

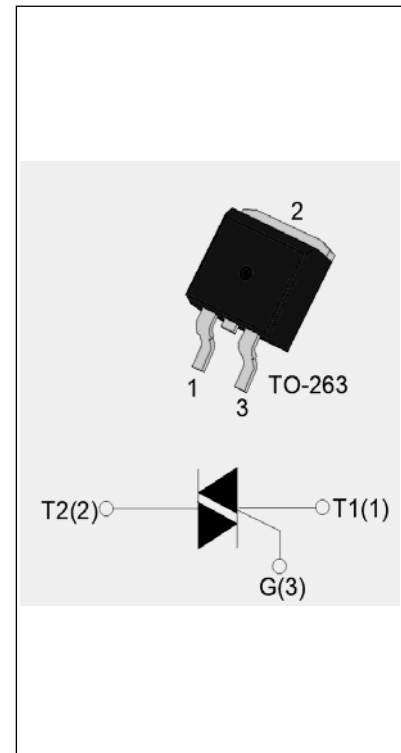


DESCRIPTION:

The JST08E-800TW 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. JST08E-800TW snubberless triac is especially recommended for use on inductive loads. It can be driven directly through the MCU I/O port. Package TO-263 is RoHS compliant.

MAIN FEATURES

| Symbol | Value | Unit |
|-------------------|-------|------|
| $I_{T(RMS)}$ | 8 | A |
| V_{DRM}/V_{RRM} | 800 | V |
| $I_{GT} / /$ | 5/5/5 | mA |



ABSOLUTE MAXIMUM RATINGS

| | | | |
|--|--------------|---------|------------------------|
| Storage junction temperature range | T_{stg} | -40-150 | |
| Operating junction temperature range | T_j | -40-125 | |
| Repetitive peak off-state voltage ($T_j=25^\circ\text{C}$) | V_{DRM} | 800 | V |
| Repetitive peak reverse voltage ($T_j=25^\circ\text{C}$) | V_{RRM} | 800 | V |
| RMS on-state current ($T_c = 107^\circ\text{C}$) | $I_{T(RMS)}$ | 8 | A |
| Non repetitive surge peak on-state current (full cycle, $t_p=20\text{ms}$, $T_j=25^\circ\text{C}$) | I_{TSM} | 80 | A |
| Non repetitive surge peak on-state current (full cycle, $t_p=16.6\text{ms}$, $T_j=25^\circ\text{C}$) | | 88 | |
| I^2t value for fusing ($t_p=10\text{ms}$, $T_j=25^\circ\text{C}$) | I^2t | 32 | A^2s |
| 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 ($T_j=25$; non-repetitive, off-state; FIG.8) | V_{pp} | 1.5 | 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 | $V_D=540V$ Gate Open $T_j=125$ | | MIN. | 100 | V/ μs |
| $(dI/dt)_c$ | $(dV/dt)_c=10V/\mu s, T_j=125$ | | MIN. | 0.5 | 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} | $I_{TM}=11A t_p=380\mu s$ | $T_j=25$ | 1.5 | V |
| V_{TO} | Threshold voltage | $T_j=125$ | 0.8 | V |
| R_D | Dynamic resistance | $T_j=125$ | 44 | m |
| I_{DRM} | $V_D=V_{DRM} V_R=V_{RRM}$ | $T_j=25$ | 5 | μA |
| I_{RRM} | | $T_j=125$ | 0.35 | mA |

THERMAL RESISTANCES

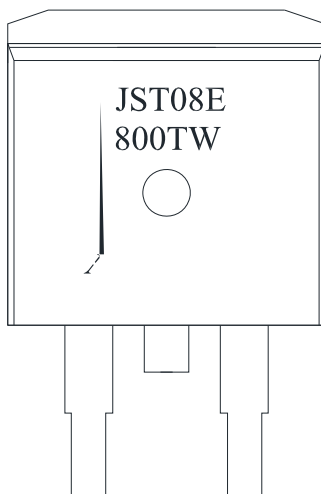
| | | | |
|---------------|---|-----|-------|
| $R_{th(j-c)}$ | junction to case (AC) | 1.6 | /W |
| $R_{th(j-a)}$ | junction to ambient (AC, in free air, $S=2cm^2$) | 45 | /W 1) |



