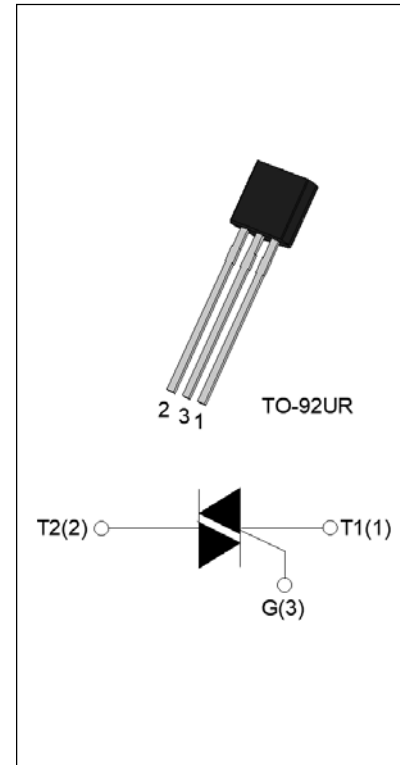


JST01UR-800SW 1A TRIAC

Rev.A.1.0

DESCRIPTION:

The JST01UR-800SW 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. JST01UR-800SW snubberless triac is especially recommended for use on inductive loads. It can be driven directly through the MCU I/O port. Package TO-92UR is RoHS compliant.


MAIN FEATURES

| Symbol | Value | Unit |
|--------------------|----------|------|
| $I_{T(RMS)}$ | 1 | A |
| V_{DRM}/V_{RRM} | 800 | V |
| $I_{GT\ I/II/III}$ | 10/10/10 | mA |

ABSOLUTE MAXIMUM RATINGS

| Parameter | Symbol | Value | Unit |
|--|--------------|---------|------------------------|
| Storage junction temperature range | T_{stg} | -40-150 | °C |
| Operating junction temperature range | T_j | -40-125 | °C |
| 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 ($T_c \leq 45^\circ\text{C}$) | $I_{T(RMS)}$ | 1 | A |
| Non repetitive surge peak on-state current (full cycle , $t_p=20\text{ms}$, $T_j=25^\circ\text{C}$) | I_{TSM} | 15 | A |
| Non repetitive surge peak on-state current (full cycle , $t_p=16.6\text{ms}$, $T_j=25^\circ\text{C}$) | | 16.5 | |
| I^2t value for fusing ($t_p=10\text{ms}$, $T_j=25^\circ\text{C}$) | I^2t | 1.25 | 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 | 100 | $\text{A}/\mu\text{s}$ |
| Peak gate current ($t_p=20\mu\text{s}$, $T_j=125^\circ\text{C}$) | I_{GM} | 1 | A |
| Average gate power dissipation ($T_j=125^\circ\text{C}$) | $P_{G(AV)}$ | 0.1 | W |
| Peak gate power | P_{GM} | 2 | W |

| | | | |
|--|----------|---|----|
| Peak pulse voltage ($T_j=25^{\circ}\text{C}$; non-repetitive, off-state; FIG.7) | V_{pp} | 4 | kV |
|--|----------|---|----|

ELECTRICAL CHARACTERISTICS ($T_j=25^{\circ}\text{C}$ unless otherwise specified)

| Symbol | Test Condition | Quadrant | Value | | Unit |
|-----------|--|-------------|-------|-----|------------------|
| I_{GT} | $V_D=12\text{V}$ $R_L=33\Omega$ | I - II -III | MAX. | 10 | mA |
| V_{GT} | | I - II -III | MAX. | 1 | V |
| V_{GD} | $V_D=V_{DRM}$ $T_j=125^{\circ}\text{C}$ $R_L=3.3\text{K}\Omega$ | I - II -III | MIN. | 0.2 | V |
| I_L | $I_G=1.2I_{GT}$ | I -III | MAX. | 20 | mA |
| | | II | | 40 | |
| I_H | $I_T=100\text{mA}$ | | MAX. | 15 | mA |
| dV/dt | $V_D=540\text{V}$ Gate Open $T_j=125^{\circ}\text{C}$ | | MIN. | 300 | V/ μs |
| (dI/dt)c | (dV/dt)c=10V/ μs $T_j=125^{\circ}\text{C}$ | | MIN. | 1 | A/ms |
| t_{on} | $I_G=20\text{mA}$ $I_A=200\text{mA}$ $I_R=20\text{mA}$ $T_j=25^{\circ}\text{C}$ | | TYP. | 2.5 | μs |
| t_{off} | | | | 25 | |

