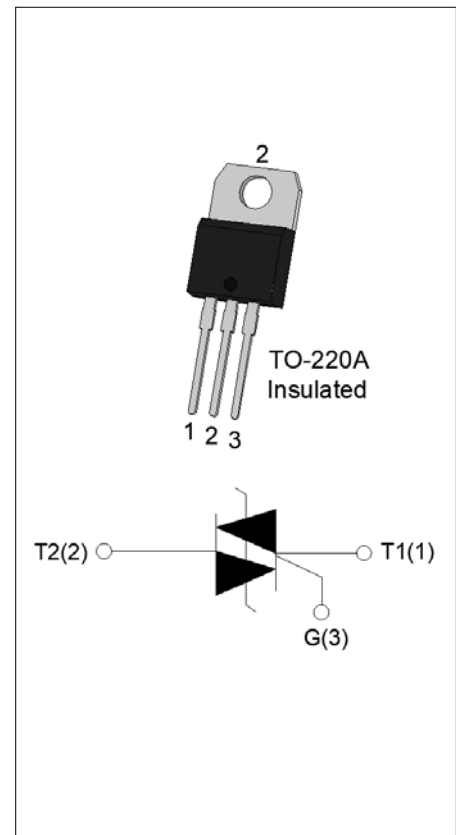


**ACJT625-10A 6A TRIAC**

Rev.A.1.1

**DESCRIPTION:**

The ACJT625-10A 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. The ACJT625-10A embeds a TVS structure to absorb the inductive turn-off energy such as those described in the IEC 61000-4-5 standards. By using an internal ceramic pad, ACJT625-10A provides a rated insulation voltage of 2500 VRMS. Package TO-220A is RoHS compliant.


**MAIN FEATURES**

| Symbol             | Value    | Unit |
|--------------------|----------|------|
| $I_{T(RMS)}$       | 6        | A    |
| $V_{DRM}/V_{RRM}$  | 1000     | V    |
| $I_{GT\ I/II/III}$ | 25/25/25 | 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 ( $T_j=25^\circ\text{C}$ )                                                     | $V_{DRM}$    | 1000    | V                      |
| Repetitive peak reverse voltage ( $T_j=25^\circ\text{C}$ )                                                       | $V_{RRM}$    | 1000    | V                      |
| RMS on-state current ( $T_c \leq 100^\circ\text{C}$ )                                                            | $I_{T(RMS)}$ | 6       | A                      |
| Non repetitive surge peak on-state current (full cycle , $t_p=20\text{ms}$ , $T_j=25^\circ\text{C}$ )            | $I_{TSM}$    | 60      | A                      |
| Non repetitive surge peak on-state current (full cycle , $t_p=16.6\text{ms}$ , $T_j=25^\circ\text{C}$ )          |              | 66      |                        |
| $I^2t$ value for fusing ( $t_p=10\text{ms}$ , $T_j=25^\circ\text{C}$ )                                           | $I^2t$       | 18      | $\text{A}^2\text{s}$   |
| Critical rate of rise of on-state current ( $I_G=2 \times I_{GT}$ , $f=100\text{Hz}$ , $T_j=125^\circ\text{C}$ ) | $di/dt$      | 100     | $\text{A}/\mu\text{s}$ |
| 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) | $V_{pp}$    | 3.5 | 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.  | 25   | 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.  | 40   | mA                     |
|             |                                                                                  | II           |       | 60   |                        |
| $I_H$       | $I_T=100\text{mA}$                                                               |              | MAX.  | 40   | mA                     |
| $dV/dt$     | $V_D=670\text{V}$ Gate Open $T_j=125^{\circ}\text{C}$                            |              | MIN.  | 1500 | $\text{V}/\mu\text{s}$ |
| $(dI/dt)_c$ | $(dV/dt)_c=20\text{V}/\mu\text{s}$ , $T_j=125^{\circ}\text{C}$                   |              | MIN.  | 8    | $\text{A/ms}$          |
| $t_{on}$    | $I_G=40\text{mA } I_A=200\text{mA } I_R=20\text{mA}$<br>$T_j=25^{\circ}\text{C}$ |              | TYP.  | 5    | $\mu\text{s}$          |
| $t_{off}$   |                                                                                  |              |       | 70   |                        |
| $V_{CL}$    | $I_{CL}=0.1\text{mA } t_p=1\text{ms}$                                            |              | MIN.  | 1050 | V                      |

