

**ACJT610-10C 6A TRIAC**

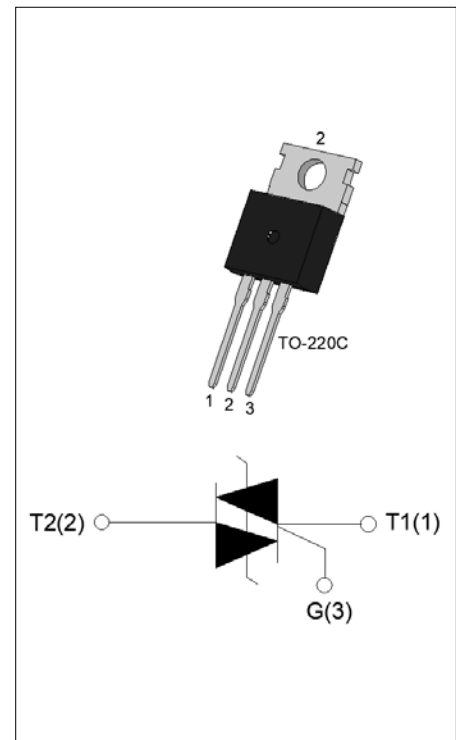
Rev.A.1.1

**DESCRIPTION:**

The ACJT610-10C 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 ACJT610-10C embeds a TVS structure to absorb the inductive turn-off energy such as those described in the IEC 61000-4-5 standards. Package TO-220C is RoHS compliant.

**MAIN FEATURES**

| Symbol             | Value    | Unit |
|--------------------|----------|------|
| $I_{T(RMS)}$       | 6        | A    |
| $V_{DRM}/V_{RRM}$  | 1000     | V    |
| $I_{GT\ I/II/III}$ | 10/10/10 | 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 ( $T_c \leq 111^\circ\text{C}$ )                                                            | $I_{T(RMS)}$ | 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      | A <sup>2</sup> 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     | 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.  | 10   | 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.  | 20   | mA               |
|             |                                                                                    | II           |       | 35   |                  |
| $I_H$       | $I_T=100\text{mA}$                                                                 |              | MAX.  | 20   | mA               |
| $dV/dt$     | $V_D=670\text{V}$ Gate Open $T_j=125^{\circ}\text{C}$                              |              | MIN.  | 300  | V/ $\mu\text{s}$ |
| $(dI/dt)_c$ | $(dV/dt)_c=10\text{V}/\mu\text{s}$ , $T_j=125^{\circ}\text{C}$                     |              | MIN.  | 3    | A/ms             |
| $t_{on}$    | $I_G=20\text{mA}$ $I_A=200\text{mA}$ $I_R=20\text{mA}$<br>$T_j=25^{\circ}\text{C}$ |              | TYP.  | 4    | $\mu\text{s}$    |
| $t_{off}$   |                                                                                    |              |       | 50   |                  |
| $V_{CL}$    | $I_{CL}=0.1\text{mA}$ $t_p=1\text{ms}$                                             |              | 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               |

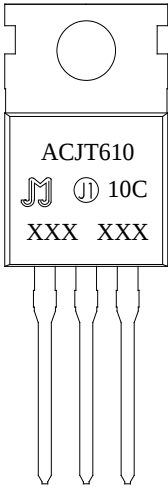
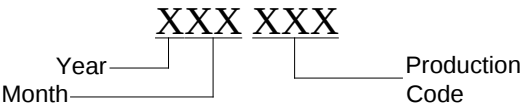
**THERMAL RESISTANCES**

| Symbol        | Parameter                | Value | Unit                        |
|---------------|--------------------------|-------|-----------------------------|
| $R_{th(j-c)}$ | junction to case (AC)    | 1.7   | $^{\circ}\text{C}/\text{W}$ |
| $R_{th(j-a)}$ | junction to ambient (AC) | 60    | $^{\circ}\text{C}/\text{W}$ |

ORDERING INFORMATION

|                                   |          |                 |          |           |                      |           |
|-----------------------------------|----------|-----------------|----------|-----------|----------------------|-----------|
| <u>AC</u>                         | <u>J</u> | <u>T</u>        | <u>6</u> | <u>10</u> | <u>-10</u>           | <u>C</u>  |
| AC switch                         |          | Triacs          |          |           |                      | C:TO-220C |
| JieJie Microelectronics Co., Ltd. |          | IT(RMS):6A      |          |           |                      |           |
|                                   |          | 10: IGT1-3≤10mA |          |           | 10: VDRM /VRRM≥1000V |           |