ORDERING INFORMATION

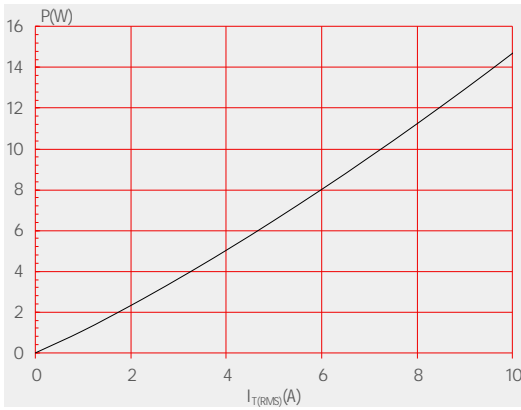
| | | | | | | | |
|-----------------------------------|----------|-----------------|-----------|----------|----------------|---------------|-------------------------------|
| | J | ST | 08 | E | -800 | TW | -/ |
| JieJie Microelectronics Co., Ltd. | Triacs | $I_{T(RMS)}:8A$ | | E:TO-263 | | TW:IGT1-3 5mA | Blank:Tube -TR:Tape & Reel |
| | | | | | 800:VDRM /VRRM | 800V | |

MARKING

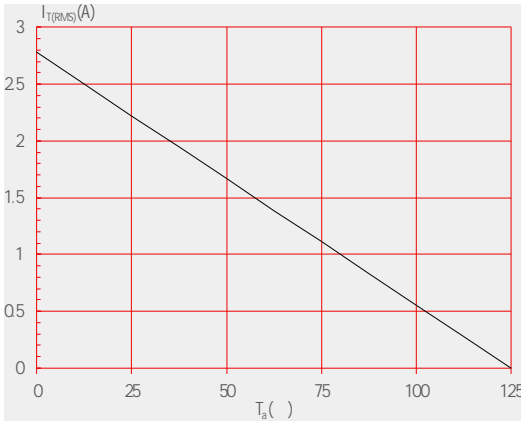




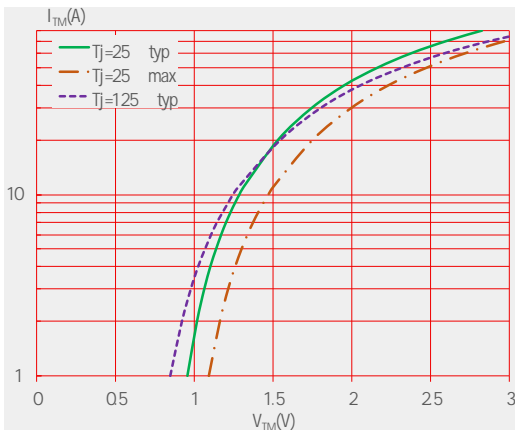
Maximum power dissipation versus RMS on-state current



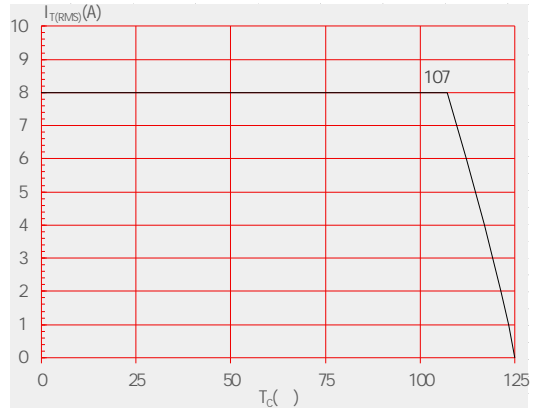
RMS on-state current versus ambient temperature (printed circuit board FR4, copper thickness:35 μ m)(full cycle)