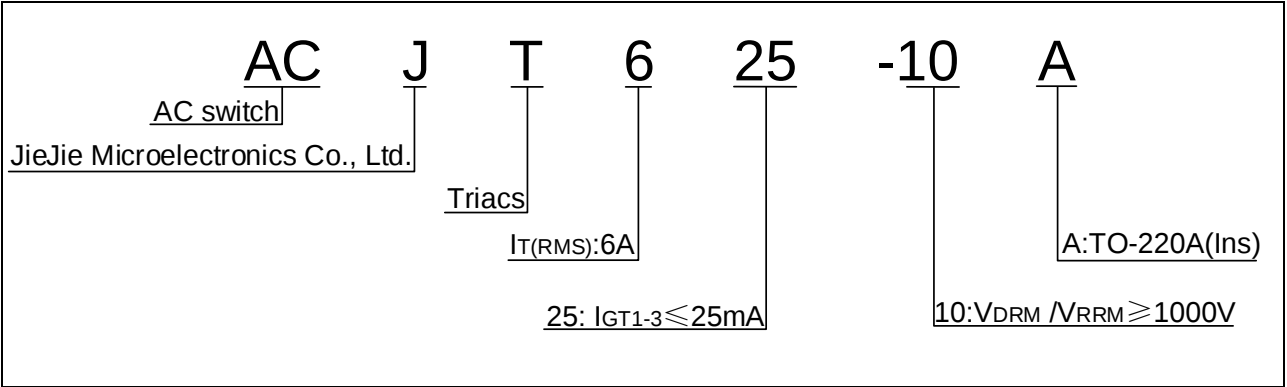
**STATIC CHARACTERISTICS**

| Symbol    | Parameter                                |                           | Value(MAX.) | Unit             |
|-----------|------------------------------------------|---------------------------|-------------|------------------|
| $V_{TM}$  | $I_{TM}=8.5\text{A } t_p=380\mu\text{s}$ | $T_j=25^{\circ}\text{C}$  | 1.5         | V                |
| $V_{TO}$  | Threshold voltage                        | $T_j=125^{\circ}\text{C}$ | 0.82        | V                |
| $R_D$     | Dynamic resistance                       | $T_j=125^{\circ}\text{C}$ | 64          | $\text{m}\Omega$ |
| $I_{DRM}$ | $V_D=V_{DRM} V_R=V_{RRM}$                | $T_j=25^{\circ}\text{C}$  | 8           | $\mu\text{A}$    |
| $I_{RRM}$ |                                          | $T_j=125^{\circ}\text{C}$ | 0.5         | mA               |