MARKING

|                                                                                     |                                                                                      |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
|  |  |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|

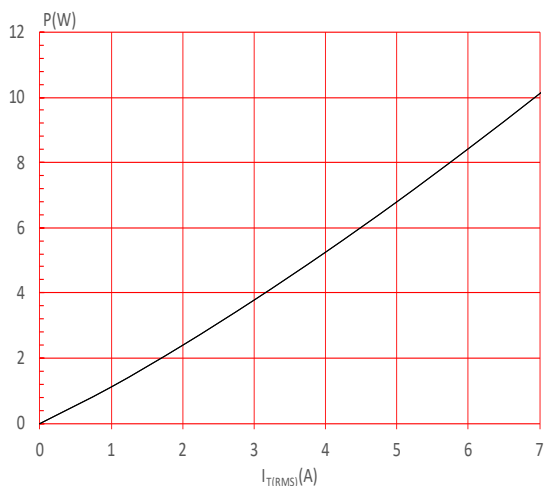
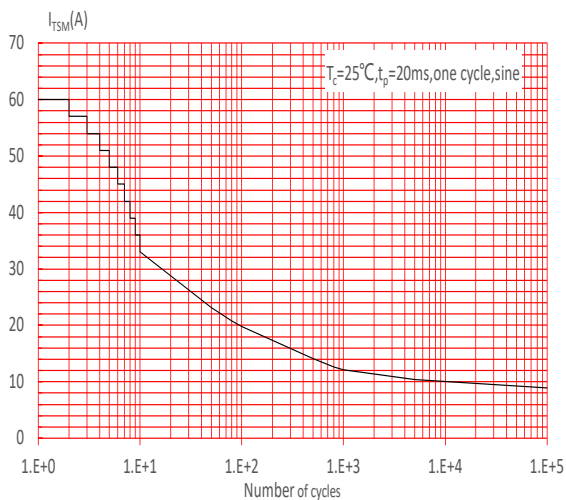
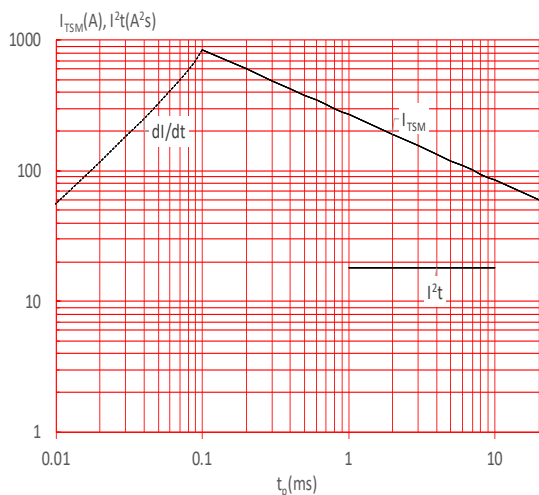
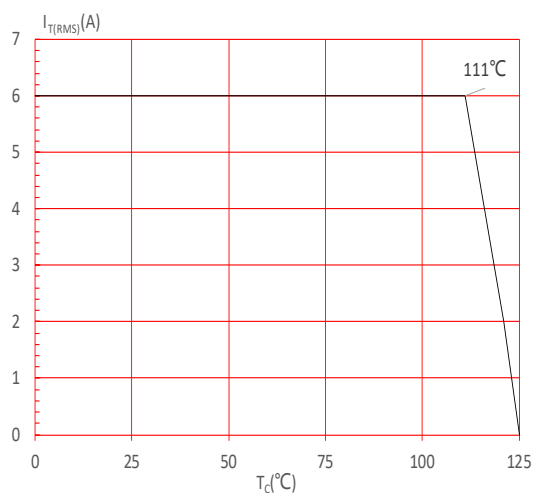
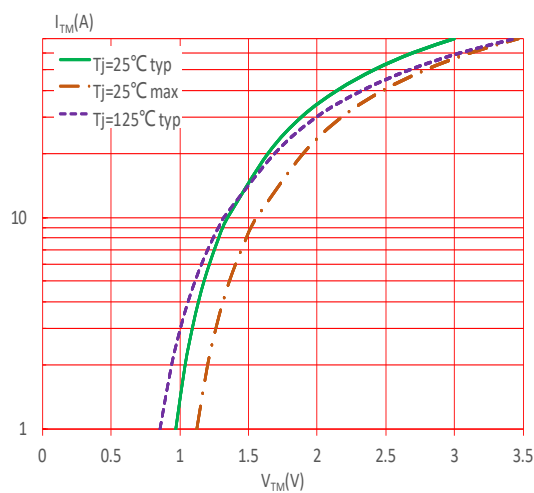
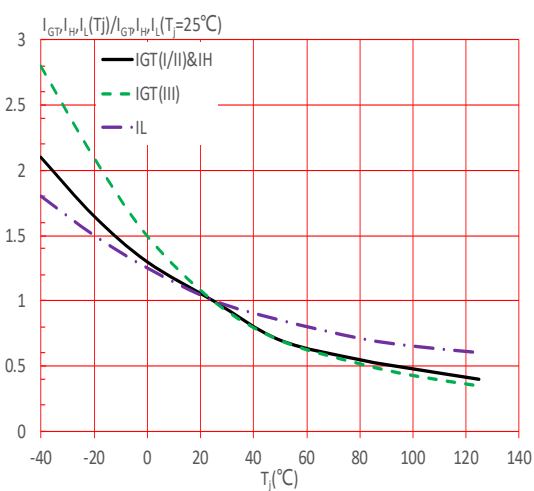
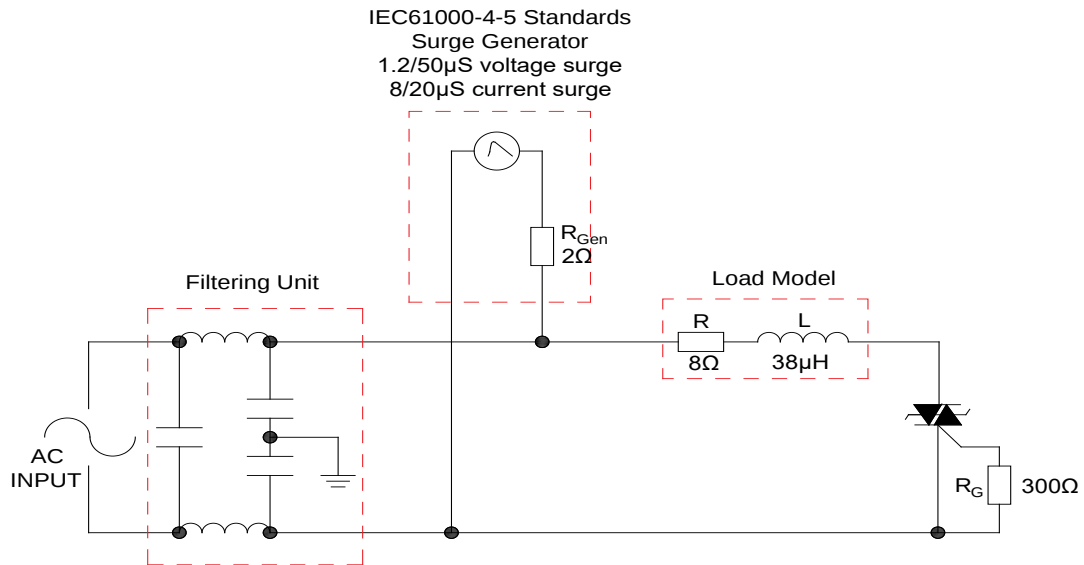
**FIG.1:** Maximum power dissipation versus RMS on-state current

