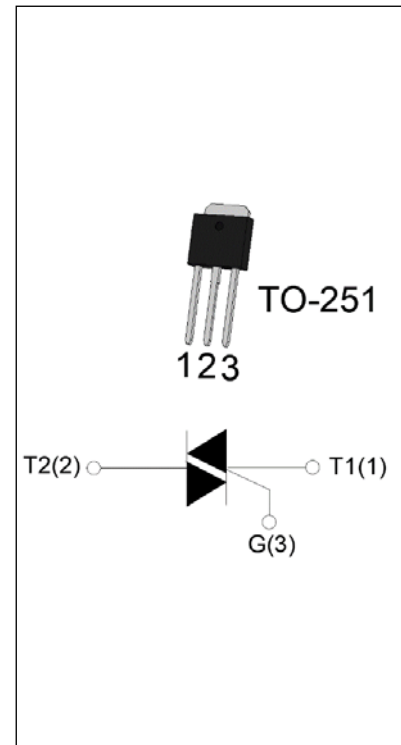


**JST08H-600TW 8A TRIAC**

Rev.A.1.0

**DESCRIPTION:**

The JST08H-600TW 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. JST08H-600TW snubberless triac is especially recommended for use on inductive loads. It can be driven directly through the MCU I/O port. From T2 terminals to external heatsink. Package TO-251 is RoHS compliant.


**MAIN FEATURES**

| Symbol             | Value | Unit |
|--------------------|-------|------|
| $I_{T(RMS)}$       | 8     | A    |
| $V_{DRM}/V_{RRM}$  | 600   | V    |
| $I_{GT\ I/II/III}$ | 5/5/5 | mA   |

**ABSOLUTE MAXIMUM RATINGS**

| Parameter  | Symbol       | Value   | Unit                   |
|--|--------------|---------|------------------------|
| Storage junction temperature range   | $T_{stg}$    | -40-150 | °C                     |
| Operating junction temperature range   | $T_j$        | -40-125 | °C                     |
| Repetitive peak off-state voltage ( $T_j=25^\circ\text{C}$ )   | $V_{DRM}$    | 600     | V                      |
| Repetitive peak reverse voltage ( $T_j=25^\circ\text{C}$ )   | $V_{RRM}$    | 600     | V                      |
| RMS on-state current ( $T_c \leq 91^\circ\text{C}$ )   | $I_{T(RMS)}$ | 8       | A                      |
| Non repetitive surge peak on-state current (full cycle , $t_p=20\text{ms}$ , $T_j=25^\circ\text{C}$ )            | $I_{TSM}$    | 80      | A                      |
| Non repetitive surge peak on-state current (full cycle , $t_p=16.6\text{ms}$ , $T_j=25^\circ\text{C}$ )          |              | 88      |                        |
| $I^2t$ value for fusing ( $t_p=10\text{ms}$ , $T_j=25^\circ\text{C}$ )   | $I^2t$       | 32      | $\text{A}^2\text{s}$   |
| Critical rate of rise of on-state current ( $I_G=2 \times I_{GT}$ , $f=100\text{Hz}$ , $T_j=125^\circ\text{C}$ ) | $di/dt$      | 50      | $\text{A}/\mu\text{s}$ |
| Peak gate current ( $t_p=20\mu\text{s}$ , $T_j=125^\circ\text{C}$ )  | $I_{GM}$     | 4       | A                      |
| Average gate power dissipation ( $T_j=125^\circ\text{C}$ )   | $P_{G(AV)}$  | 0.5     | W                      |
| Peak gate power  | $P_{GM}$     | 10      | W                      |

|  |          |     |    |
|--|----------|-----|----|
| Peak pulse voltage<br>( $T_j=25^{\circ}\text{C}$ ; non-repetitive, off-state; FIG.7) | $V_{pp}$ | 1.5 | kV |
|--|----------|-----|----|

