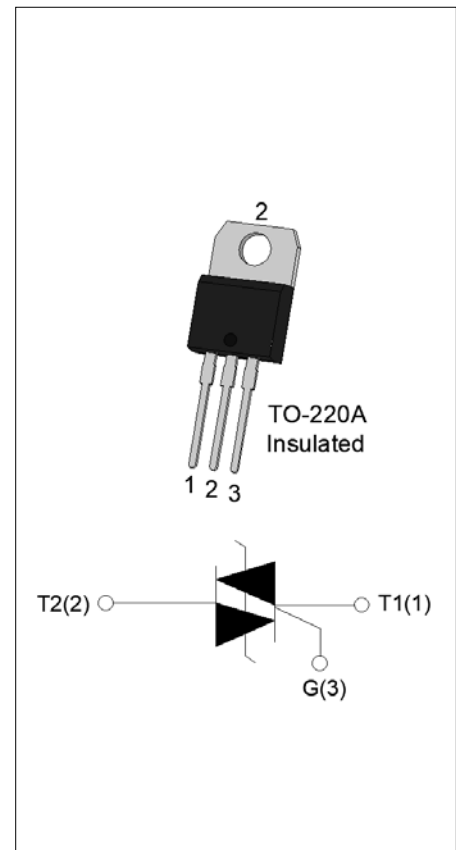


**ACJT405-10A 4A TRIAC**

Rev.A.1.1

**DESCRIPTION:**

The ACJT405-10A 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 ACJT405-10A 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, ACJT405-10A provides a rated insulation voltage of 2500 VRMS, complying with UL standards (File ref: E252906). Package TO-220A is RoHS compliant.


**MAIN FEATURES**

| Symbol             | Value | Unit |
|--------------------|-------|------|
| $I_{T(RMS)}$       | 4     | A    |
| $V_{DRM}/V_{RRM}$  | 1000  | 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 ( $T_j=25^\circ\text{C}$ )                                                     | $V_{DRM}$    | 1000    | V                      |
| Repetitive peak reverse voltage ( $T_j=25^\circ\text{C}$ )                                                       | $V_{RRM}$    | 1000    | V                      |
| RMS on-state current ( $T_c \leq 106^\circ\text{C}$ )                                                            | $I_{T(RMS)}$ | 4       | A                      |
| Non repetitive surge peak on-state current (full cycle , $t_p=20\text{ms}$ , $T_j=25^\circ\text{C}$ )            | $I_{TSM}$    | 40      | A                      |
| Non repetitive surge peak on-state current (full cycle , $t_p=16.6\text{ms}$ , $T_j=25^\circ\text{C}$ )          |              | 44      |                        |
| $I^2t$ value for fusing ( $t_p=10\text{ms}$ , $T_j=25^\circ\text{C}$ )                                           | $I^2t$       | 8       | $\text{A}^2\text{s}$   |
| 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) | $V_{pp}$    | 3   | 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.  | 15   | mA                     |
|             |                                                                                  | II           |       | 20   |                        |
| $I_H$       | $I_T=100\text{mA}$                                                               |              | MAX.  | 10   | mA                     |
| $dV/dt$     | $V_D=670\text{V}$ Gate Open $T_j=125^{\circ}\text{C}$                            |              | MIN.  | 150  | $\text{V}/\mu\text{s}$ |
| $(dI/dt)_c$ | $(dV/dt)_c=10\text{V}/\mu\text{s}$ , $T_j=125^{\circ}\text{C}$                   |              | MIN.  | 1.2  | $\text{A/ms}$          |
| $t_{on}$    | $I_G=10\text{mA } I_A=200\text{mA } I_R=20\text{mA}$<br>$T_j=25^{\circ}\text{C}$ |              | TYP.  | 2.5  | $\mu\text{s}$          |
| $t_{off}$   |                                                                                  |              |       | 35   |                        |
| $V_{CL}$    | $I_{CL}=0.1\text{mA } t_p=1\text{ms}$                                            |              | MIN.  | 1050 | V                      |

**STATIC CHARACTERISTICS**

| Symbol    | Parameter                                |                           | Value(MAX.) | Unit             |
|-----------|------------------------------------------|---------------------------|-------------|------------------|
| $V_{TM}$  | $I_{TM}=5.6\text{A } t_p=380\mu\text{s}$ | $T_j=25^{\circ}\text{C}$  | 1.55        | V                |
| $V_{TO}$  | Threshold voltage                        | $T_j=125^{\circ}\text{C}$ | 0.73        | V                |
| $R_D$     | Dynamic resistance                       | $T_j=125^{\circ}\text{C}$ | 171         | $\text{m}\Omega$ |
| $I_{DRM}$ | $V_D=V_{DRM} V_R=V_{RRM}$                | $T_j=25^{\circ}\text{C}$  | 8           | $\mu\text{A}$    |
| $I_{RRM}$ |                                          | $T_j=125^{\circ}\text{C}$ | 0.4         | mA               |

