



## JST138C-600D 12A TRIAC

Rev.A.1.1

### DESCRIPTION:

The JST138C-600D triac is suitable for

AC switching. It can be used as an

app

starting circuits, f

dimmers, m

externa

Package T -220C is R c

### MAIN FEATURES

### ABSOLUTE MAXIMUM RATINGS

| Parameter                                                                         | Symbol       | Value   | Unit |
|-----------------------------------------------------------------------------------|--------------|---------|------|
| Storage temperature                                                               | $T_{stg}$    | -40~150 | °C   |
| Junction temperature                                                              | $T_j$        | -40~125 | °C   |
| Repetitive peak reverse voltage<br>( $f \leq 25$ Hz)                              | $V_{DRM}$    | 600     | V    |
| Repetitive peak reverse voltage<br>( $f \leq 25$ Hz)                              | $V_{RRM}$    | 600     | V    |
| RMS on-state current<br>( $T \leq 98$ °C)                                         | $I_{T(RMS)}$ | 120     | A    |
| Non-repetitive peak on-state current<br>( $f \leq 20$ ms, $T_j = 25$ °C)          | $I_{TSM}$    | 95      | A    |
| Non-repetitive peak on-state current<br>( $f \leq 16.6$ ms, $T_j = 25$ °C)        |              | 105     |      |
| Gate trigger pulse<br>( $f \leq 10$ ms, $T_j = 25$ °C)                            | $I_{gt}$     | 45      | A    |
| Critical rate of change of on-state current<br>( $f \leq 20$ kHz, $T_j = 125$ °C) | $dI/dt$      | 50      | A/μs |
|                                                                                   |              | 20      |      |

|                                                      |          |    |    |
|------------------------------------------------------|----------|----|----|
| Peak gate power                                      | $P_{GM}$ | 10 | mW |
| Peak pulse power<br>( $T_j = 25$ °C; non-repetitive) |          |    |    |

ELECTRICAL CHARACTERISTICS

| Symbol      | Test Condition                                | Quadrant | Value       |     | Unit      |
|-------------|-----------------------------------------------|----------|-------------|-----|-----------|
| $I_{GT}$    | $V_D=12V$ $R_L=33\Omega$                      | - -      | MAX.        | 5   | mA        |
|             |                                               |          |             | 10  |           |
| $V_{GT}$    |                                               | ALL      | MAX.        | 1   | V         |
| $V_{GD}$    | $V_D=V_{DRM}$ $T_j=125$<br>$R_L=3.3k\Omega$   | ALL      | MI .        | 0.2 | V         |
| $I_L$       | $I_G=1.2 I_{GT}$                              | - -      | MAX.        | 15  | mA        |
|             |                                               |          |             | 20  |           |
| $I_H$       | $I_T=500mA$                                   |          | MAX.        | 10  | mA        |
| $dV/dt$     | $V_D=400V$ Gate $n$ $T_j=125$                 |          | MI .        | 0   | $V/\mu s$ |
| $(dV/dt)_C$ | $(dI/dt)_C=5 A/ms$ , $T_j=110$                |          | MI          | 2   | $V/\mu s$ |
| $t$         | $I_G=20mA$ $I_K=200mA$ $I_R=20mA$<br>$T_j=25$ |          | ° TYP.<br>° | 3   | $\mu s$   |
| $t$         |                                               |          |             | 30  |           |

STATIC CHARACTERISTICS

| Symbol    | Parameter                    |           | Value(MAX.) | Unit      |
|-----------|------------------------------|-----------|-------------|-----------|
| $V_{TM}$  | $I_{TM}=15 A$ $t_p=380\mu s$ | $T_j=25$  | 1.6         | V         |
| $V_T$     | Thresh                       | $T_j=125$ | 0.8         | V         |
| $R_D$     | Dynamic resistance           | $T_j=125$ | 41          | $m\Omega$ |
| $I_{BRM}$ | $V_D=V_{DRM}$ $V_R=V_{RRM}$  | $T_j=25$  | 5           | $\mu A$   |
| $I_{RRM}$ |                              | $T_j=125$ | 0.4         | Un        |

**JST138C-600D**

FIG.1: Maximum p  
state current

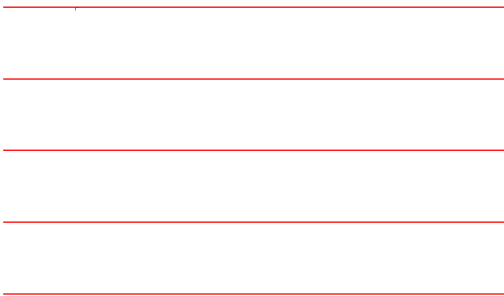
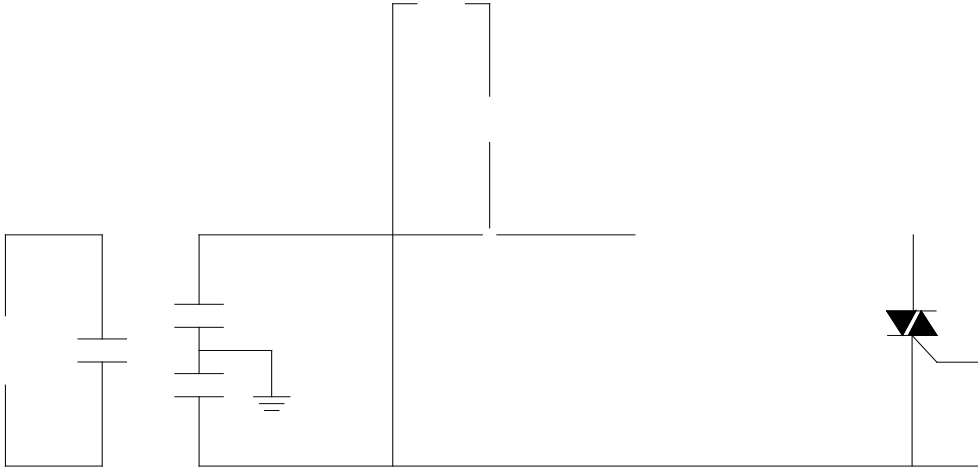


FIG.2: RMS -state current versus case  
temperature



## ORDERING INFORMATION

| Order code   | Voltage<br>$V_{\text{DRM}}/V_{\text{RRM}}$ (V) | IGT(mA) |    | Package | Base qty.<br>(pcs) | Delivery<br>mode |
|--------------|------------------------------------------------|---------|----|---------|--------------------|------------------|
|              |                                                | - -     |    |         |                    |                  |
| JST138C-600D | 600                                            | 5       | 10 | TO-220C | 50                 | Tube             |

PACKAGE MECHANICAL DATA

