# ACJT1235-10E 12A TRIAC

Rev.A.1.1

## DESCRIPTION:

The ACJT1235-10E 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 ACJT1235-10E embeds a TVS structure to absorb the inductive turn-off energy such as those described in the IEC 61000-4-5 standards. Package TO-263 is RoHS compliant.

## MAIN FEATURES

| Symbol | Value | Unit |
|---|---|---|
| $I_{T(RMS)}$ | | |
| $V_{DRM}/V_{RRM}$ | 1000 | V |
| $I_{GT}$ / / | | |

## 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 ) | $V_{DRM}$ | 1000 | V |
| Repetitive peak reverse voltage ($T_j$=25 ) | $V_{RRM}$ | 1000 | V |
| RMS on-state current ($T_C \leq$ 104 ) | $I_{T(RMS)}$ | 12 | A |
| Non repetitive surge peak on-state current (full cycle , $t_p$=20ms , $T_j$=25 ) | $I_{TSM}$ | 120 | A |
| Non repetitive surge peak on-state current (full cycle , $t_p$=16.6ms , $T_j$=25 ) | | 132 | |
| $I^2t$ value for fusing ($t_p$=10ms , $T_j$=25 ) | $I^2t$ | 72 | $A^2s$ |
| Critical rate of rise of on-state current ($I_G$=2 $I_{GT}$ , f=100Hz , $T_j$=125 ) | dI/dt | 100 | A/μs |
| Peak gate current ($t_p$=20μs , $T_j$=125 ) | $I_{GM}$ | 4 | A |
| Average gate power dissipation ($T_j$=125 ) | $P_{G(AV)}$ | 0.5 | W |
| Peak gate power | P | 10 | W |

| | | | |
|---|---|---|---|
| Peak pulse voltage ($T_j$=25 ; non-repetitive,off-state;FIG.8) | $V_{pp}$ | 5 | kV |

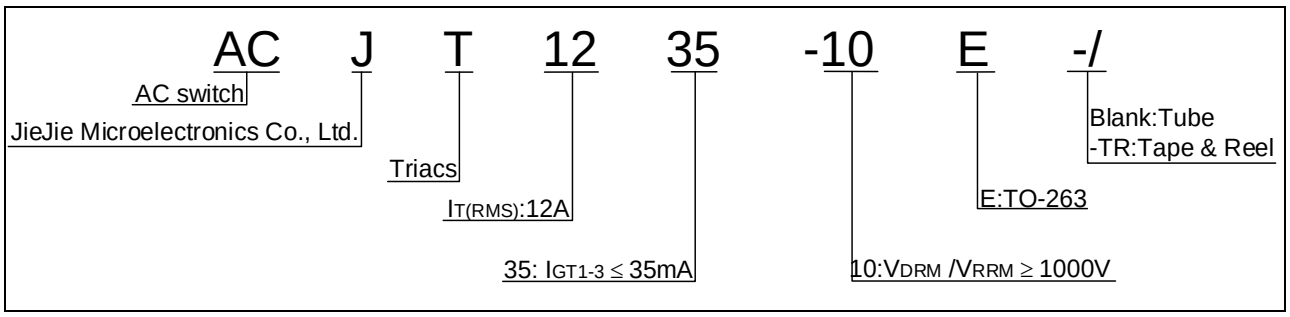
## ELECTRICAL CHARACTERISTICS ($T_j$=25 unless otherwise specified)

| Symbol | Test Condition | Quadrant | Value | | Unit |
|---|---|---|---|---|---|
| $I_{GT}$ | $V_D$ =12V $R_L$ =33Ω | - - | MAX. | 35 | mA |
| $V_{GT}$ | | - - | MAX. | 1 | V |
| $V_{GD}$ | $V_D$ =$V_{DRM}$ $T_j$ =125 $R_L$ =3.3kΩ | - - | MIN. | 0.2 | V |
| $I_L$ | $I_G$ =1.2$I_{GT}$ | - | MAX. | 50 | mA |
| | | | | 70 | |
| $I_H$ | $I_T$ =500mA | | MAX. | 45 | mA |
| dV/dt | $V_D$=670V Gate Open $T_j$ =125 | | MIN. | 800 | V/μs |
| (dI/dt)c | (dV/dt)c=20V/μs, $T_j$=125 | | MIN. | 15 | A/ms |
| $t_{on}$ | $I_G$=40mA $I_A$=200mA $I_R$=20mA $T_j$=25 | | TYP. | 5 | μs |
| $t_{off}$ | | | | 70 | |
| $V_{CL}$ | $I_{CL}$=0.1mA $t_p$=1ms | | MIN. | 1050 | V |

