

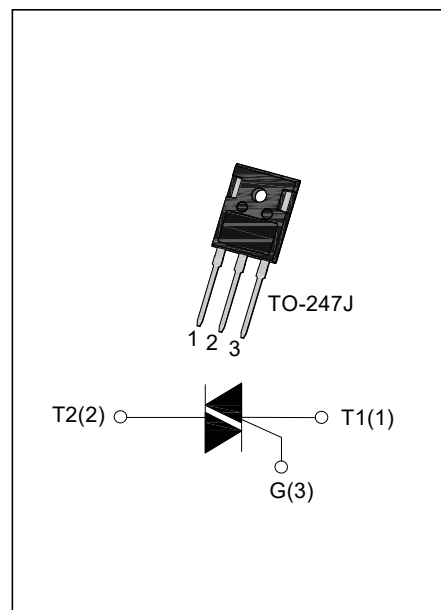


### DESCRIPTION:

JST60SJ Series triacs provide good commutation capability, which is suitable for general purpose AC switching and voltage regulation, and can be used in static relays, heating regulation, induction motor starting circuits. Package TO-247J is RoHS compliant. (2011/65/EU)

### MAIN FEATURES

| Symbol            | Value     | Unit |
|-------------------|-----------|------|
| $V_{DRM}/V_{RRM}$ | 1200/1600 | V    |
| $I_{T(RMS)}$      | 60        | A    |
| $I_{GT1-3}$       | $\leq 50$ | mA   |



### ABSOLUTE MAXIMUM RATINGS

| Parameter                                                                         |                                         | Symbol       | Value     | Unit                   |
|-----------------------------------------------------------------------------------|-----------------------------------------|--------------|-----------|------------------------|
| Storage junction temperature range                                                |                                         | $T_{stg}$    | -40-150   | $^{\circ}\text{C}$     |
| Operating junction temperature range                                              |                                         | $T_j$        | -40-125   | $^{\circ}\text{C}$     |
| Repetitive peak off-state voltage ( $T_j=25^{\circ}\text{C}$ )                    |                                         | $V_{DRM}$    | 1200/1600 | V                      |
| Repetitive peak reverse voltage ( $T_j=25^{\circ}\text{C}$ )                      |                                         | $V_{RRM}$    | 1200/1600 | V                      |
| RMS on-state current                                                              | TO-247J<br>( $T_C=90^{\circ}\text{C}$ ) | $I_{T(RMS)}$ | 60        | A                      |
| Non repetitive surge peak on-state current ( $t_p=20\text{ms}$ )                  |                                         | $I_{TSM}$    | 600       | A                      |
| $I^2t$ value for fusing ( $t_p=10\text{ms}$ )                                     |                                         | $I^2t$       | 1800      | $\text{A}^2\text{s}$   |
| Critical rate of rise of on-state current ( $I_G=2 \times I_{GT}$ )               |                                         | $di/dt$      | 100       | $\text{A}/\mu\text{s}$ |
| Peak gate current                                                                 |                                         | $I_{GM}$     | 8         | A                      |
| Average gate power dissipation                                                    |                                         | $P_{G(AV)}$  | 2         | W                      |
| Peak gate power                                                                   |                                         | $P_{GM}$     | 10        | W                      |
| Peak pulse voltage ( $T_j=25^{\circ}\text{C}$ ; non-repetitive, off-state; FIG.7) |                                         | $V_{PP}$     | 1.1       | 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 | 50    | mA               |
| $V_{GT}$ |                                                                  | I - II -III | MAX | 1.3   | V                |
| $V_{GD}$ | $V_D=V_{DRM} T_j=125^{\circ}\text{C}$<br>$R_L=3.3\text{K}\Omega$ | I - II -III | MIN | 0.2   | V                |
| $I_L$    | $I_G=1.2I_{GT}$                                                  | I - II -III | MAX | 120   | mA               |
| $I_H$    | $I_T=100\text{mA}$                                               |             | MAX | 80    | mA               |
| dv/dt    | $V_D=2/3V_{DRM} T_j=125^{\circ}\text{C}$ Gate Open               |             | MIN | 1500  | V/ $\mu\text{s}$ |

**STATIC CHARACTERISTICS**

| Symbol    | Parameter                               |                           | Value(MAX) | Unit          |
|-----------|-----------------------------------------|---------------------------|------------|---------------|
| $V_{TM}$  | $I_{TM}=85\text{A } t_p=380\mu\text{s}$ | $T_j=25^{\circ}\text{C}$  | 1.7        | V             |
| $V_{TO}$  | Threshold voltage                       | $T_j=125^{\circ}\text{C}$ | 0.85       | V             |
| $R_D$     | Dynamic resistance                      | $T_j=125^{\circ}\text{C}$ | 9.2        | m $\Omega$    |
| $I_{DRM}$ | $V_D=V_{DRM} V_R=V_{RRM}$               | $T_j=25^{\circ}\text{C}$  | 20         | $\mu\text{A}$ |
| $I_{RRM}$ |                                         | $T_j=125^{\circ}\text{C}$ | 8          | mA            |

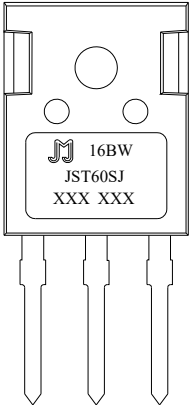
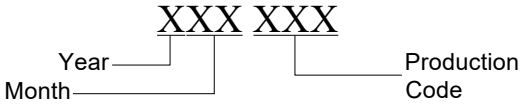
**THERMAL RESISTANCES**

| Symbol        | Parameter            |         | Value | Unit                 |
|---------------|----------------------|---------|-------|----------------------|
| $R_{th(j-c)}$ | junction to case(AC) | TO-247J | 0.39  | $^{\circ}\text{C/W}$ |

