



DESCRIPTION:

The JST04F-600TW 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. JST04F-600TW snubberless triac is especially recommended for use on inductive loads. It can be driven directly through the MCU I/O port. By using an external plastic package, JST04F-600TW provides a rated insulation voltage of 2000 VRMS, complying with UL standards (File ref: E252906). Package TO-220F is RoHS compliant.

MAIN FEATURES

| Symbol | Value | Unit |
|-------------------|-------|------|
| $I_{T(RMS)}$ | 4 | A |
| V_{DRM}/V_{RRM} | 600 | V |

$I_{GT} / /$

ABSOLUTE MAXIMUM RATINGS

| Storage junction temperature range | T_{stg} | -40-150 | |
|---|--------------|---------|-----------|
| Operating junction temperature range | T_j | -40-125 | |
| Repetitive peak off-state voltage ($T_j=25^\circ C$) | V_{DRM} | 600 | V |
| Repetitive peak reverse voltage ($T_j=25^\circ C$) | V_{RRM} | 600 | V |
| RMS on-state current ($T_c = 97^\circ C$) | $I_{T(RMS)}$ | 4 | A |
| Non repetitive surge peak on-state current (full cycle, $t_p=20ms$, $T_j=25^\circ C$) | I_{TSM} | 40 | A |
| Non repetitive surge peak on-state current (full cycle, $t_p=16.6ms$, $T_j=25^\circ C$) | | 44 | |
| I^2t value for fusing ($t_p=10ms$, $T_j=25^\circ C$) | I^2t | 8 | A^2s |
| Critical rate of rise of on-state current ($I_G=2 \times I_{GT}$, $f=100Hz$, $T_j=125^\circ C$) | di/dt | 50 | $A/\mu s$ |



| | | | |
|---|-------------|-----|----|
| Peak gate current ($t_p=20\mu s$, $T_j=125$) | 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 ($T_j=25$; non-repetitive, off-state; FIG. 7) | V_{pp} | 4 | kV |

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

| | | | | | |
|-------------|---|-----|------|-----|------------|
| I_{GT} | $V_D=12V$ $R_L=33$ | - - | MAX. | 5 | mA |
| V_{GT} | | - - | MAX. | 1 | V |
| V_{GD} | $V_D=V_{DRM}$ $T_j=125$ $R_L=3.3k$ | - - | MIN. | 0.2 | V |
| I_L | $I_G=1.2I_{GT}$ | - | MAX. | 10 | mA |
| | | | | 15 | |
| I_H | $I_T=100mA$ | | MAX. | 10 | mA |
| dV/dt | $V_D=400V$ Gate Open $T_j=125$ | | MIN. | 150 | V/ μs |
| $(dI/dt)_c$ | $(dV/dt)_c=10V/\mu s$, $T_j=125$ | | MIN. | 1 | A/ms |
| t_{on} | $I_G=10mA$ $I_A=200mA$ $I_R=20mA$ $T_j=25$ | | TYP. | 2 | μs |
| t_{off} | | | | 20 | |

STATIC CHARACTERISTICS

| | | | | |
|-----------|-----------------------------|-----------|-------|---------|
| V_{TM} | $I_{TM}=5A$ $t_p=380\mu s$ | $T_j=25$ | 1.65 | V |
| V_{TO} | Threshold voltage | $T_j=125$ | 0.799 | V |
| R_D | Dynamic resistance | $T_j=125$ | 151 | m |
| I_{DRM} | $V_D=V_{DRM}$ $V_R=V_{RRM}$ | $T_j=25$ | 5 | μA |
| I_{RRM} | | $T_j=125$ | 0.2 | mA |

THERMAL RESISTANCES

| | | | |
|---------------|--------------------------|-----|----|
| $R_{th(j-c)}$ | junction to case (AC) | 4.5 | /W |
| $R_{th(j-a)}$ | junction to ambient (AC) | 60 | /W |



ORDERING INFORMATION

| | | | | | |
|-----------------------------------|-----------|-----------------|----------------|---------------|-----------|
| J | ST | 04 | F | -600 | TW |
| JieJie Microelectronics Co., Ltd. | Triacs | $I_{T(RMS)}:4A$ | F:TO-220F(Ins) | 600:VDRM/VRRM | TW:IGT1-3 |

MARKING

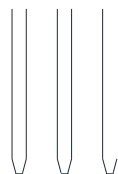
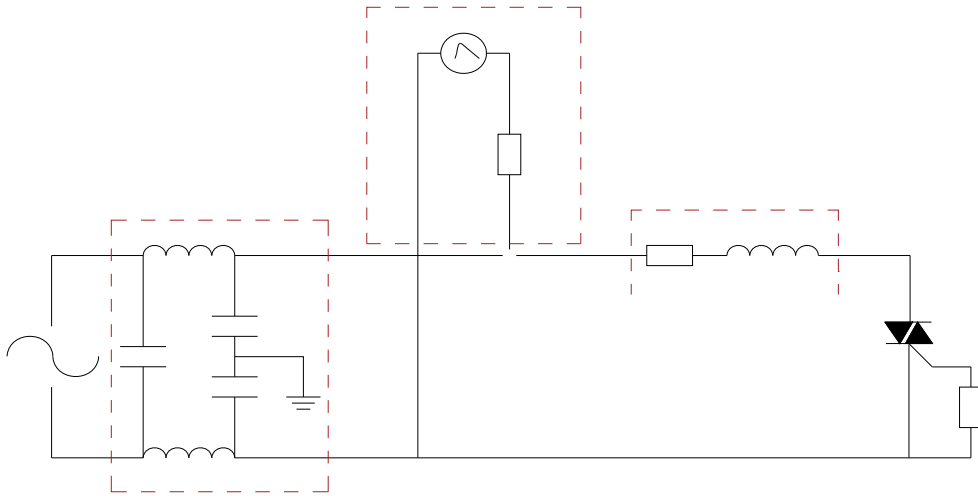




FIG.7 Test circuit for inductive and resistive loads to IEC-61000-4-5 standards





ORDERING INFORMATION

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| Date | Revision | Changes |
|--------------|----------|--------------------------------|
| Apr.11, 2023 | A.1.0 | Last updated |
| Oct.10, 2025 | A.1.1 | Revise PACKAGE MECHANICAL DATA |