## STATIC CHARACTERISTICS

| Symbol | Parameter | | Value(MAX.) | Unit |
|---|---|---|---|---|
| $V_{TM}$ | $I_{TM}$ =17A $t_p$=380μs | $T_j$=25 | 1.45 | V |
| $V_{TO}$ | Threshold voltage 1.45 | $T_j$¥1 | | |

## ORDERING INFORMATION




## MARKING

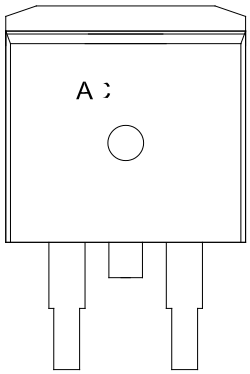


**FIG.1:** Maximum power dissipation versus RMS on-state current



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

**FIG.7:** Relative variations of gate trigger current, holding current and latching current versus junction temperature

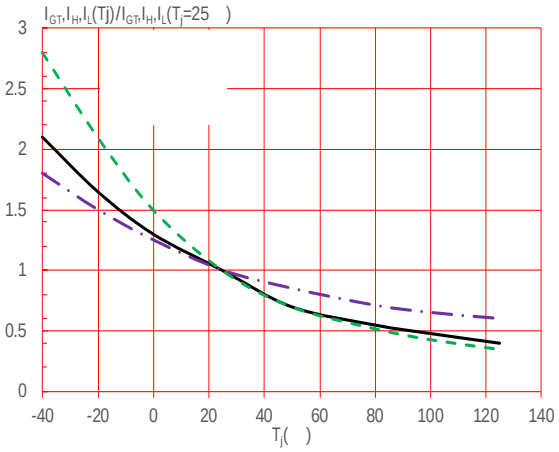
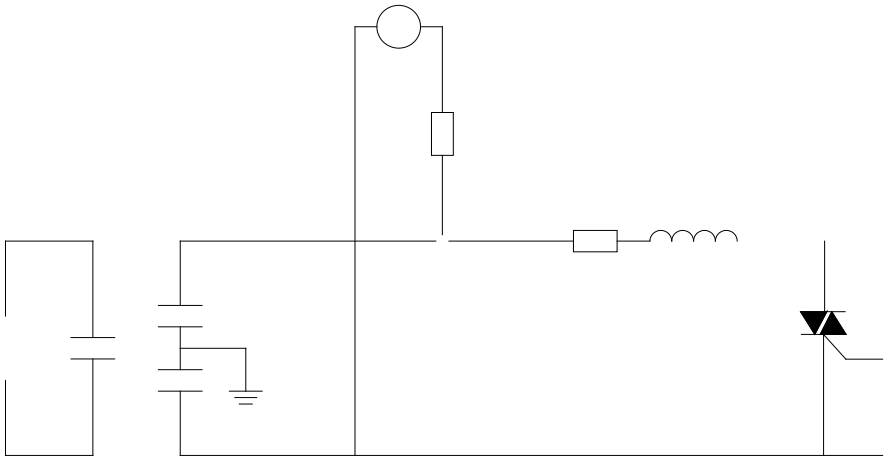


