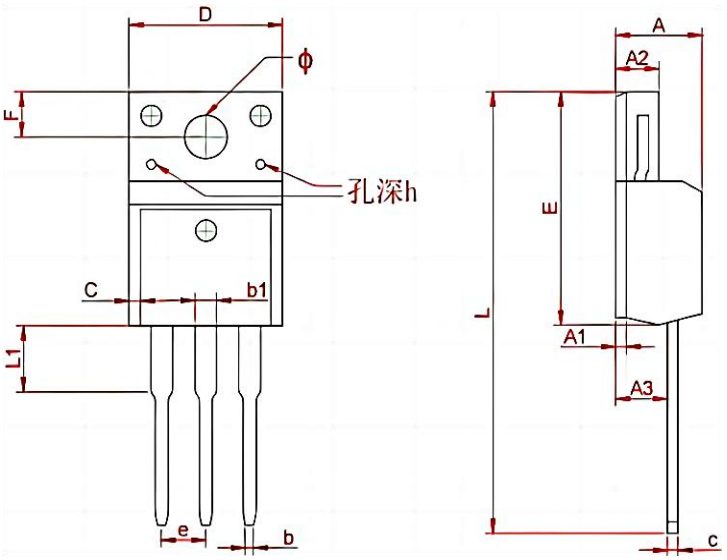



# BT136

*TRIAC*

## ■ T O - 220F PACKAGE OUTLINE DIMENSIONS




| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|---|---|---|---|---|
| | Min. | Max | Min | Max |
| A | 4.300 | 4.750 | 0.169 | 0.185 |
| A1 | 1.830 REF | | 0.072 REF | |
| A2 | 2.300 | 2.850 | 0.090 | 0.112 |
| A3 | 2.500 | 2.900 | 0.098 | 0.114 |
| b | 0.400 | 0.420 | 0.016 | 0.016 |
| b1 | 1.220 | 1.280 | 0.048 | 0.050 |
| C | 0.690 | 0.720 | 0.027 | 0.028 |
| c | 0.490 | 0.510 | 0.019 | 0.020 |
| D | 9.960 | 10.200 | 0.392 | 0.400 |
| E | 15.000 | 15.950 | 0.588 | 0.625 |
| e | 2.574 TYP | | 0.101TYP | |
| F | 3.470 REF | | 0.136 REF | |
| y | 3.200 REF | | 0.125 REF | |
| h | 0.000 | 0.300 | 0.000 | 0.012 |
| L | 28.780 | 28.900 | 1.128 | 1.133 |
| L1 | 2.990 | 3.100 | 0.117 | 0.122 |