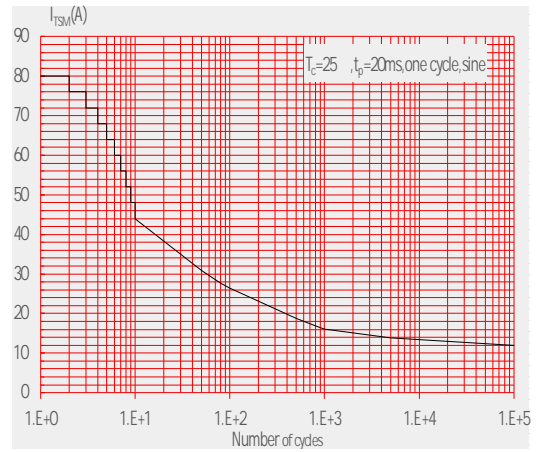
On-state characteristics



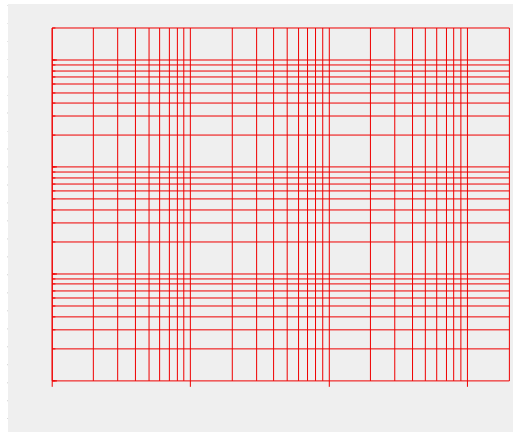
RMS on-state current versus case temperature



Surge peak on-state current versus number of cycles



Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20$ ms, and corresponding value of I^2t ($di/dt < 50$ A/ μ s)





Relative variations of gate trigger current, holding current and latching current versus junction temperature

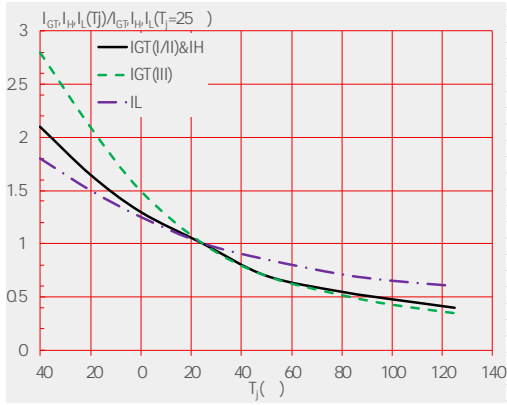
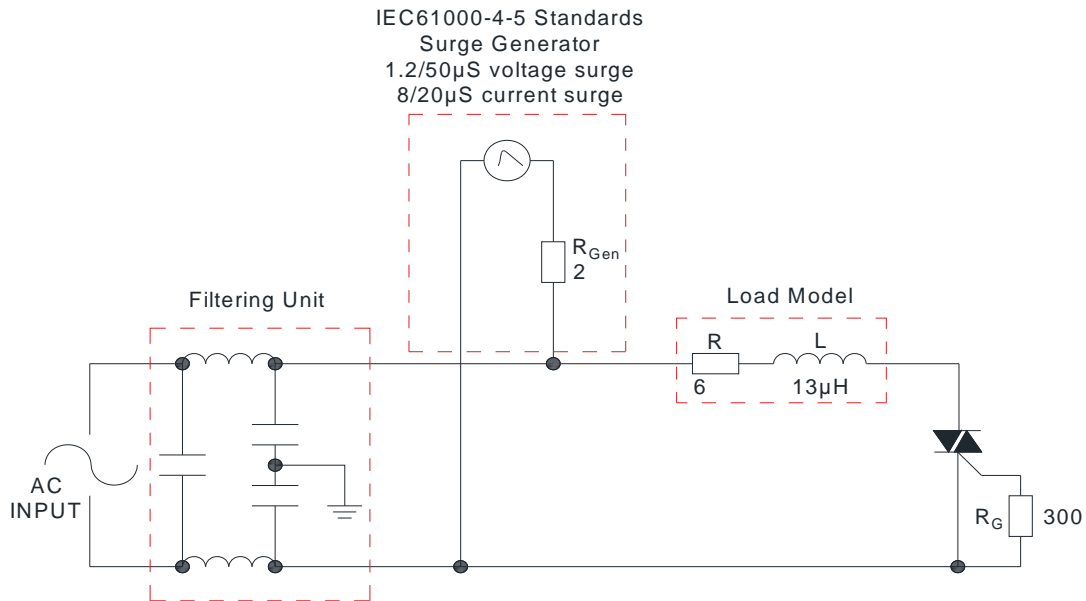