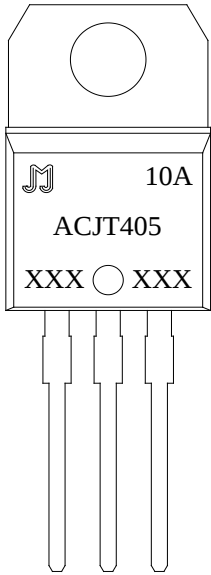
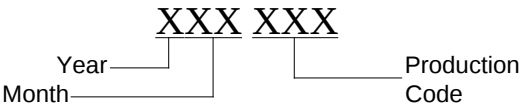
**THERMAL RESISTANCES**

| Symbol        | Parameter                | Value | Unit                 |
|---------------|--------------------------|-------|----------------------|
| $R_{th(j-c)}$ | junction to case (AC)    | 3.3   | $^{\circ}\text{C/W}$ |
| $R_{th(j-a)}$ | junction to ambient (AC) | 60    | $^{\circ}\text{C/W}$ |

ORDERING INFORMATION

|                                   |          |                          |          |           |            |                                    |
|-----------------------------------|----------|--------------------------|----------|-----------|------------|------------------------------------|
| <u>AC</u>                         | <u>J</u> | <u>T</u>                 | <u>4</u> | <u>05</u> | <u>-10</u> | <u>A</u>                           |
| AC switch                         |          | Triacs                   |          |           |            | A:TO-220A(Ins)                     |
| JieJie Microelectronics Co., Ltd. |          | $I_{T(RMS)}:4A$          |          |           |            |                                    |
|                                   |          | $05: I_{GT1-3} \leq 5mA$ |          |           |            | $10: V_{DRM} / V_{RRM} \geq 1000V$ |

MARKING

|                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                       |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  <p>Diagram of the ACJT405-10A marking on the component. The marking includes the JieJie logo (J), 10A, ACJT405, and a date code XXX ○ XXX.</p> |  <p>Diagram of the date and production code marking. The marking consists of two groups of three digits, XXX XXX. The first group is labeled Year and Month, and the second group is labeled Production Code.</p> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

