# BT131-800D 1A TRIAC

Rev.A.1.1

## DESCRIPTION:

The BT131-800D triac is suitable for general purpose AC switching. It can be used as an ON/OFF function in applications such as heating regulation, induction motor starting circuits, for phase control operation in light dimmers, motor speed controllers. Package SOT-89-2L is RoHS compliant.

## MAIN FEATURES

## ABSOLUTE MAXIMUM RATINGS

| Parameter | Symbol | Value | Unit |
|---|---|---|---|
| Storage junction temperature range | $T_{stg}$ | -40-150 | |
| Operating junction temperature range | $T_j$ | -40-125 | |
| Repetitive peak off-state voltage ($T_j$=25 ) | $V_{DRM}$ | 800 | V |

## ELECTRICAL CHARACTERISTICS ($T_j$=25 unless otherwise specified)

| Symbol | Test Condition | Quadrant | Value | | Unit |
|---|---|---|---|---|---|
| $I_{GT}$ | $V_D$=12V $R_L$=33 | - - | MAX. | 5 | mA |
| | | | | 10 | |
| $V_{GT}$ | | ALL | MAX. | 1.3 | V |
| $V_{GD}$ | $V_D$=$V_{DRM}$ $T_j$=125 $R_L$=3.3k | ALL | MIN. | 0.2 | V |
| $I_L$ | $I_G$=1.2$I_{GT}$ | - - | MAX. | 10 | mA |
| | | | | 20 | |
| $I_H$ | $I_T$=50mA | | MAX. | 7 | mA |
| dV/dt | $V_D$=540V Gate Open $T_j$=110 | | MIN. | 50 | V s |
| (dV/dt)c | (dI/dt)c=0.3A/ms, $T_j$=110 | | MIN. | 5 | 9 V |
| $t_{on}$ | $I_G$=20mA $I_A$=200mA $I_R$=20mA $T_j$=25 | | TYP. | 2.5 | s |
| $t_{off}$ | | | | 25 | |

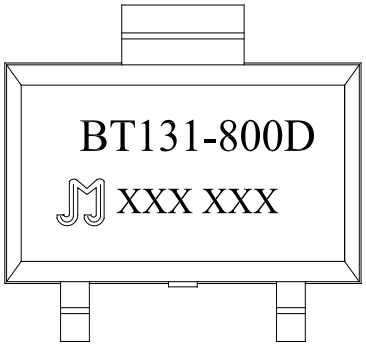
## STATIC CHARACTERISTICS

| Symbol | Parameter | | Value(MAX.) | Unit |
|---|---|---|---|---|
| $V_{TM}$ | $I_{TM}$=1A $t_p$=380 s | $T_j$=25 | 1.5 | V |
| $V_{TO}$ | Threshold voltage | $T_j$=125 | 1.01 | V |
| $R_D$ | Dynamic resistance | $T_j$=125 | 316 | P |
| $I_{DRM}$ | $V_D$=$V_{DRM}$ $V_R$=$V_{RRM}$ | $T_j$=25 | 5 | A |
| $I_{RRM}$ | | $T_j$=125 | 0.25 | mA |

## THERMAL RESISTANCES

| Symbol | Parameter | Value | Unit |
|---|---|---|---|
| $R_{th(j-c)}$ | junction to case (AC) | 55 | /W |
| $R_{th(j-a)}$ | junction to ambient (AC, in free air, S=5cm$^2$) | 100 | /W |

## MARKING



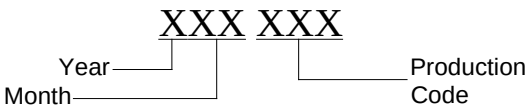




FIG.1: Maximum power dissipation versus RMS on-state current

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

FIG.3: RMS on-state current versus ambient temperature (printed circuit board FR4, copper thickness: P (full cycle)