## ■ TO - 220F PACKING INFORMATION

50PCS

20 Tube

Inner Box

5 Inner Box

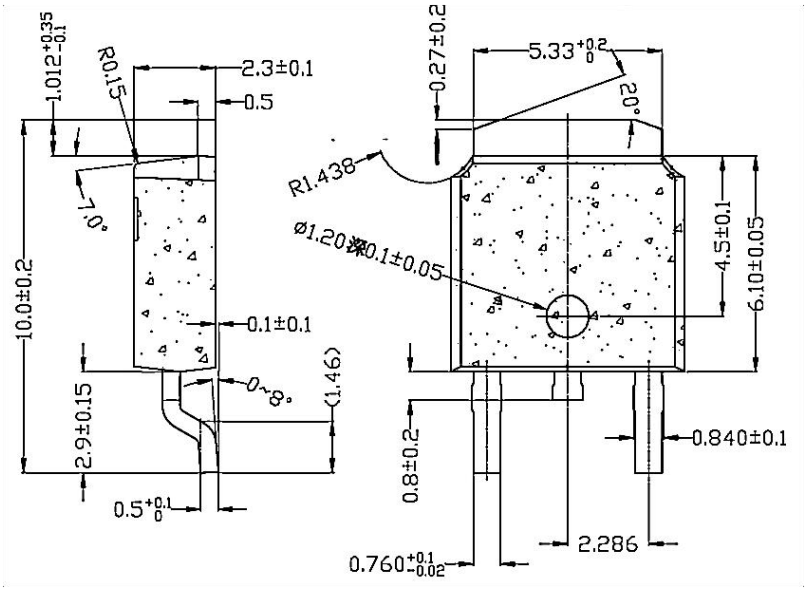
Outer Box

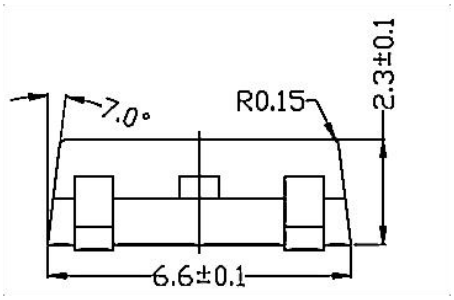
| Package version | Tube dimensions LxW×H (mm) | Per Tube (pcs) | Tube per box | Inner box dimensions LxW×H (mm) | PCS/ Inner box | Outer box dimensions L×W×H(mm) | PCS/ Outer box |
|---|---|---|---|---|---|---|---|
| TO-220F | 530*32*7 | 50 | 20 | 580*155*50 | 1000 | 602*277*188 | 5000 |

# BT136

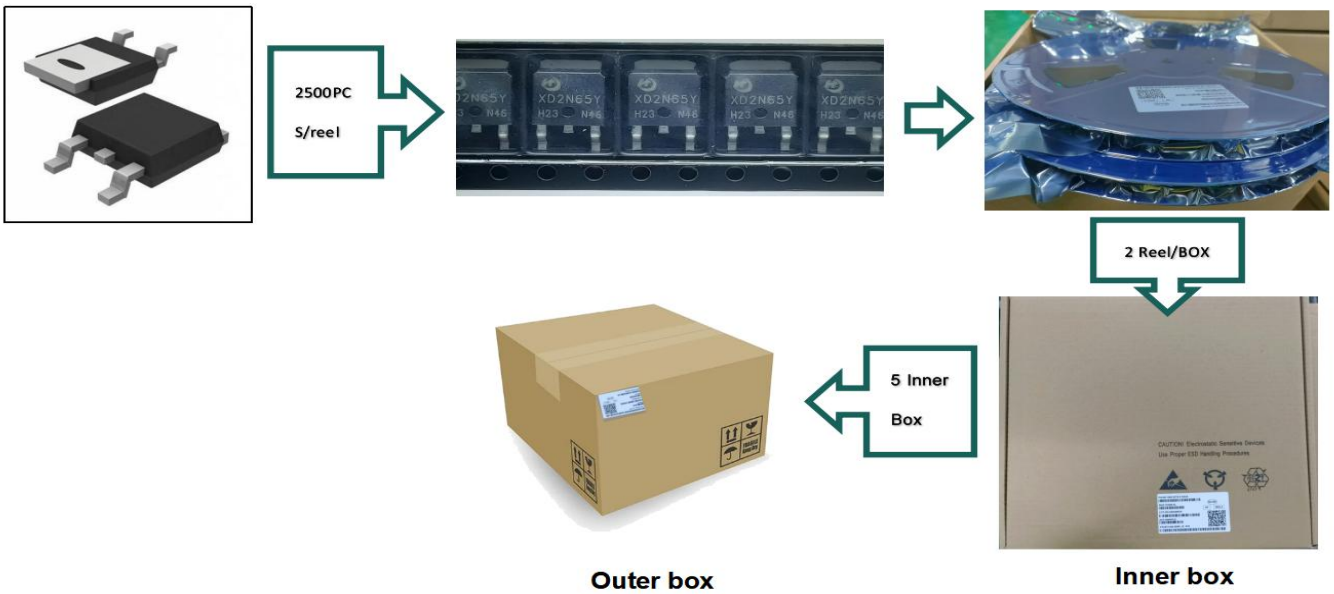
*TRIAC*

## ■ TO - 252 PACKAGE OUTLINE DIMENSIONS




## ■ TO - 252 PACKING INFORMATION




| Package version | Reel dimensions Φ×H (mm) | Per Reel (pcs) | Reels per box | Inner box dimensions L×W×H(mm) | Outer box (pcs) | Outer box dimensions L×W×H (mm) |
|---|---|---|---|---|---|---|
| TO-252 | Φ330*20 | 2500 | 2 | 360*340*50 | 25000 | 375*375*280 |