**ELECTRICAL CHARACTERISTICS** ( $T_j=25^{\circ}\text{C}$  unless otherwise specified)

| Symbol                   | Test Condition   | Quadrant     | Value |     | Unit             |
|--------------------------|--|--------------|-------|-----|------------------|
| $I_{GT}$                 | $V_D=12\text{V } R_L=33\Omega$   | I - II - III | MAX.  | 5   | mA               |
| $V_{GT}$                 |  | I - II - III | MAX.  | 1   | V                |
| $V_{GD}$                 | $V_D=V_{DRM} T_j=125^{\circ}\text{C}$<br>$R_L=3.3\text{K}\Omega$                 | I - II - III | MIN.  | 0.2 | V                |
| $I_L$                    | $I_G=1.2I_{GT}$  | I - III      | MAX.  | 10  | mA               |
|                          |  | II           |       | 15  |                  |
| $I_H$                    | $I_T=100\text{mA}$   |              | MAX.  | 10  | mA               |
| $dV/dt$                  | $V_D=400\text{V}$ Gate Open $T_j=125^{\circ}\text{C}$                            |              | MIN.  | 150 | V/ $\mu\text{s}$ |
| ( $dI/dt$ ) <sub>c</sub> | ( $dV/dt$ ) <sub>c</sub> =10V/ $\mu\text{s}$ , $T_j=125^{\circ}\text{C}$         |              | MIN.  | 0.5 | A/ms             |
| $t_{on}$                 | $I_G=10\text{mA } I_A=200\text{mA } I_R=20\text{mA}$<br>$T_j=25^{\circ}\text{C}$ |              | TYP.  | 2   | $\mu\text{s}$    |
| $t_{off}$                |  |              |       | 20  |                  |

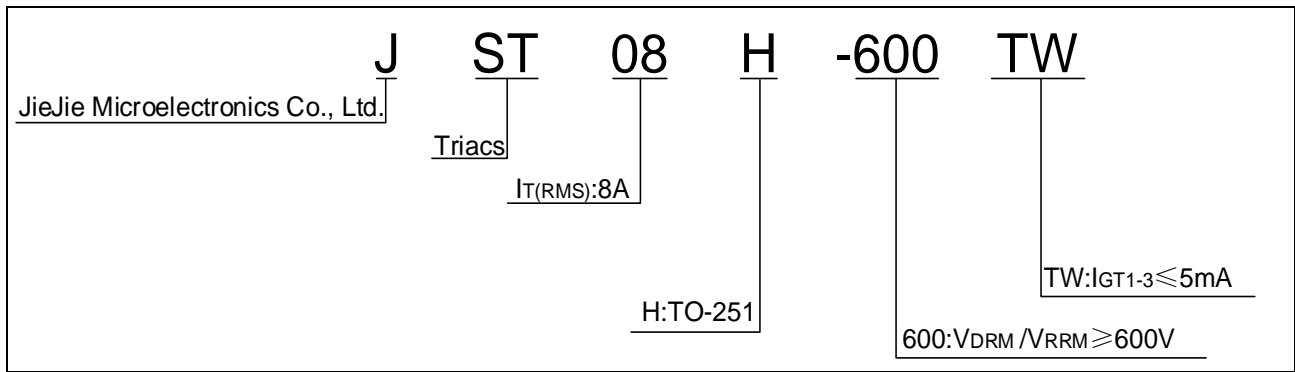
**STATIC CHARACTERISTICS**

| Symbol    | Parameter                               |                           | Value(MAX.) | Unit          |
|-----------|---|---------------------------|-------------|---------------|
| $V_{TM}$  | $I_{TM}=11\text{A } t_p=380\mu\text{s}$ | $T_j=25^{\circ}\text{C}$  | 1.5         | V             |
| $V_{TO}$  | Threshold voltage                       | $T_j=125^{\circ}\text{C}$ | 0.8         | V             |
| $R_D$     | Dynamic resistance                      | $T_j=125^{\circ}\text{C}$ | 44          | m $\Omega$    |
| $I_{DRM}$ | $V_D=V_{DRM} V_R=V_{RRM}$               | $T_j=25^{\circ}\text{C}$  | 5           | $\mu\text{A}$ |
| $I_{RRM}$ |   | $T_j=125^{\circ}\text{C}$ | 0.25        | mA            |

