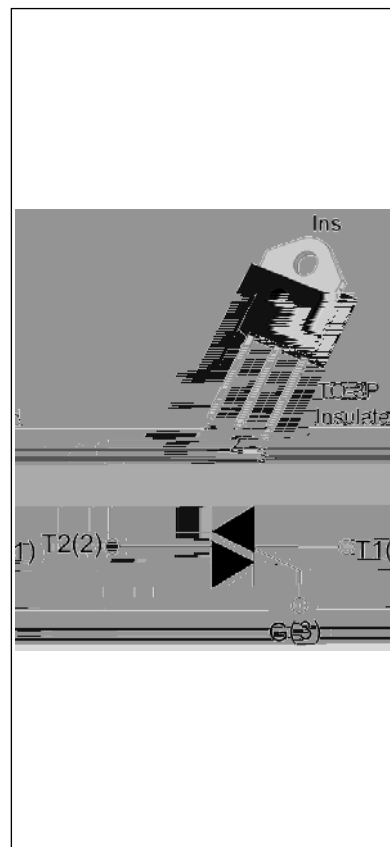


**JST30Z-600CW 30A TRIAC**

Rev.A.1.1

**DESCRIPTION:**

The JST30Z-600CW 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. JST30Z-600CW snubberless triac is especially recommended for use on inductive loads. By using an internal ceramic pad, JST30Z-600CW provides a rated insulation voltage of 2500 VRMS, complying with UL standards (File ref: E252906). Package TO-3P is RoHS compliant.

**MAIN FEATURES**

| Symbol            | Value    | Unit |
|-------------------|----------|------|
| $I_{T(RMS)}$      | 30       | A    |
| $V_{DRM}/V_{RRM}$ | 600      | V    |
| $I_{GT} / /$      | 35/35/35 | mA   |

**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 ( $T_j=25^\circ\text{C}$ )                                                     | $V_{DRM}$    | 600     | V                      |
| Repetitive peak reverse voltage ( $T_j=25^\circ\text{C}$ )                                                       | $V_{RRM}$    | 600     | V                      |
| RMS on-state current ( $T_C \leq 79^\circ\text{C}$ )                                                             | $I_{T(RMS)}$ | 30      | A                      |
| Non repetitive surge peak on-state current (full cycle, $t_p=20\text{ms}$ , $T_j=25^\circ\text{C}$ )             | $I_{TSM}$    | 300     | A                      |
| Non repetitive surge peak on-state current (full cycle, $t_p=16.6\text{ms}$ , $T_j=25^\circ\text{C}$ )           |              | 330     |                        |
| $I^2t$ value for fusing ( $t_p=10\text{ms}$ , $T_j=25^\circ\text{C}$ )                                           | $I^2t$       | 450     | $\text{A}^2\text{s}$   |
| 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 ( $T_j=125$ )                          | $P_{G(AV)}$ | 0.5 | W  |
| Peak gate power                                                       | $P_{GM}$    | 10  | W  |
| Peak pulse voltage<br>( $T_j=25$ ; non-repetitive, off-state; FIG. 7) | $V_{pp}$    | 2.5 | kV |

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

| Symbol      | Test Condition                                | Quadrant | Value |      | Unit       |
|-------------|-----------------------------------------------|----------|-------|------|------------|
| $I_{GT}$    | $V_D=12V$ $R_L=33\Omega$                      | - -      | MAX.  | 35   | mA         |
| $V_{GT}$    |                                               | - -      | MAX.  | 1.3  | V          |
| $V_{GD}$    | $V_D=V_{DRM}$ $T_j=125$<br>$R_L=3.3k\Omega$   | - -      | MIN.  | 0.15 | V          |
| $I_L$       | $I_G=1.2I_{GT}$                               | -        | MAX.  | 70   | mA         |
|             |                                               |          |       | 80   |            |
| $I_H$       | $I_T=500mA$                                   |          | MAX.  | 50   | mA         |
| $dV/dt$     | $V_D=400V$ Gate Open $T_j=125$                |          | MIN.  | 1500 | V/ $\mu s$ |
| $(dI/dt)_c$ | $(dV/dt)_c=20V/\mu s$ $T_j=125$               |          | MIN.  | 15   | A/ms       |
| $t_{on}$    | $I_G=40mA$ $I_A=200mA$ $I_R=20mA$<br>$T_j=25$ |          | TYP.  | 7    | $\mu s$    |
| $t_{off}$   |                                               |          |       | 50   |            |