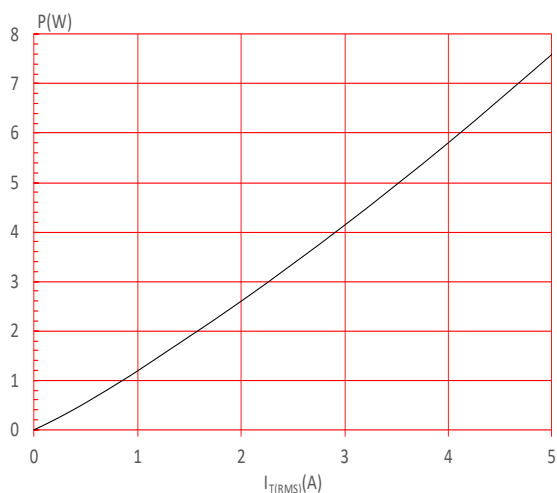
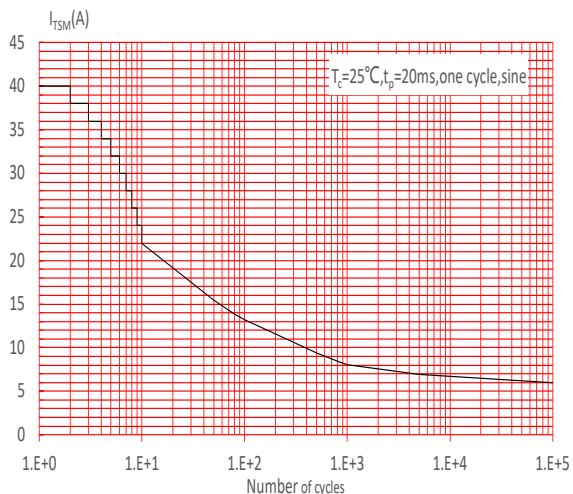
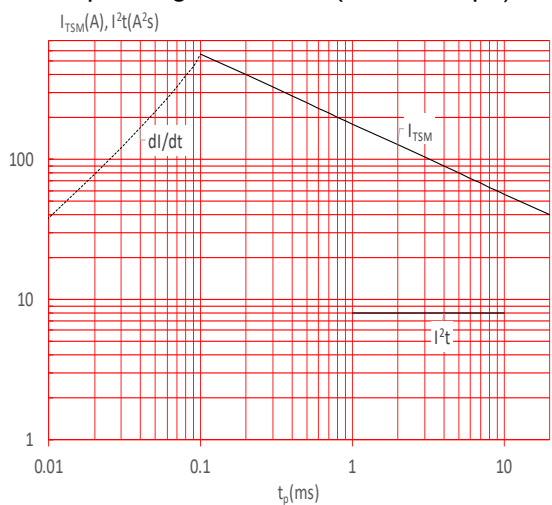
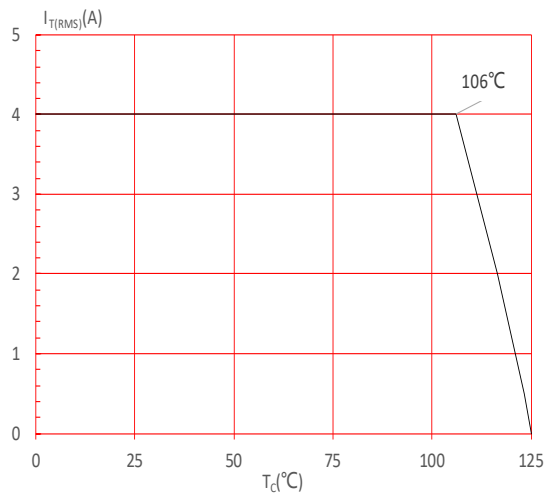
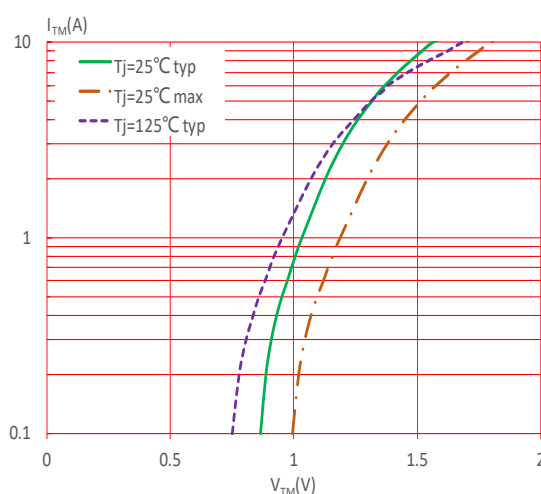
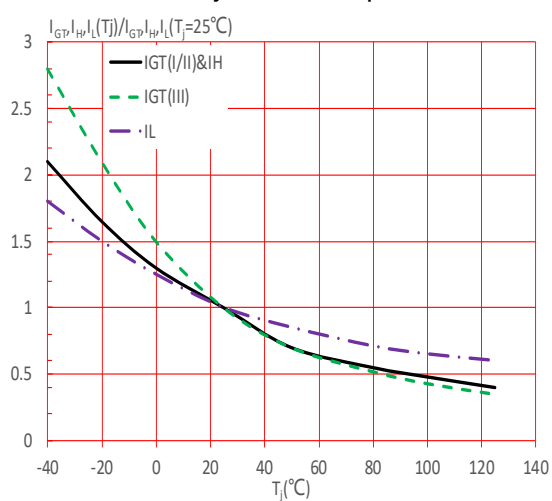
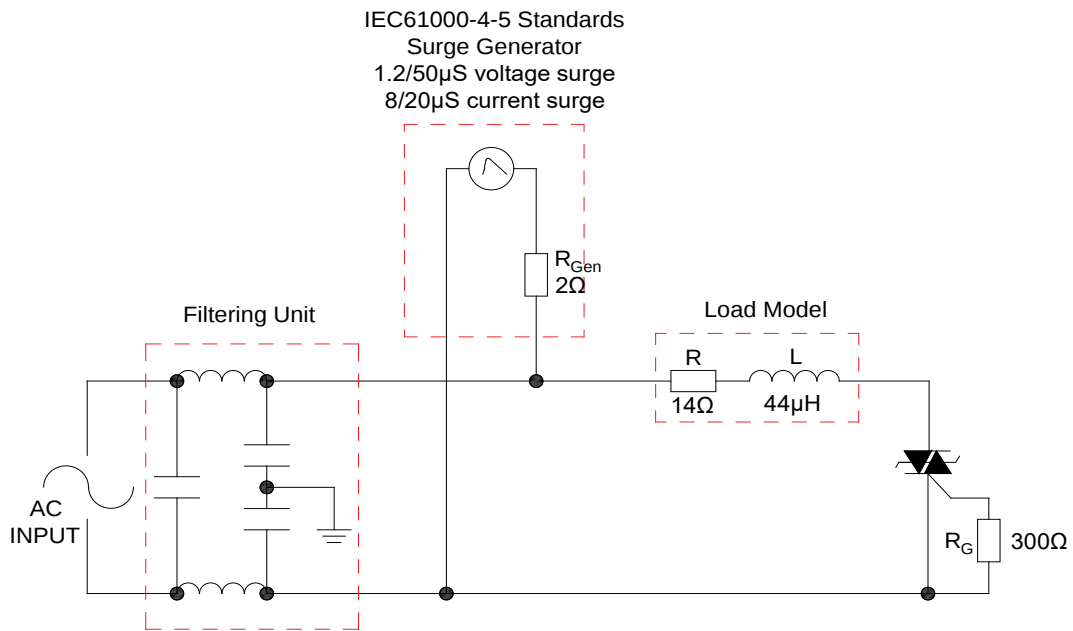
**FIG.1:** Maximum power dissipation versus RMS on-state current

**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  $t_p < 20\text{ms}$ , and corresponding value of  $I^2t$  ( $di/dt < 50\text{A}/\mu\text{s}$ )

**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 |
|-------------|------------------------------------------------|---------|--------------|--------------------|------------------|
| ACJT405-10A | 1000                                           | 5       | 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 |



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