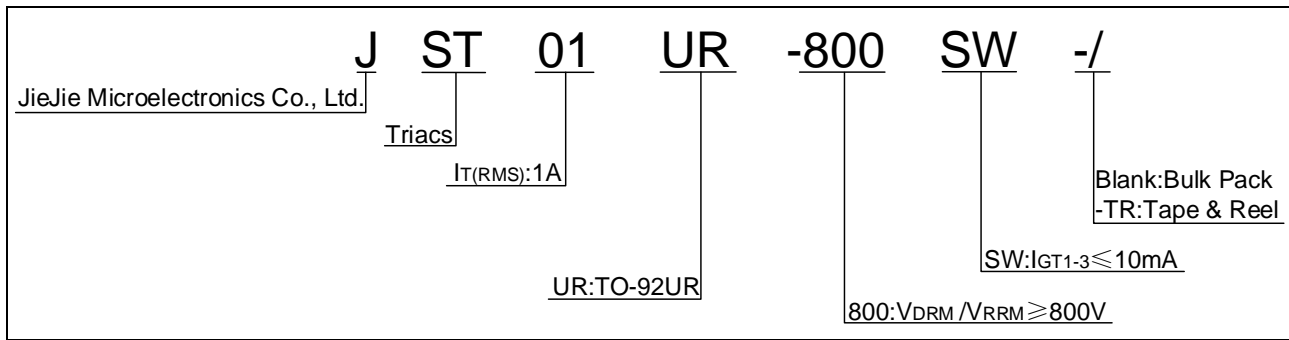
STATIC CHARACTERISTICS

| Symbol | Parameter | | Value(MAX.) | Unit |
|-----------|---|---------------------------|-------------|---------------|
| V_{TM} | $I_{TM}=1.4\text{A}$ $t_p=380\mu\text{s}$ | $T_j=25^{\circ}\text{C}$ | 1.3 | V |
| V_{TO} | Threshold voltage | $T_j=125^{\circ}\text{C}$ | 0.93 | V |
| R_D | Dynamic resistance | $T_j=125^{\circ}\text{C}$ | 146 | m Ω |
| I_{DRM} | $V_D=V_{DRM}$ $V_R=V_{RRM}$ | $T_j=25^{\circ}\text{C}$ | 5 | μA |
| I_{RRM} | | $T_j=125^{\circ}\text{C}$ | 0.15 | mA |

THERMAL RESISTANCES

| Symbol | Parameter | Value | Unit |
|---------------|--------------------------|-------|-----------------------------|
| $R_{th(j-c)}$ | junction to case (AC) | 65 | $^{\circ}\text{C}/\text{W}$ |
| $R_{th(j-a)}$ | junction to ambient (AC) | 150 | $^{\circ}\text{C}/\text{W}$ |