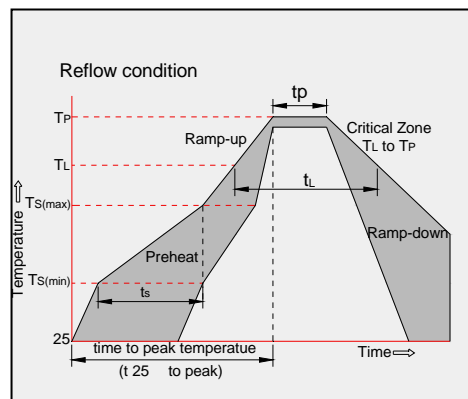


FIG.8 Test circuit for inductive and resistive loads to IEC-61000-4-5 standards



SOLDERING PARAMETERS

| Reflow Condition | | Pb-Free assembly (see figure at right) |
|---|--------------------------------------|---|
| Pre Heat | -Temperature Min ($T_{s(min)}$) | +150 |
| | -Temperature Max($T_{s(max)}$) | +200 |
| | -Time (Min to Max) (ts) | 60-180 secs. |
| Average ramp up rate (Liquidus Temp (T_L) to peak) | | 3 /sec. Max |
| $T_{s(max)}$ to T_L - Ramp-up Rate | | 3 /sec. Max |
| Reflow | -Temperature(T_L) (Liquidus) | +217 |
| | -Temperature(t_L) | 60-150 secs. |
| Peak Temp (T_p) | | +260(+0/-5) |
| Time within 5 of actual Peak Temp (t_p) | | 20-40secs. |
| Ramp-down Rate | | 6 /sec. Max |
| Time 25 to Peak Temp (T_p) | | 8 min. Max |
| Do not exceed | | +260 |





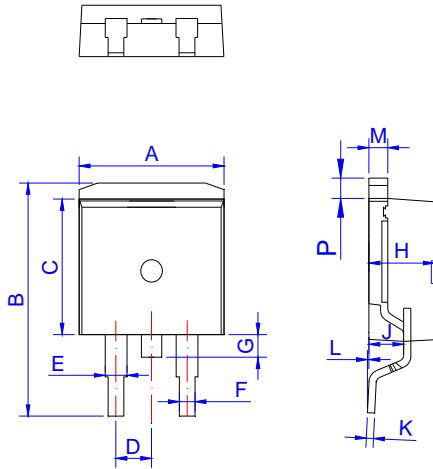
ORDERING INFORMATION

| | | I II III | | | |
|--|--|----------|--|--|--|
| | | | | | |
| | | | | | |

| Date | Revision | Changes |
|--------------|----------|--------------|
| Apr.11, 2023 | A.1.0 | Last updated |