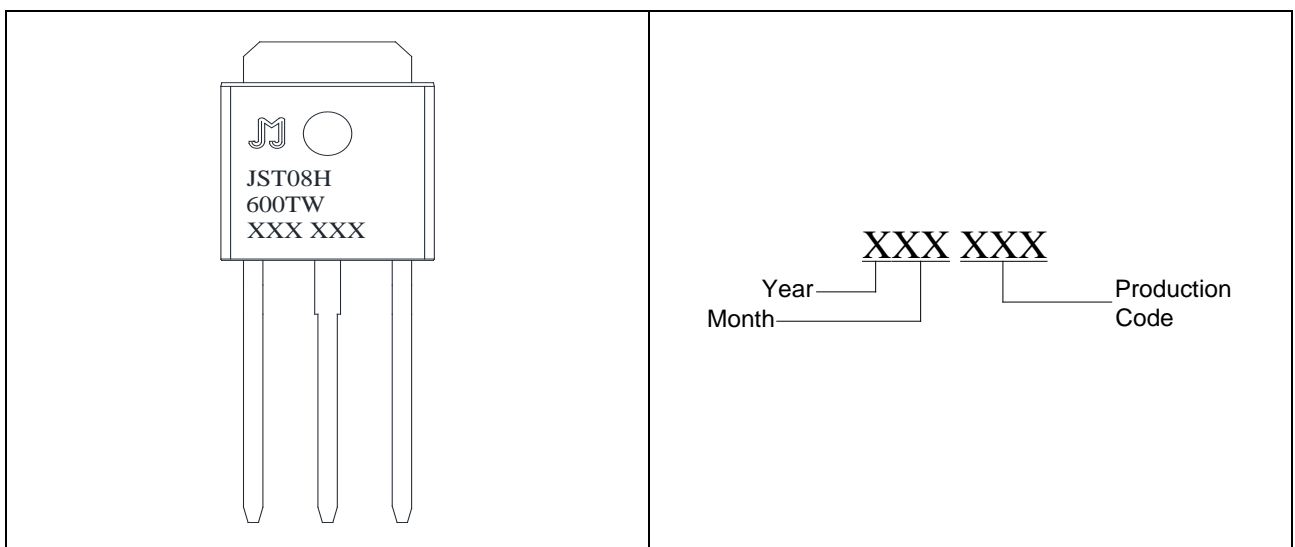
**THERMAL RESISTANCES**

| Symbol        | Parameter                | Value | Unit                 |
|---------------|--------------------------|-------|----------------------|
| $R_{th(j-c)}$ | junction to case (AC)    | 3     | $^{\circ}\text{C/W}$ |
| $R_{th(j-a)}$ | junction to ambient (AC) | 120   | $^{\circ}\text{C/W}$ |