ORDERING INFORMATION



MARKING

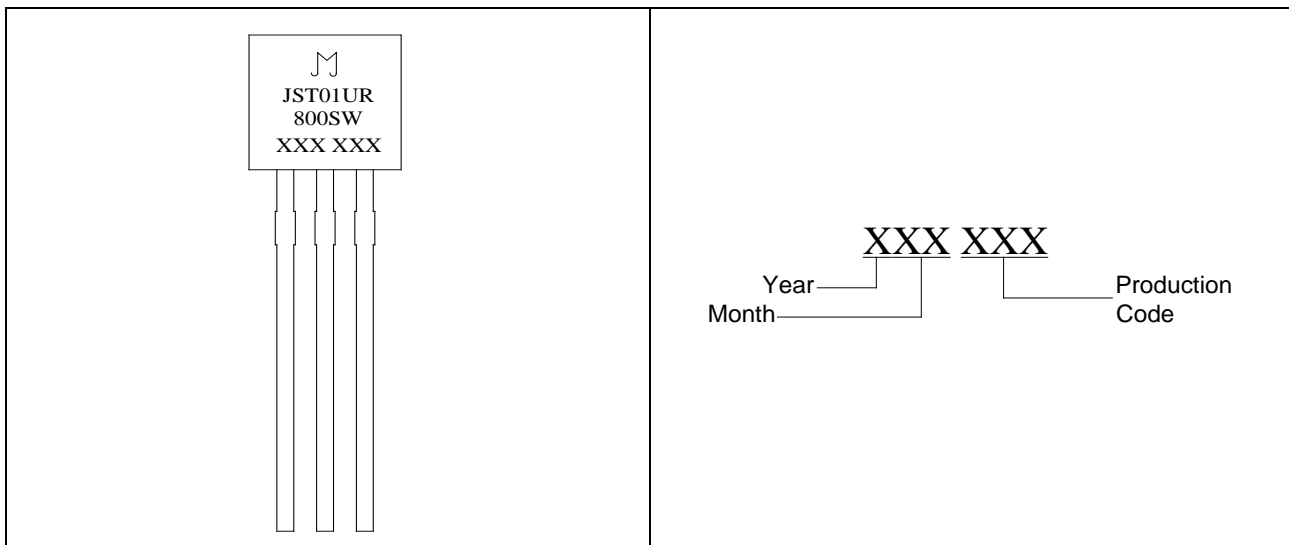


FIG.1 Maximum power dissipation versus RMS on-state current

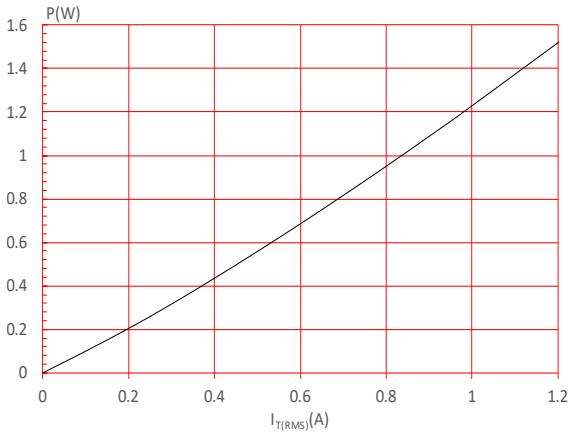


FIG.2: RMS on-state current versus case temperature

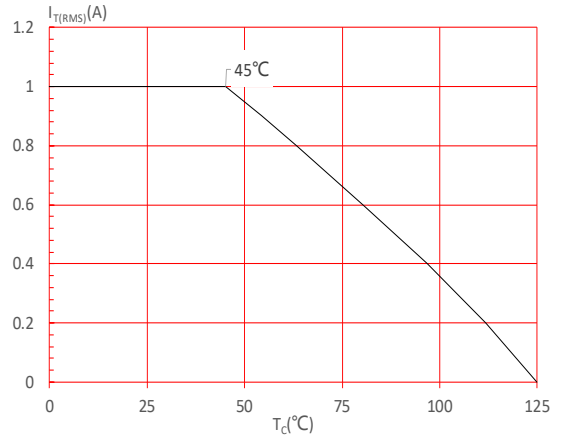


FIG.3: RMS on-state current versus ambient temperature (printed circuit board FR4, copper thickness: 35µm)(full cycle)