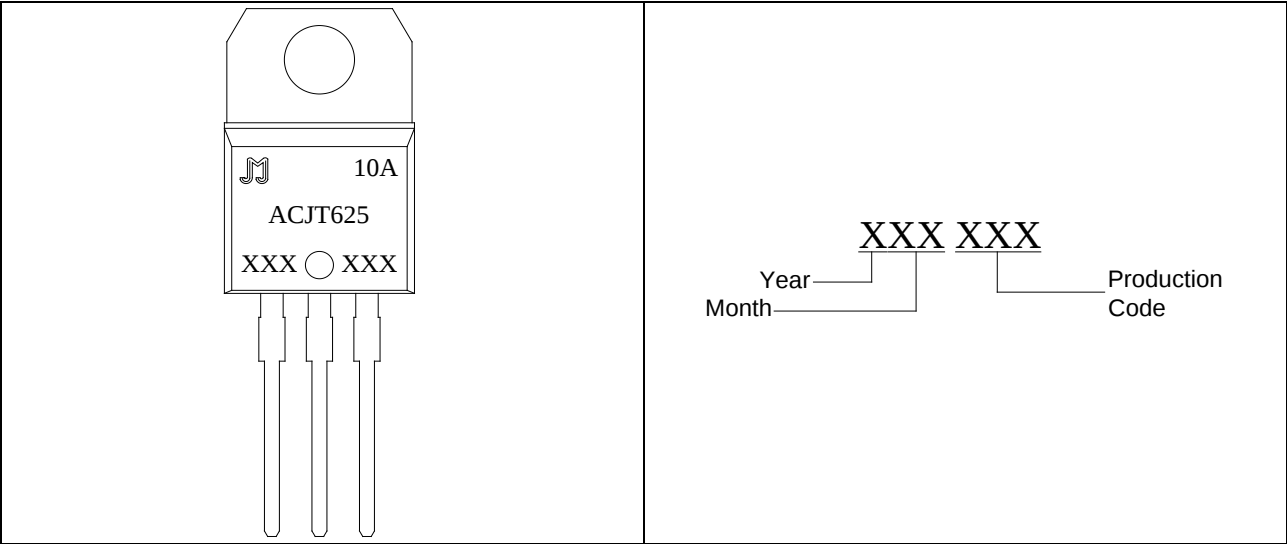
**THERMAL RESISTANCES**

| 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) | 60    | $^{\circ}\text{C/W}$ |