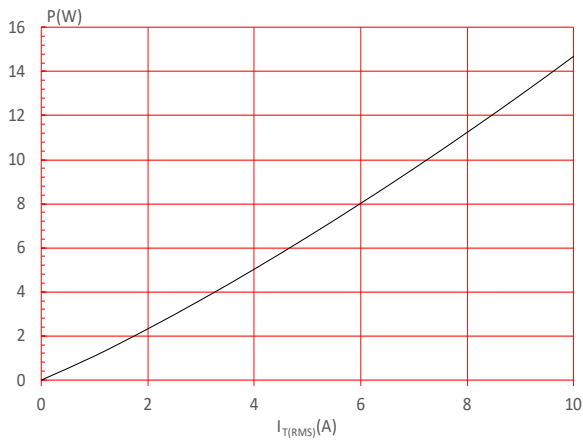
ORDERING INFORMATION



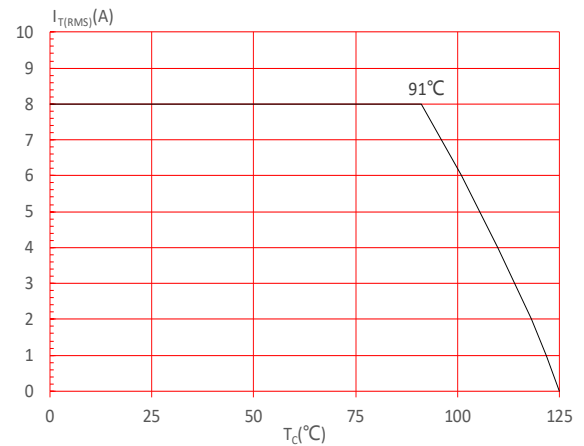
MARKING



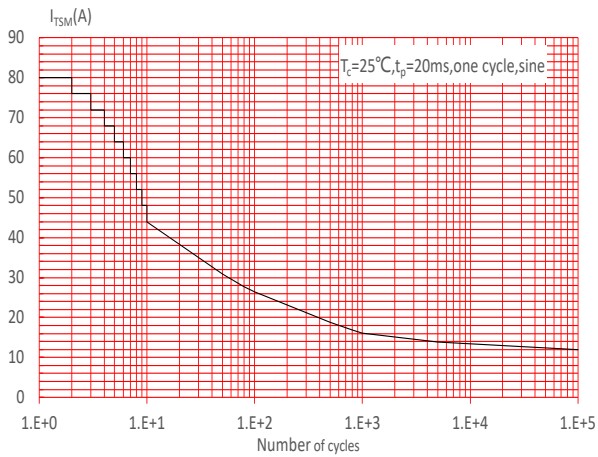
**FIG.1** Maximum power dissipation versus RMS on-state current



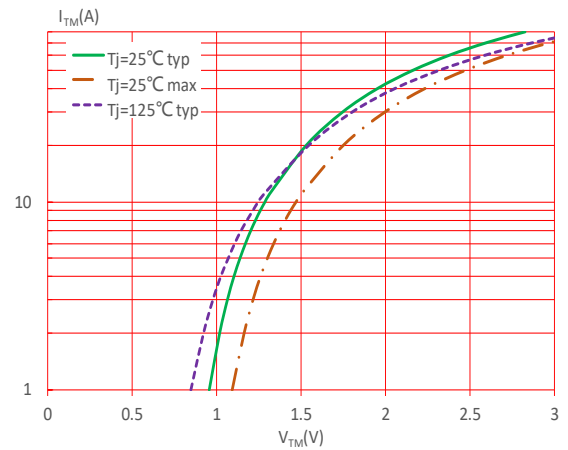
**FIG.2:** RMS on-state current versus case temperature



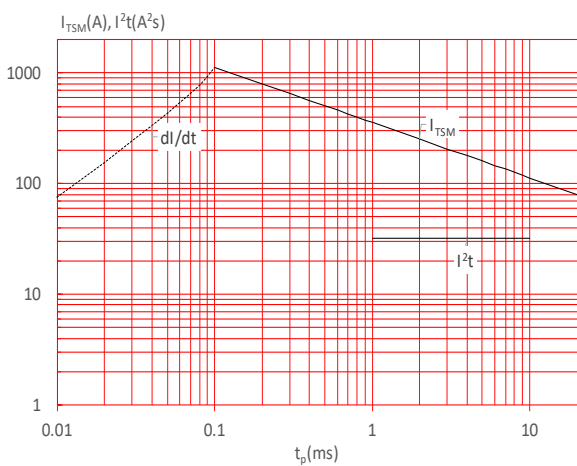
**FIG.3:** Surge peak on-state current versus number of cycles