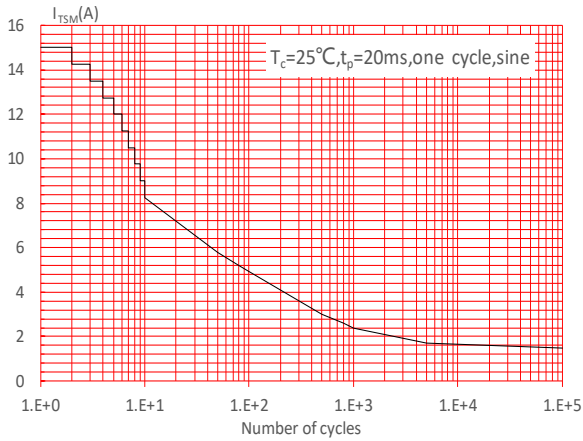


FIG.4: Surge peak on-state current versus number of cycles

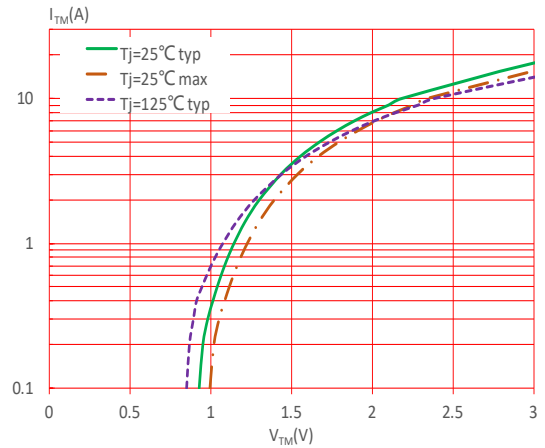


FIG.5: On-state characteristics

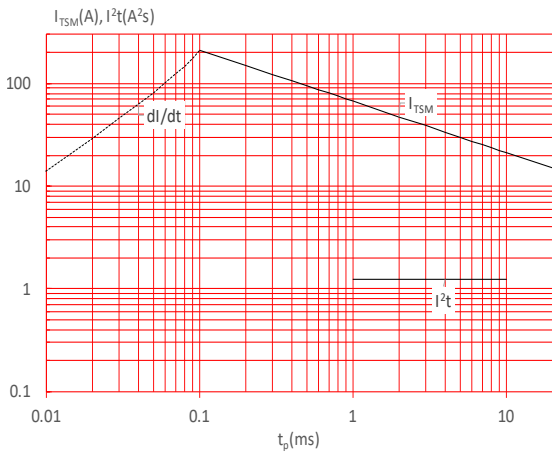


FIG.6: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 20ms$, and corresponding value of I^2t ($di/dt < 100A/\mu s$)