ORDERING INFORMATION



MARKING



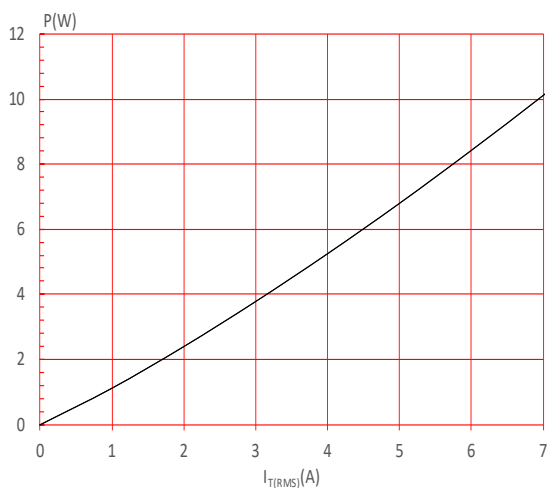
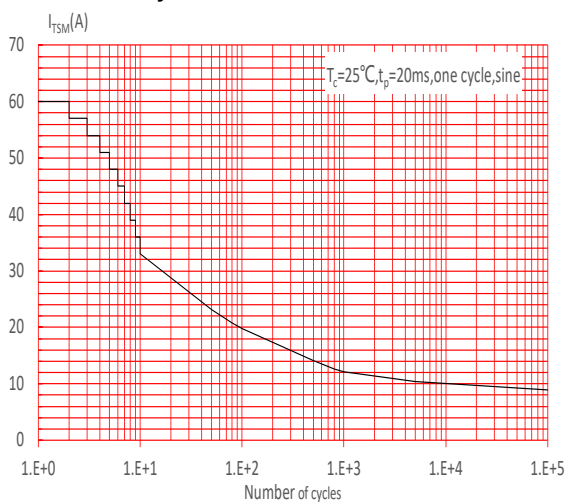
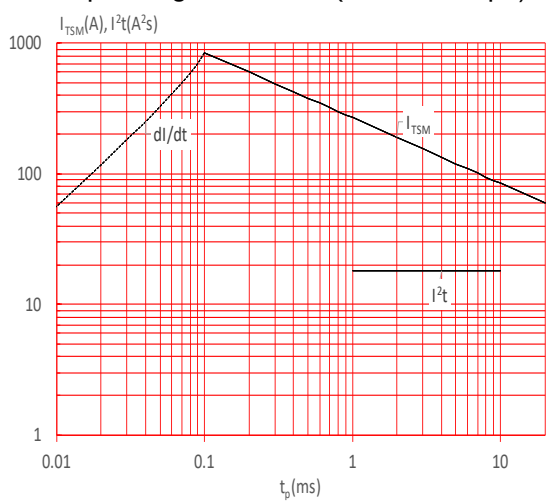
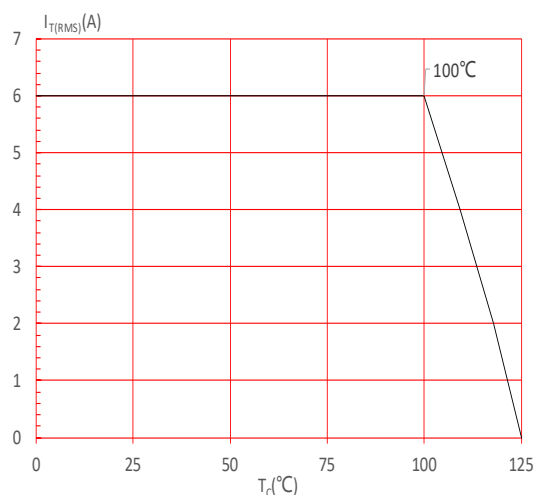
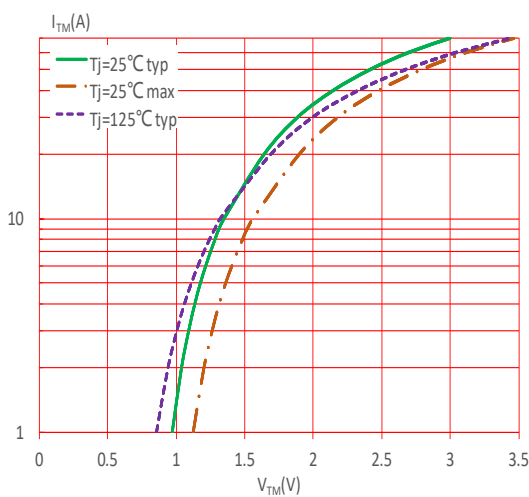
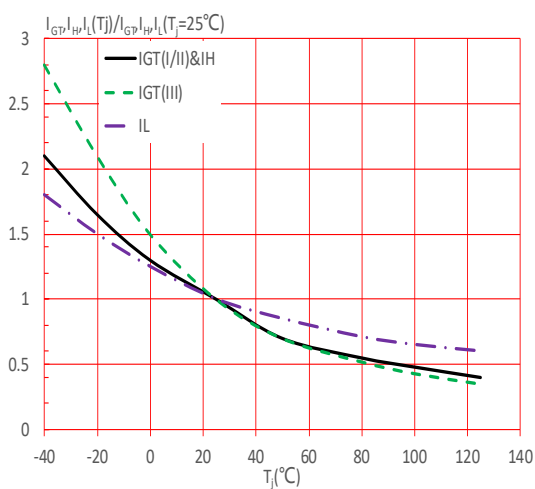
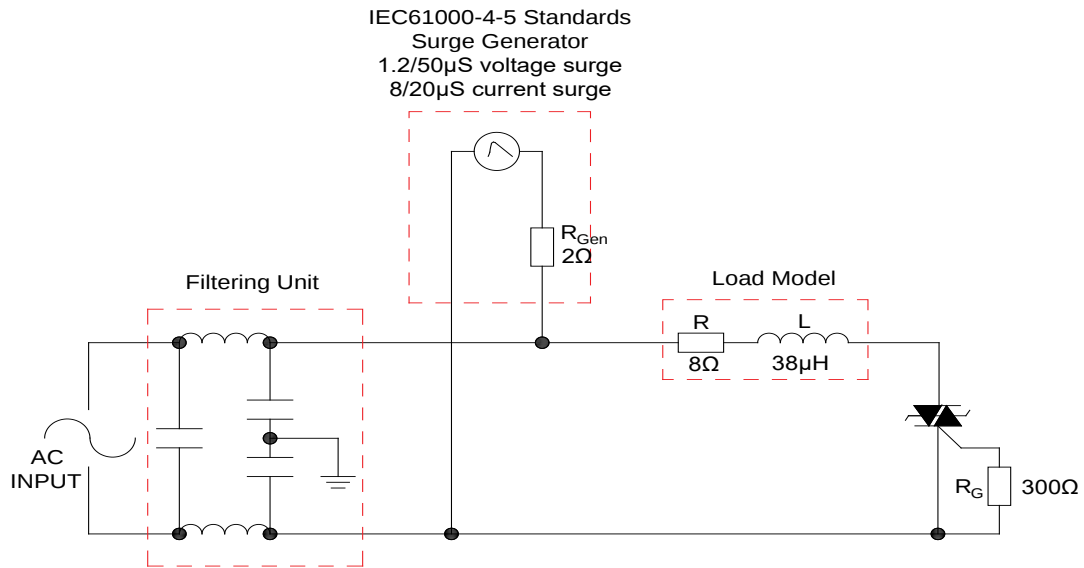
**FIG.1:** Maximum power dissipation versus RMS on-state current