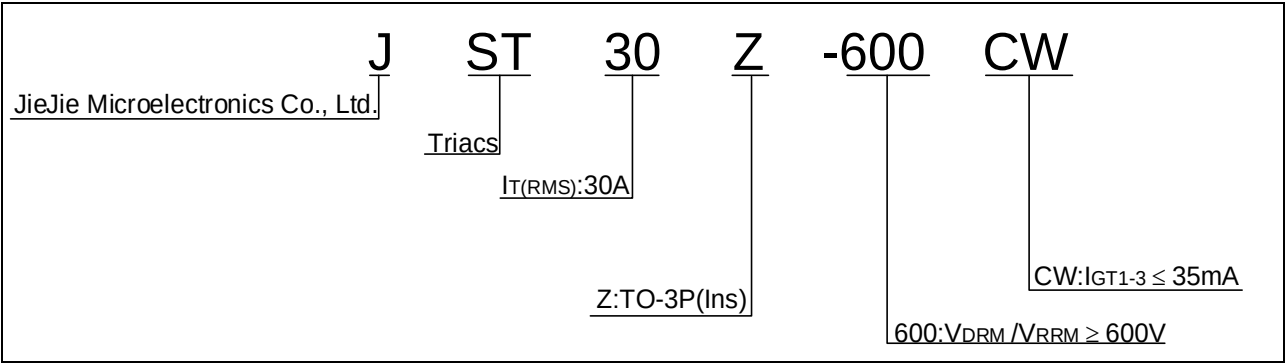
**STATIC CHARACTERISTICS**

| Symbol    | Parameter                   |           | Value(MAX.) | Unit      |
|-----------|-----------------------------|-----------|-------------|-----------|
| $V_{TM}$  | $I_{TM}=42A$ $t_p=380\mu s$ | $T_j=25$  | 1.5         | V         |
| $V_{TO}$  | Threshold voltage           | $T_j=125$ | 0.72        | V         |
| $R_D$     | Dynamic resistance          | $T_j=125$ | 25          | $m\Omega$ |
| $I_{DRM}$ | $V_D=V_{DRM}$ $V_R=V_{RRM}$ | $T_j=25$  | 5           | $\mu A$   |
| $I_{RRM}$ |                             | $T_j=125$ | 1.5         | mA        |

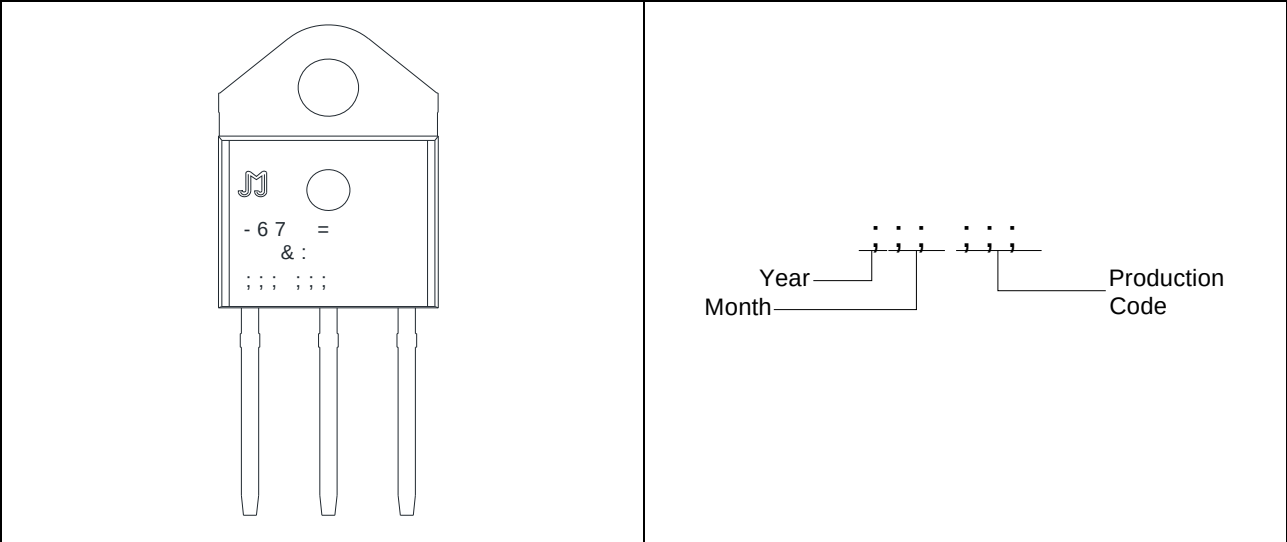
**THERMAL RESISTANCES**

| Symbol        | Parameter                | Value | Unit |
|---------------|--------------------------|-------|------|
| $R_{th(j-c)}$ | junction to case (AC)    | 1.1   | /W   |
| $R_{th(j-a)}$ | junction to ambient (AC) | 50    | /W   |

ORDERING INFORMATION

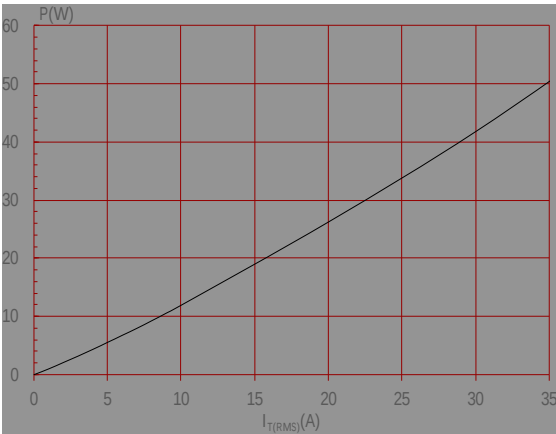


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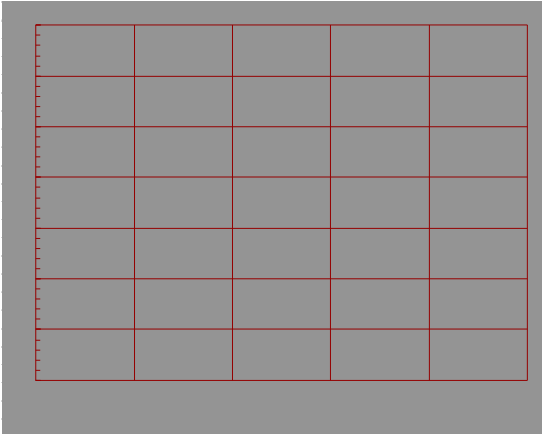




**FIG.1:** Maximum power dissipation versus RMS on-state current



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





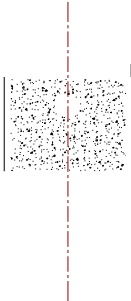
**JST30Z-600CW**



PACKAGE MECHANICAL DATA

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