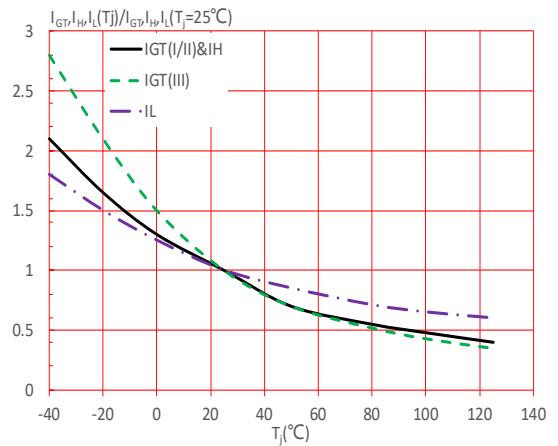
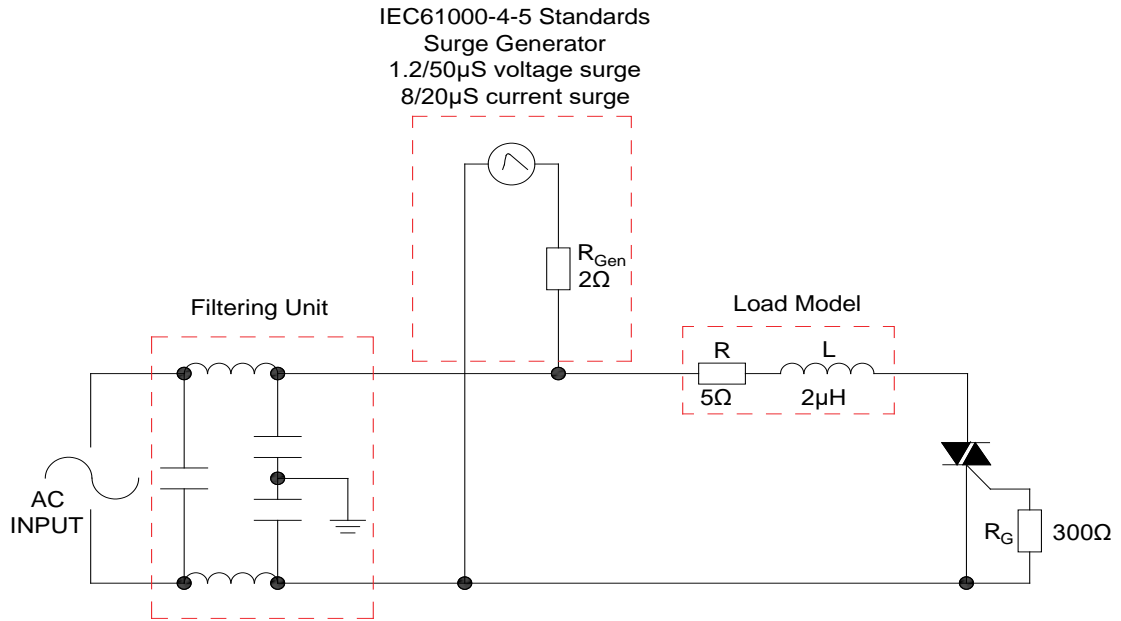


FIG.7: Test circuit for inductive and resistive loads to IEC-61000-4-5 standards



SHAPING AND SOLDERING PARAMETERS

Refer to 《Instructions for installation of plastic-sealed in-line power devices》 released by JieJie

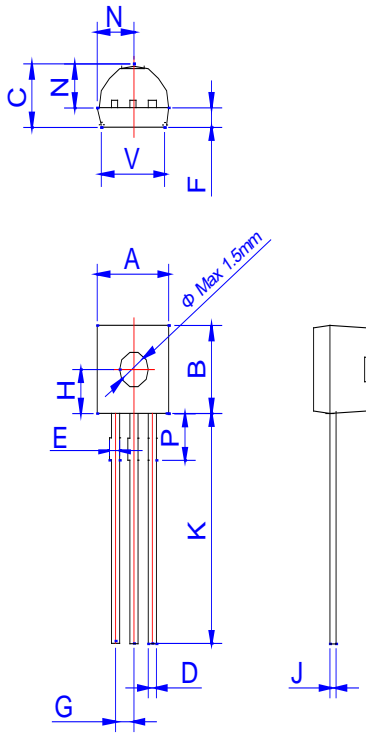
ORDERING INFORMATION

| Order code | Voltage V_{DRM}/V_{RRM} (V) | IGT(mA) | Package | Base qty. (pcs) | Delivery mode |
|------------------|----------------------------------|-----------|---------|--------------------|------------------|
| | | I -II-III | | | |
| JST01UR-800SW | 800 | 10 | TO-92UR | 1,000 | Bulk Pack |
| JST01UR-800SW-TR | | | | 2,000 | Tape & Reel |

Document Revision History

| Date | Revision | Changes |
|--------------|----------|--------------|
| Apr.10, 2023 | A.1.0 | Last updated |