**FIG.4:** On-state characteristics



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



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

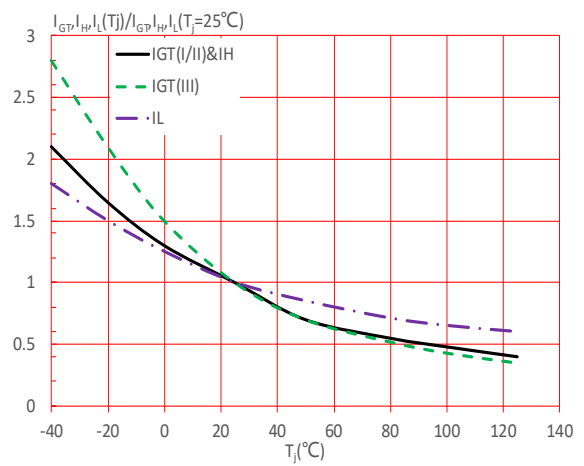
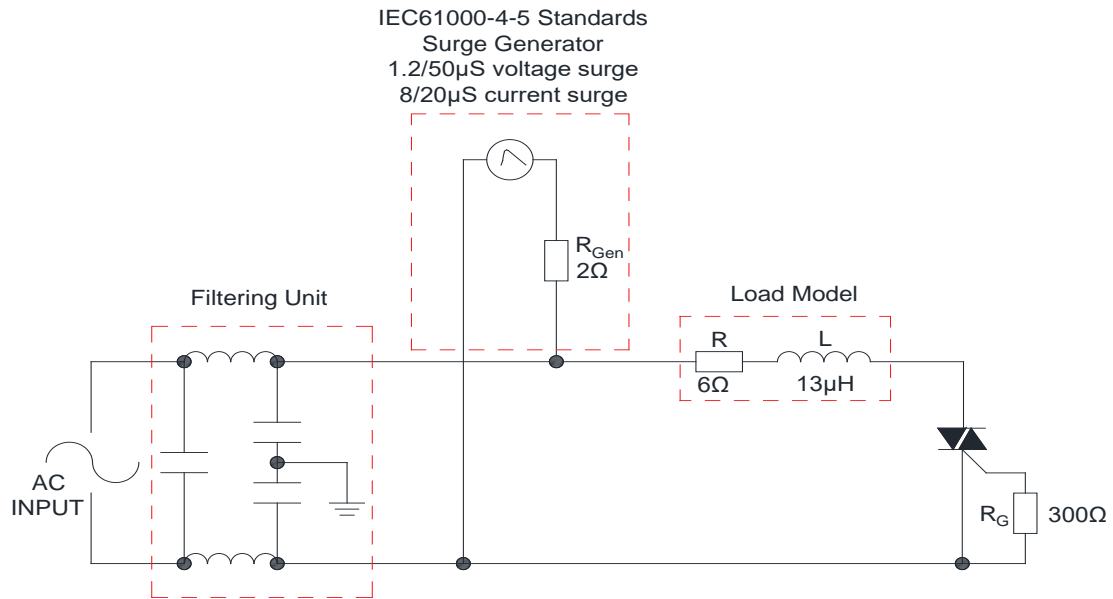


FIG.7: Test circuit for inductive and resistive loads to IEC-61000-4-5 standards



## SHAPING AND SOLDERING PARAMETERS

Refer to 《Instructions for installation of plastic-sealed in-line power devices》 released by JieJie

