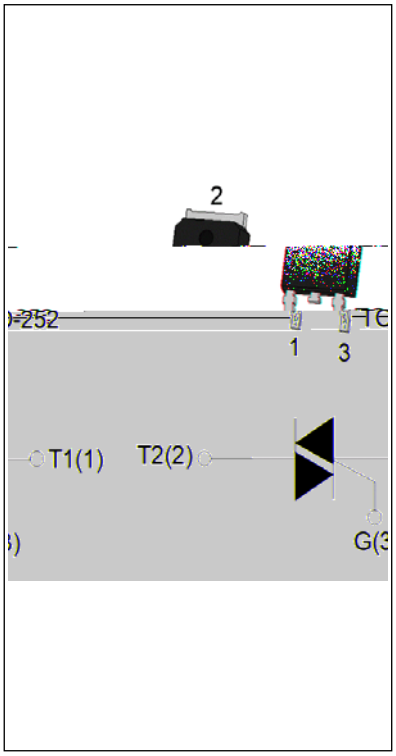
## JST06K-800SW 6A TRIAC

Rev.A.1.0

## DESCRIPTION:

The JST06K-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. JST06K-800SW snubberless triac is especially recommended for use on inductive loads. It can be driven directly through the MCU I/O port. Package TO-252 is RoHS compliant.




## MAIN FEATURES

| Symbol | Value | Unit |
|---|---|---|
| $I_{T(RMS)}$ | 6 | 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 | ℃ |
| Operating junction temperature range | $T_j$ | -40-125 | ℃ |
| Repetitive peak off-state voltage ($T_j$=25℃) | $V_{DRM}$ | 800 | V |
| Repetitive peak reverse voltage ($T_j$=25℃) | $V_{RRM}$ | 800 | V |
| RMS on-state current ($T_C$≤91℃) | $I_{T(RMS)}$ | 6 | A |
| Non repetitive surge peak on-state current (full cycle , $t_p$=20ms , $T_j$=25℃) | $I_{TSM}$ | 65 | A |
| Non repetitive surge peak on-state current (full cycle , $t_p$=16.6ms , $T_j$=25℃) | | 72 | |
| $I^2t$ value for fusing ($t_p$=10ms , $T_j$=25℃) | $I^2t$ | 21 | $A^2s$ |
| Critical rate of rise of on-state current ($I_G$=2 $I_{GT}$ , f=100Hz , $T_j$=125℃) | dI/dt | 50 | A s |
| Peak gate current ($t_p$=20 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.8) | $V_{pp}$ | 3 | kV |

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

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

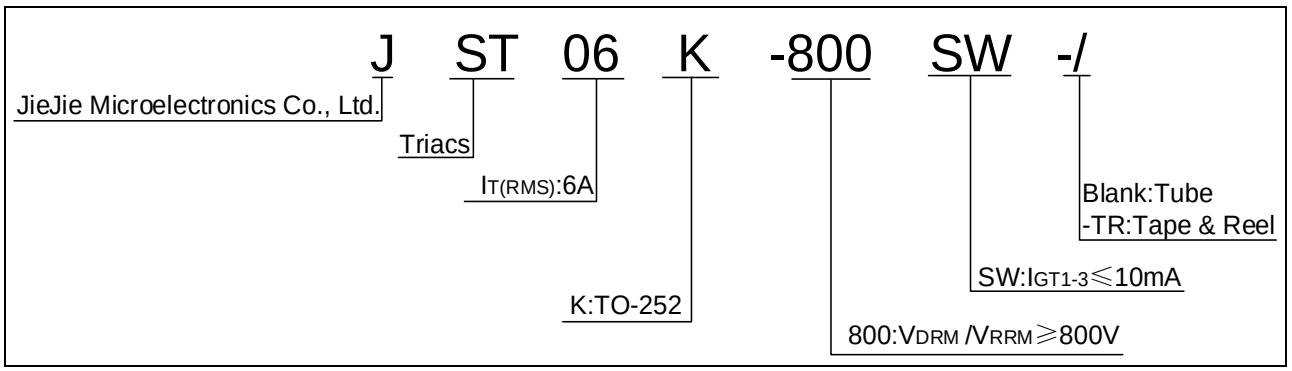
## STATIC CHARACTERISTICS

| Symbol | Parameter | | Value(MAX.) | Unit |
|---|---|---|---|---|
| $V_{TM}$ | $I_{TM}$ =8.5A $t_p$=380 s | $T_j$=25℃ | 1.5 | V |
| $V_{TO}$ | Threshold voltage | $T_j$=125℃ | 0.82 | V |
| $R_D$ | Dynamic resistance | $T_j$=125℃ | 57 | |
| $I_{DRM}$ | $V_D$ =$V_{DRM}$ $V_R$ =$V_{RRM}$ | $T_j$=25℃ | 5 | A |
| $I_{RRM}$ | | $T_j$=125℃ | 0.3 | mA |