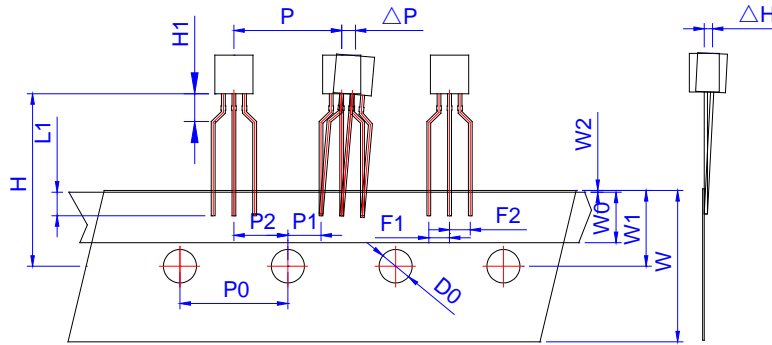
PACKAGE MECHANICAL DATA



| Ref. | Dimensions | | | | | |
|------|-------------|------|-------|--------|------|-------|
| | Millimeters | | | Inches | | |
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| A | 4.45 | | 5.20 | 0.175 | | 0.205 |
| B | 4.32 | | 5.33 | 0.170 | | 0.210 |
| C | 3.18 | | 4.19 | 0.125 | | 0.165 |
| D | 0.407 | | 0.533 | 0.016 | | 0.021 |
| E | 0.50 | | 0.70 | 0.020 | | 0.028 |
| F | 1.10 | | 1.30 | 0.043 | | 0.051 |
| G | 1.10 | | 1.40 | 0.043 | | 0.055 |
| H | 2.20 | | 2.40 | 0.087 | | 0.094 |
| J | 0.36 | | 0.50 | 0.014 | | 0.020 |
| K | 12.70 | | 15.0 | 0.500 | | 0.591 |
| N | 2.04 | | 2.66 | 0.080 | | 0.105 |
| P | 1.86 | | 2.06 | 0.073 | | 0.081 |
| V | 4.10 | | 4.50 | 0.161 | | 0.177 |

DELIVERY MODE

| PACKAGE | OUTLINE | BAG (PCS) | INNER BOX (PCS) | CARTON BOX (PCS) |
|---------|-----------|-----------|-----------------|------------------|
| TO-92UR | Bulk Pack | 1,000 | 10,000 | 50,000 |




| Ref. | Dimensions | | | | | |
|-------|-------------|-------|-------|--------|-------|-------|
| | Millimeters | | | Inches | | |
| | Min. | Typ. | Max. | Min. | Typ. | Max. |
| P | 12.40 | 12.70 | 13.00 | 0.488 | 0.500 | 0.512 |
| P0 | 12.40 | 12.70 | 13.00 | 0.488 | 0.500 | 0.512 |
| P1 | 3.55 | 3.85 | 4.15 | 0.140 | 0.152 | 0.163 |
| P2 | 5.95 | 6.35 | 6.75 | 0.233 | 0.250 | 0.265 |
| ΔP | -1.0 | 0 | 1.0 | -0.039 | 0 | 0.039 |
| F1、F2 | 2.30 | 2.50 | 2.70 | 0.090 | 0.098 | 0.106 |
| F1-F2 | -0.1 | 0 | 0.1 | -0.004 | 0 | 0.004 |
| W | 17.50 | 18.00 | 19.00 | 0.689 | 0.709 | 0.748 |
| W0 | 5.50 | 6.00 | 6.50 | 0.217 | 0.236 | 0.256 |
| W1 | 8.50 | 9.00 | 9.50 | 0.335 | 0.354 | 0.374 |
| W2 | | | 1.0 | | | 0.039 |
| D0 | 3.80 | 4.0 | 4.20 | 0.150 | 0.157 | 0.165 |
| ΔH | -1.0 | 0 | 1.0 | -0.039 | 0 | 0.039 |
| L1 | 2.5 | | | 0.098 | | |
| H | 18.0 | 19.0 | 20.0 | 0.709 | 0.748 | 0.787 |
| H1 | | | 2.70 | | | 0.106 |

| PACKAGE | OUTLINE | REEL (PCS) | INNER BOX (PCS) | CARTON BOX (PCS) |
|---------|-------------|------------|-----------------|------------------|
| TO-92UR | Tape & Reel | / | 2,000 | 20,000 |

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