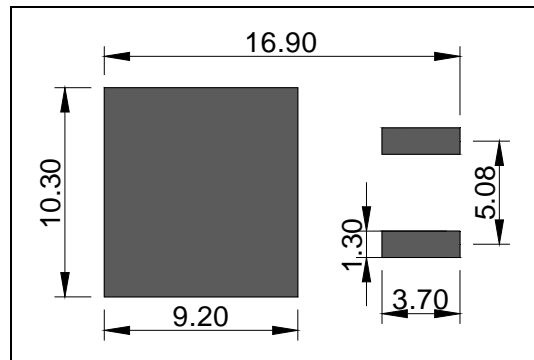


PACKAGE MECHANICAL DATA



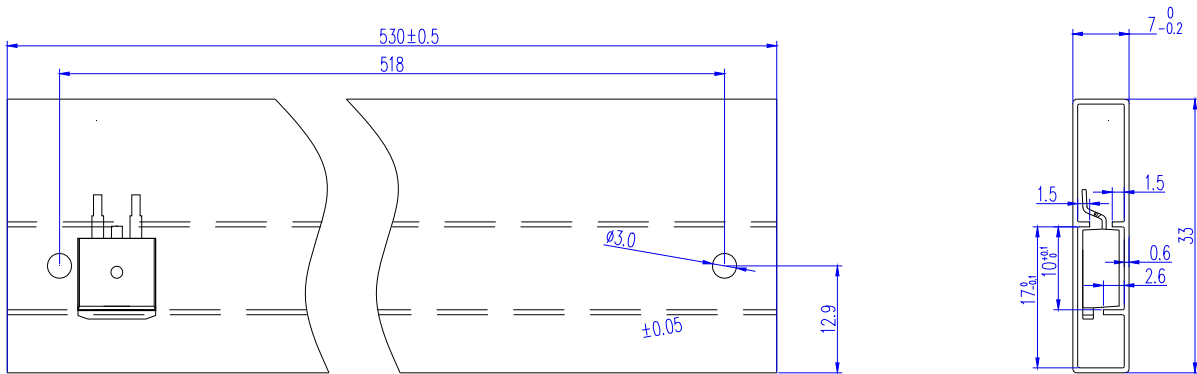
| Ref. | Dimensions | | | | | |
|------|-------------|------|-------|--------|-------|-------|
| | Millimeters | | | Inches | | |
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| A | 9.90 | | 10.20 | 0.390 | | 0.402 |
| B | 14.70 | | 15.80 | 0.579 | | 0.622 |
| C | 9.40 | | 9.60 | 0.37 | | 0.378 |
| D | 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 |
| 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 |
| M | 1.25 | | 1.35 | 0.049 | | 0.053 |
| P | 1.20 | | 1.50 | 0.047 | | 0.059 |

FOOTPRINT TO 263 (dimensions in mm)

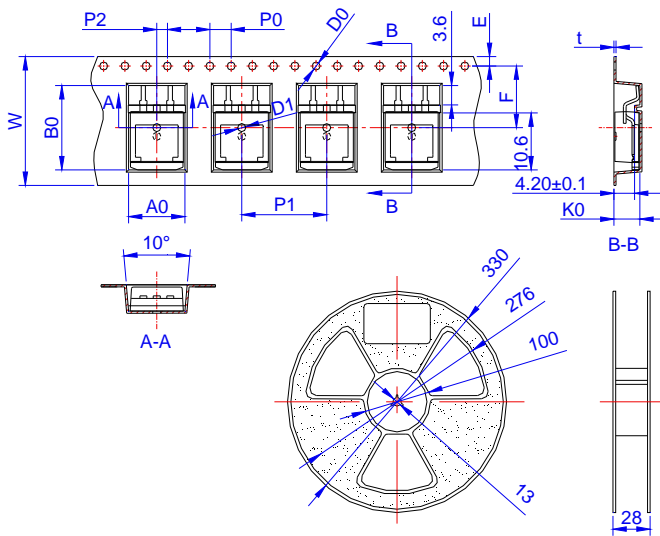




DELIVERY MODE



| TO-263 | TUBE | 50 | 1,000 | 5,000 |
|--------|------|----|-------|-------|
| | | | | |



| Ref. | Dimensions | | | | | |
|------|-------------|-------|-------|--------|-------|-------|
| | Millimeters | | | Inches | | |
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| W | 23.70 | 24.00 | 24.30 | 0.933 | 0.945 | 0.957 |
| E | 1.65 | 1.75 | 1.85 | 0.065 | 0.069 | 0.073 |
| F | 11.40 | 11.50 | 11.60 | 0.449 | 0.453 | 0.457 |
| D0 | - | 1.50 | 1.60 | - | 0.059 | 0.063 |
| D1 | - | 1.50 | 1.60 | - | 0.059 | 0.063 |
| P0 | 3.90 | 4.00 | 4.10 | 0.154 | 0.157 | 0.161 |
| P1 | 15.90 | 16.00 | 16.10 | 0.626 | 0.630 | 0.634 |
| P2 | 1.90 | 2.00 | 2.10 | 0.075 | 0.079 | 0.083 |
| A0 | 10.80 | 10.90 | 11.00 | 0.425 | 0.429 | 0.433 |
| B0 | 16.20 | 16.30 | 16.40 | 0.638 | 0.642 | 0.646 |
| K0 | 4.80 | 4.90 | 5.00 | 0.189 | 0.193 | 0.197 |
| t | 0.35 | 0.40 | 0.45 | 0.014 | 0.016 | 0.018 |

| TO-263 | TAPING | 800 | 4,000 | 13 inch |
|--------|--------|-----|-------|---------|
| | | | | |