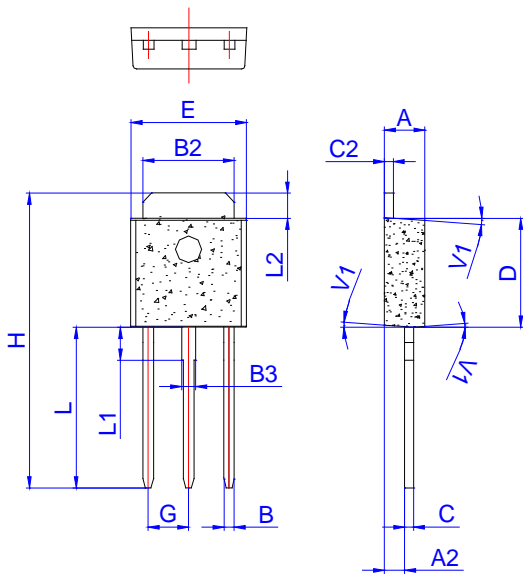
**ORDERING INFORMATION**

| Order code   | Voltage<br>$V_{DRM}/V_{RRM}$ (V) | IGT(mA)      | Package | Base qty.<br>(pcs) | Delivery<br>mode |
|--------------|----------------------------------|--------------|---------|--------------------|------------------|
|              |                                  | I - II - III |         |                    |                  |
| JST08H-600TW | 600                              | 5            | TO-251  | 80                 | Tube             |

**Document Revision History**

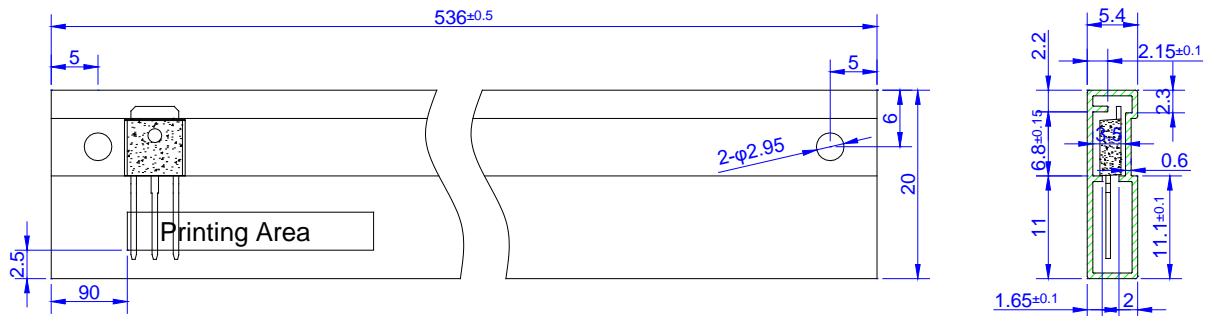
| Date         | Revision | Changes      |
|--------------|----------|--------------|
| Apr.12, 2023 | A.1.0    | Last updated |

PACKAGE MECHANICAL DATA



| Ref. | Dimensions  |      |      |        |      |       |
|------|-------------|------|------|--------|------|-------|
|      | Millimeters |      |      | Inches |      |       |
|      | Min.        | Typ. | Max. | Min.   | Typ. | Max.  |
| A    | 2.20        |      | 2.40 | 0.086  |      | 0.095 |
| A2   | 1.00        |      | 1.30 | 0.039  |      | 0.051 |
| B    | 0.50        |      | 0.70 | 0.020  |      | 0.028 |
| B2   | 5.10        |      | 5.40 | 0.200  |      | 0.213 |
| B3   | 0.70        |      | 1.00 | 0.028  |      | 0.039 |
| 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    | 2.20        |      | 2.40 | 0.087  |      | 0.094 |
| H    | 16.0        |      | 17.0 | 0.630  |      | 0.669 |
| L    | 8.90        |      | 9.40 | 0.350  |      | 0.370 |
| L1   | 1.80        |      | 2.20 | 0.071  |      | 0.087 |
| L2   | 1.25        |      | 1.55 | 0.049  |      | 0.061 |
| V1   |             | 4°   |      |        | 4°   |       |

DELIVERY MODE



| PACKAGE | OUTLINE | TUBE (PCS) | INNER BOX (PCS) | PER CARTON |
|---------|---------|------------|-----------------|------------|
| TO-251  | TUBE    | 80         | 4,000           | 20,000     |

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