## THERMAL RESISTANCES

| Symbol | Parameter | Value | Unit |
|---|---|---|---|
| $R_{th(j-c)}$ | junction to case (AC) | 4 | ℃/W |
| $R_{th(j-a)}$ | junction to ambient (AC) | 120 | ℃/W |

## ORDERING INFORMATION




## MARKING

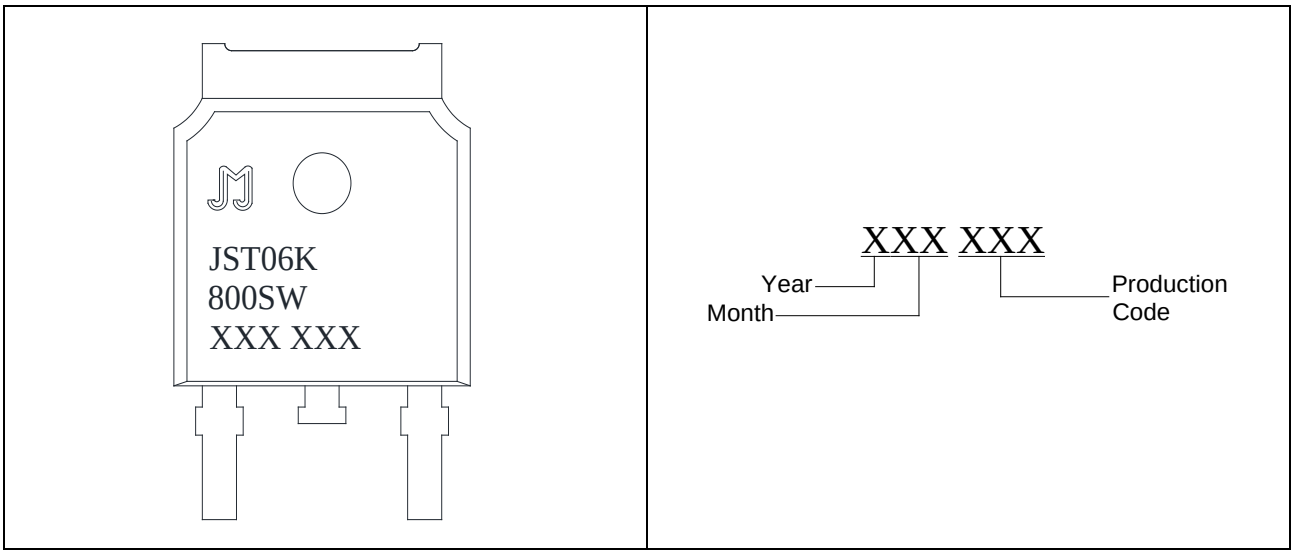


**FIG.1** Maximum power dissipation versus RMS on-state current

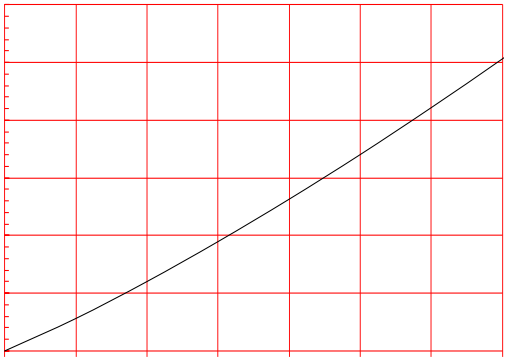


**FIG.2:** RMS on-state current versus case temperature

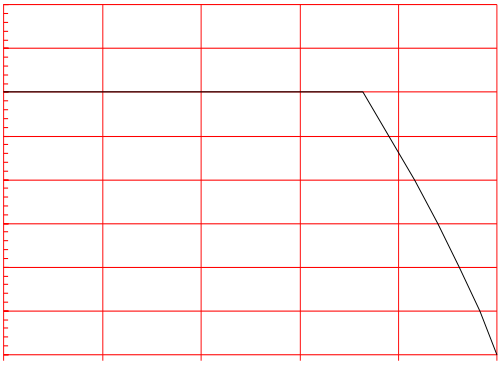