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

**FIG.5:** Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 20ms$ , and corresponding value of  $I^2t$  ( $di/dt < 100A/\mu s$ )

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

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

**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



## LEAD FORMING AND SOLDERING

Refer to the application note “Assembly Instructions for Thyristors in Through-hole Package” released by JieJie Microelectronics

## ORDERING INFORMATION

| Order code  | Voltage<br>$V_{\text{DRM}}/V_{\text{RRM}}$ (V) | IGT(mA) | Package      | Base qty.<br>(pcs) | Delivery<br>mode |
|-------------|------------------------------------------------|---------|--------------|--------------------|------------------|
| ACJT625-10A | 1000                                           | 25      | TO-220A(Ins) | 50                 | Tube             |

## Document Revision History

| Date         | Revision | Changes                        |
|--------------|----------|--------------------------------|
| Apr.14, 2023 | A.1.0    | Last updated                   |
| Oct.13, 2025 | A.1.1    | Revise PACKAGE MECHANICAL DATA |

Technical drawing of a 3-pin connector. The drawing includes a top view, a side view, and a front view. Dimensions are labeled as follows:

- Top View:** Shows a rectangular component with a central circular hole. Dimensions include  $E$  (width),  $L3$  (height), and a hole diameter of  $\text{Ø}3.7-3.9\text{mm}$ .
- Side View:** Shows the profile of the component. Dimensions include  $A$  (width),  $C2$  (height),  $E$  (height),  $V1$  (fillet radius),  $D$  (height),  $C3$  (width), and  $C$  (width).
- Front View:** Shows the component with three pins. Dimensions include  $H$  (total height),  $L1$  (height),  $J$  (height),  $L2$  (height),  $B$  (width),  $K$  (width),  $G$  (width), and  $E1$  (width).

Technical drawing of a 3D printed part, showing three views: top, front, and side views. The dimensions are as follows:

- Top View:**
  - Overall width:  $520 \pm 0.5$
  - Overall height:  $530 \pm 0.5$
  - Distance from left edge to center of hole:  $5$
  - Distance from center of hole to right edge:  $80$
  - Radius of hole:  $\phi 4.5$
  - Distance from center of hole to bottom edge:  $5.5$
  - Distance from left edge to center of hole:  $3$
  - Label: "printing area"
- Front View:**
  - Overall width:  $530 \pm 0.5$
  - Overall height:  $5.5$
  - Distance from center of hole to bottom edge:  $5.5$
  - Radius of hole:  $\phi 3.0 \pm 0.05$
- Side View:**
  - Overall width:  $7.0_{-0.2}^0$
  - Overall height:  $33$
  - Distance from top edge to center of hole:  $2.4$
  - Distance from center of hole to bottom edge:  $3.8$
  - Distance from bottom edge to center of hole:  $0.6$
  - Distance from top edge to center of hole:  $3.8$
  - Distance from center of hole to bottom edge:  $18.0$

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