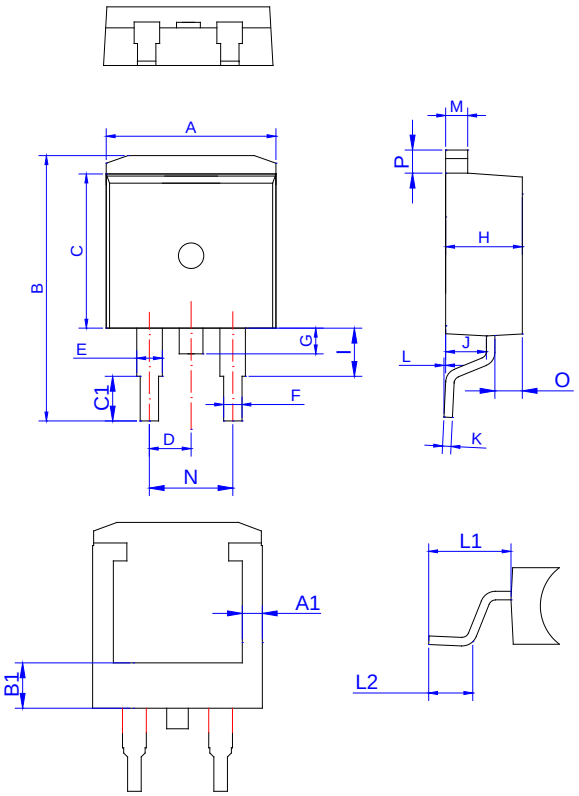
FIG.8: Test circuit for inductive and resistive loads to IEC-61000-4-5 standards



## ORDERING INFORMATION

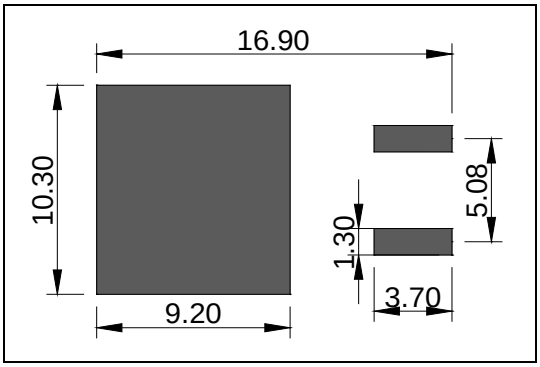
| Order code | Voltage $V_{DRM}/V_{RRM}$ (V) | IGT(mA) | Package | Base qty. (pcs) | Delivery mode |
|---|---|---|---|---|---|
| ACJT1235-10E | 1000 | 35 | TO-263 | 50 | Tube |

## PACKAGE MECHANICAL DATA




| Ref. | Dimensions | | | | | |
|---|---|---|---|---|---|---|
| | Millimeters | | | Inches | | |
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| A | 9.90 | | 10.20 | 0.390 | | 0.402 |
| A1 | 0.80 | | 1.20 | 0.031 | | 0.047 |
| B | 14.70 | | 15.80 | 0.579 | | 0.622 |
| B1 | 2.15 | | 2.55 | 0.085 | | 0.100 |
| C | 9.40 | | 9.60 | 0.370 | | 0.378 |
| C1 | 2.40 | | 2.80 | 0.094 | | 0.110 |
| D | 2.40 | | 2.70 | 0.094 | | 0.106 |
| E | 1.20 | | 1.50 | 0.047 | | 0.059 |
| F | 0.75 | | 0.85 | 0.029 | | 0.033 |
| G | 1.00 | | 1.50 | 0.039 | | 0.059 |
| H | 4.40 | | 4.70 | 0.173 | | 0.185 |
| I | 1.80 | | 2.20 | | | |
| J | 2.30 | | 2.70 | 0.091 | | 0.106 |
| K | 0.38 | | 0.55 | 0.015 | | 0.022 |
| L | 0 | 0.10 | 0.25 | 0 | 0.004 | 0.010 |
| L1 | 4.65 | | 5.05 | 0.183 | | 0.199 |
| L2 | 1.90 | | | 0.075 | | |
| M | 1.25 | | 1.35 | 0.049 | | 0.053 |
| N | 4.80 | | 5.20 | | | |
| O | 1.30 | | 1.50 | | | |
| P | 1.20 | | 1.50 | 0.047 | | 0.059 |

## FOOTPRINT-TO-263 (dimensions in mm)



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