**FIG.3:** RMS on-state current versus ambient temperature (printed circuit board FR4,copper

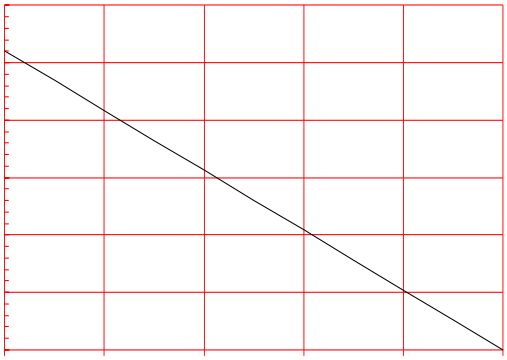


**FIG.4:** Surge peak on-state current versus number of cycles

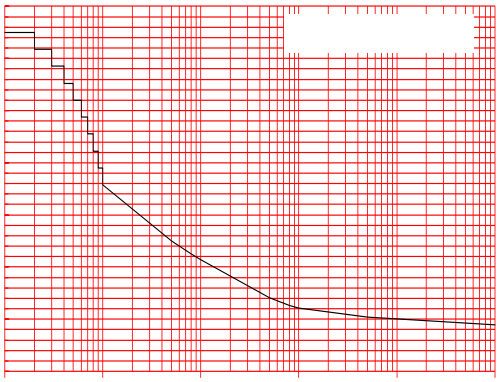


**FIG.5:** On-state characteristics

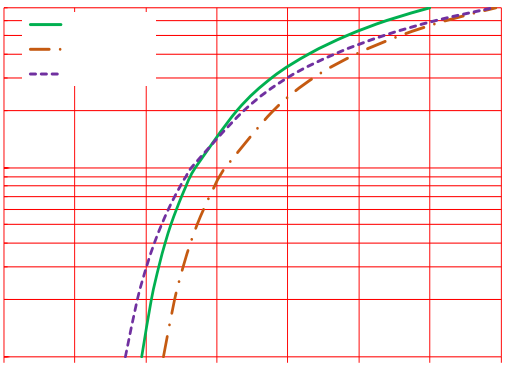
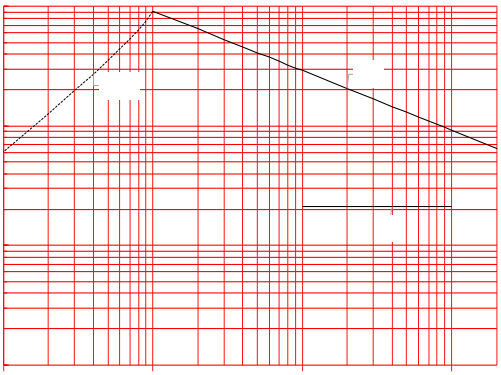
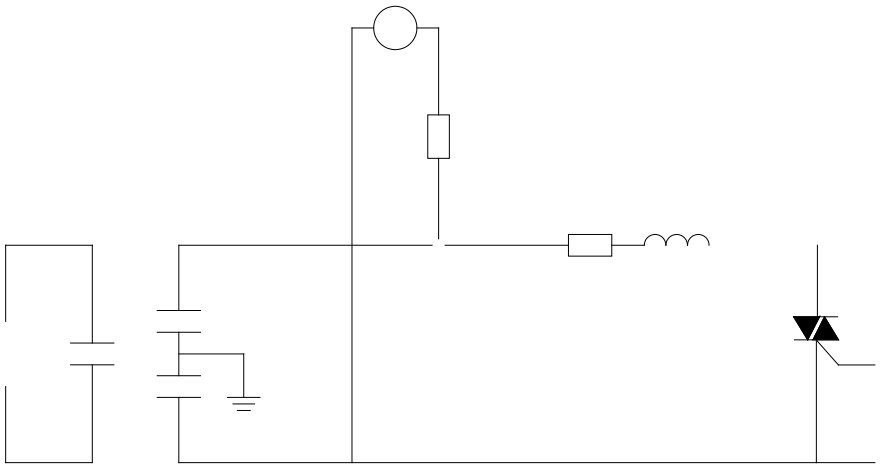