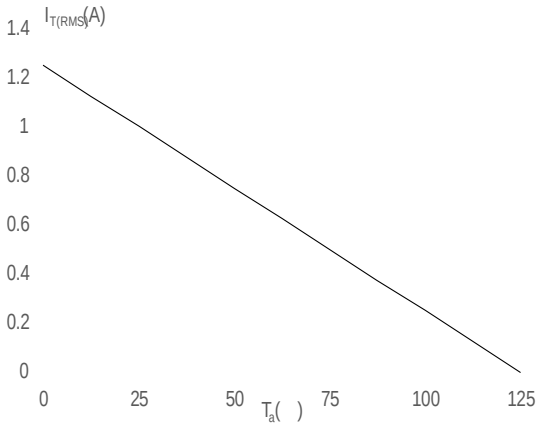



FIG.4: Surge peak on-state current versus number of cycles

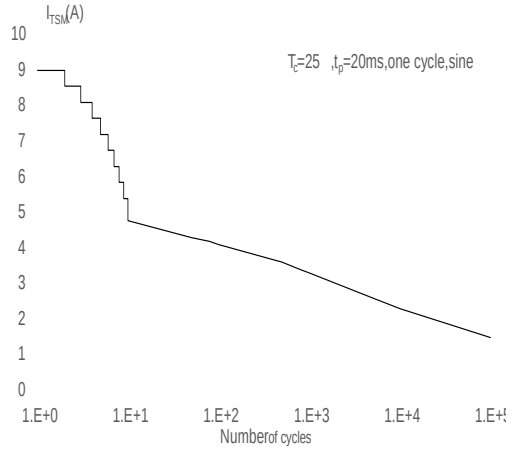



FIG.5: On-state characteristics

FIG.6: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p$<20ms, and corresponding value of $I^2t$ ( - : dI/dt<50 $ V- : dI/dt<30 $ )V

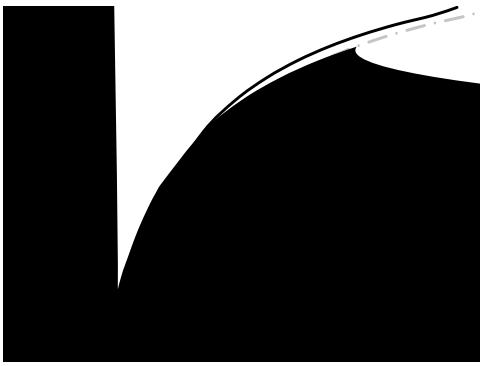
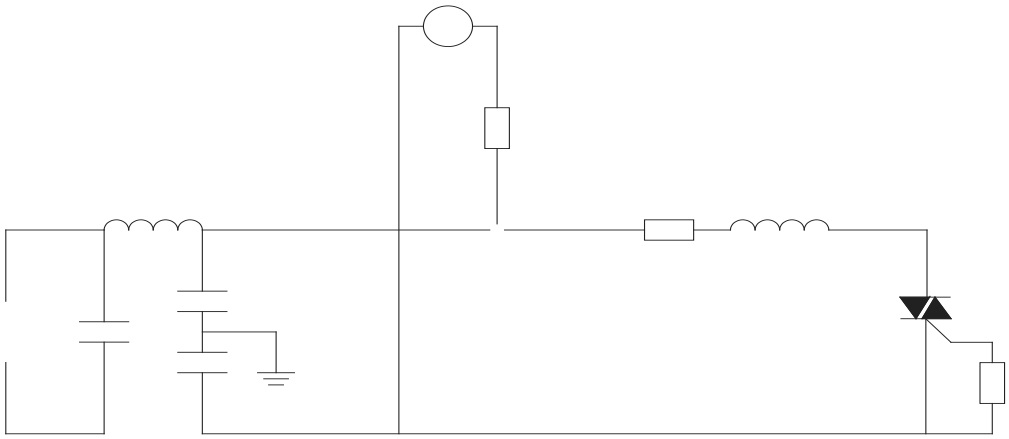
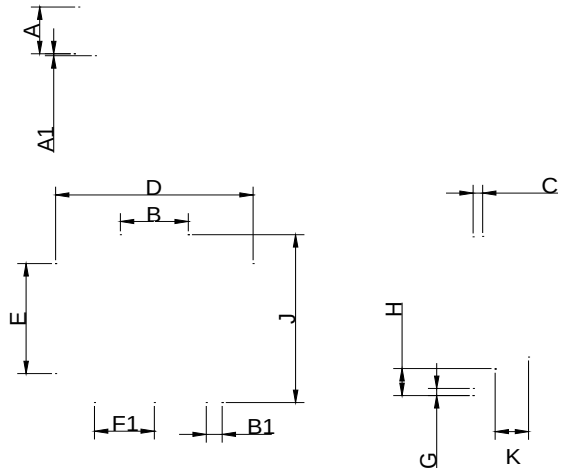


FIG.8 ÖTest circuit for inductive and resistive loads to IEC-61000-4-5 standards



## PACKAGE MECHANICAL DATA



# DELIVERY MODE

| | Dimensions | | | | | | |
|---|---|---|---|---|---|---|---|
| | Ref. | Millimeters | | | Inches | | |
| | | Min. | Typ. | Max. | Min. | Typ. | Max. |
| | E | 1.65 | 1.75 | 1.85 | | | |
| | F | 5.45 | 5.50 | 5.55 | | | |
| | P2 | 1.90 | 2.00 | 2.10 | | | |
| | D | - | 1.50 | 1.60 | | | |
| | D1 | 1.50 | | | | | |
| | P0 | 3.90 | 4.00 | 4.10 | | | |
| - | 10P0 | 39.80 | 40.00 | 40.20 | | | |
| | W | | | | | | |
| | P | | | | | | |
| | A0 | | | | | | |
| | B0 | | | | | | |
| | K0 | | | | | | |
| | t | | | | | | |

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