**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

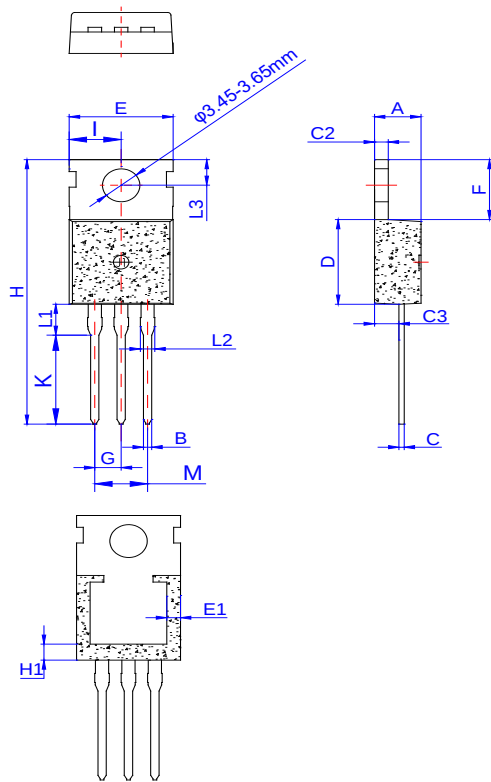
## ORDERING INFORMATION

| Order code  | Voltage<br>$V_{\text{DRM}}/V_{\text{RRM}}$ (V) | IGT(mA) | Package | Base qty.<br>(pcs) | Delivery<br>mode |
|-------------|------------------------------------------------|---------|---------|--------------------|------------------|
| ACJT610-10C | 1000                                           | 10      | TO-220C | 50                 | Tube             |

## Document Revision History

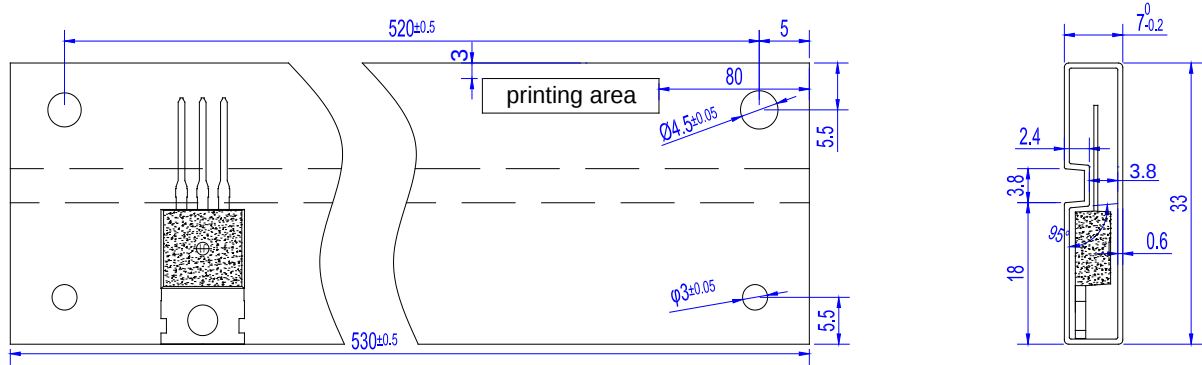
| Date         | Revision | Changes                        |
|--------------|----------|--------------------------------|
| Apr.14, 2023 | A.1.0    | Last updated                   |
| Oct.15, 2025 | A.1.1    | Revise PACKAGE MECHANICAL DATA |

PACKAGE MECHANICAL DATA



| 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   | 1.25        |      | 1.35  | 0.049  |      | 0.053 |
| C3   | 2.20        |      | 2.60  | 0.087  |      | 0.102 |
| D    | 8.90        |      | 9.90  | 0.350  |      | 0.390 |
| E    | 9.90        |      | 10.30 | 0.390  |      | 0.406 |
| E1   | 0.80        |      | 1.20  | 0.031  |      | 0.047 |
| F    | 6.30        |      | 6.90  | 0.248  |      | 0.272 |
| G    | 2.40        |      | 2.70  | 0.094  |      | 0.106 |
| H    | 28.00       |      | 29.80 | 1.102  |      | 1.173 |
| H1   | 2.15        |      | 2.55  | 0.085  |      | 0.100 |
| I    | 4.70        |      | 5.10  | 0.185  |      | 0.201 |
| K    | 9.90        |      | 10.30 | 0.390  |      | 0.406 |
| L1   | 2.70        |      | 3.30  | 0.106  |      | 0.130 |
| L2   | 1.14        |      | 1.70  | 0.045  |      | 0.067 |
| L3   | 2.65        |      | 2.95  | 0.104  |      | 0.116 |
| M    | 4.80        |      | 5.20  | 0.189  |      | 0.205 |

DELIVERY MODE



| PACKAGE | OUTLINE | TUBE (PCS) | INNER BOX (PCS) | PER CARTON |
|---------|---------|------------|-----------------|------------|
| TO-220C | TUBE    | 50         | 1,000           | 5,000      |

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