**FIG.6:** Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p$<20ms, and corresponding value of $I^2t$ (dI/dt<5



# JST06K-800SW

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

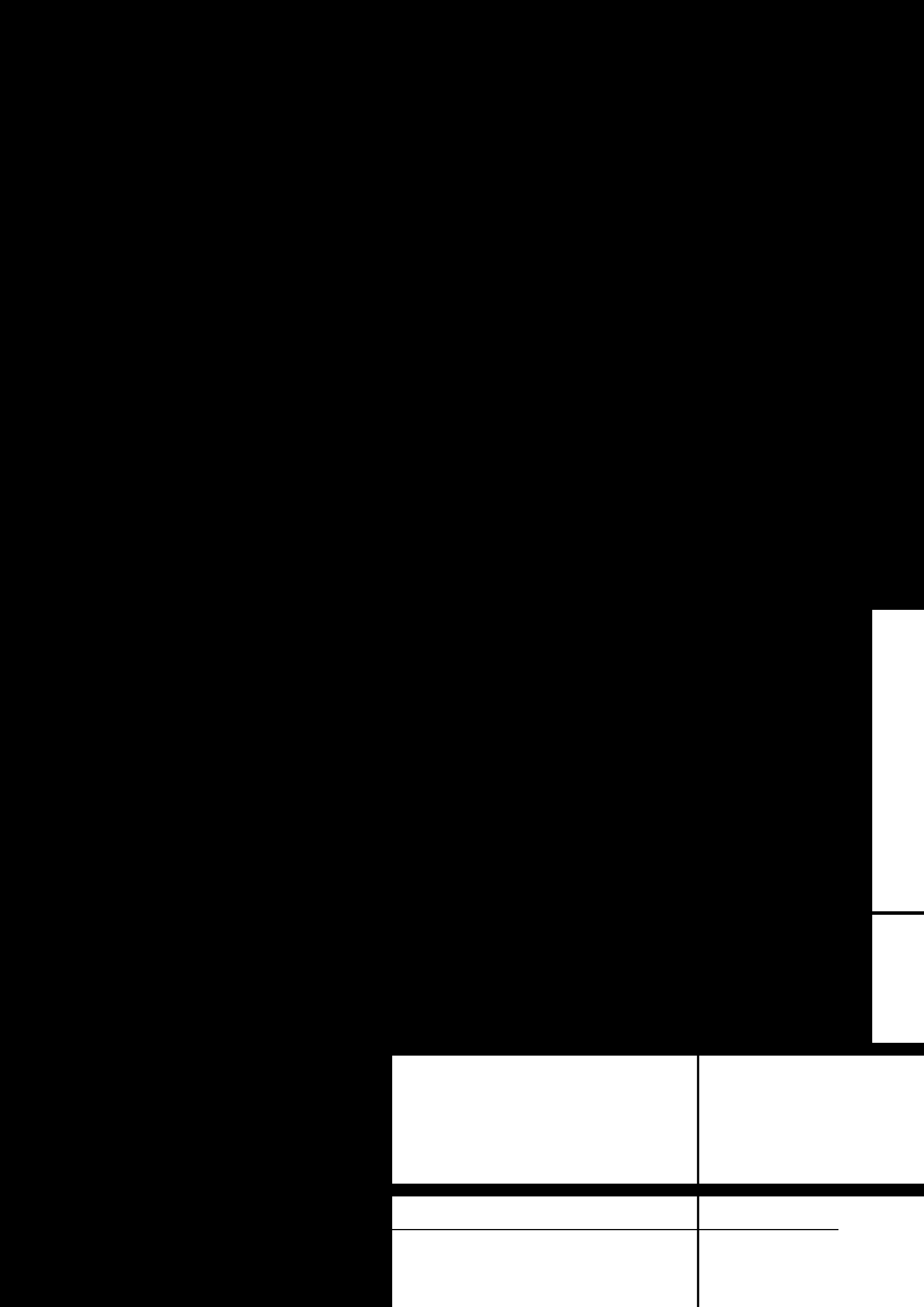


## ORDERING INFORMATION

| Order code | Voltage $V_{DRM}/V_{RRM}$ (V) | IGT(mA) | Package | Base qty. (pcs) | Delivery mode |
|---|---|---|---|---|---|
| | | - - | | | |
| JST06K-800SW | 800 | 10 | TO-252 | 80 | Tube |
| JST06K-800SW-TR | | | | 2,500 | Tape & Reel |

### Document Revision History

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



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