## ORDERING INFORMATION

|                                 |           |                  |            |              |                                                                          |             |
|---------------------------------|-----------|------------------|------------|--------------|--------------------------------------------------------------------------|-------------|
| <u>J</u>                        | <u>ST</u> | <u>60</u>        | <u>SJ</u>  | <u>-1600</u> | <u>BW</u>                                                                | <u>-/</u>   |
| JieJie Microelectronics Co.,Ltd | Triacs    | $I_{T(RMS)}:60A$ | SJ:TO-247J |              | BW: $I_{GT1-3} \leq 50mA$                                                | Blank: Tube |
|                                 |           |                  |            |              | 1200: $V_{DRM}/V_{RRM} \geq 1200V$<br>1600: $V_{DRM}/V_{RRM} \geq 1600V$ |             |

## MARKING

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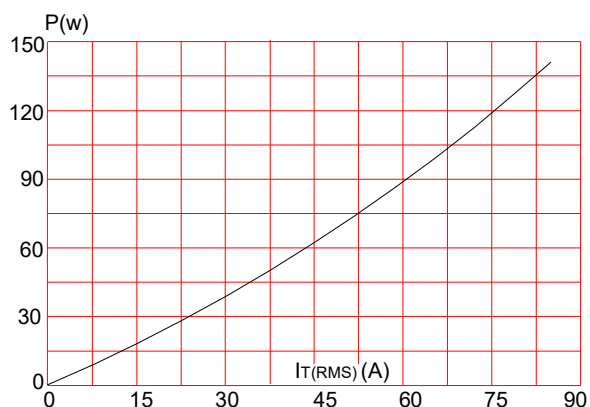
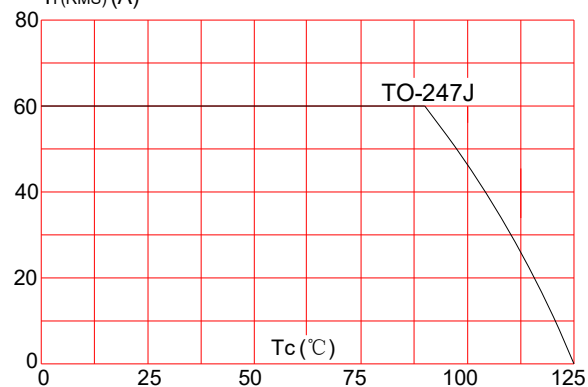
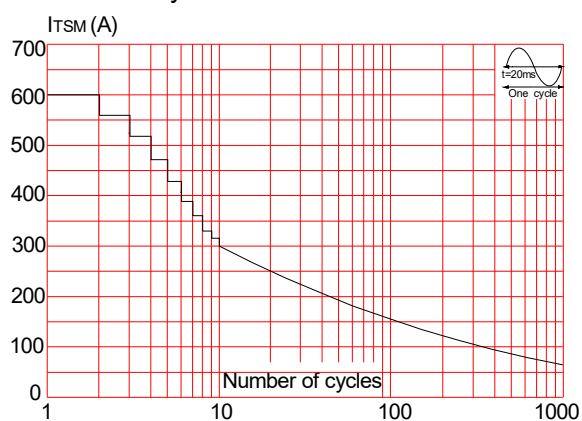
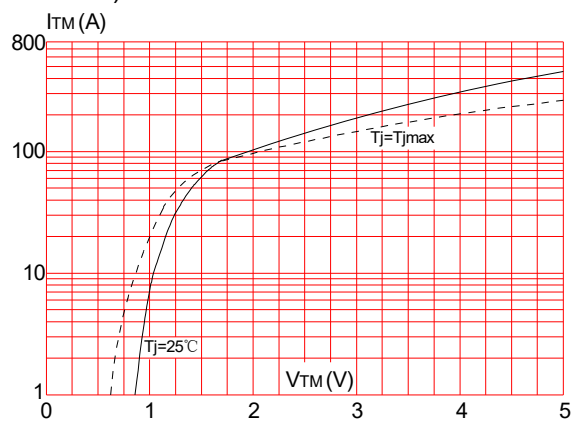
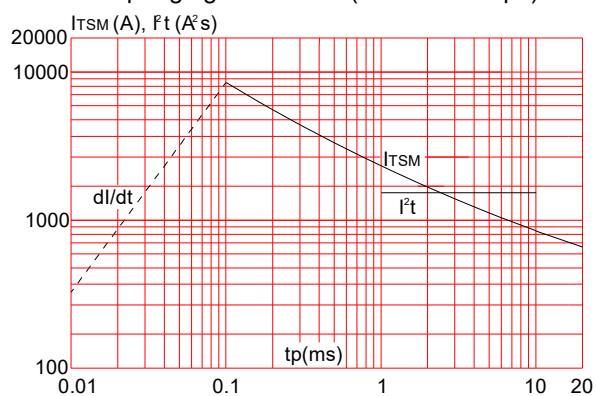
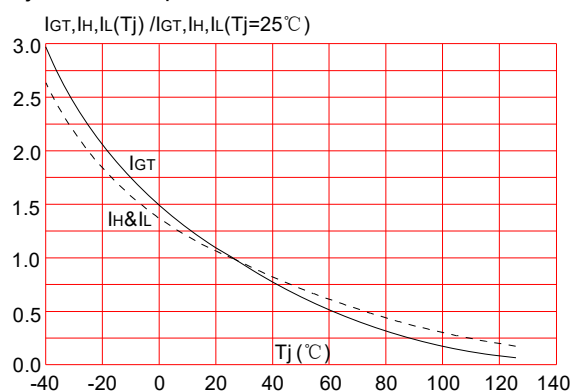
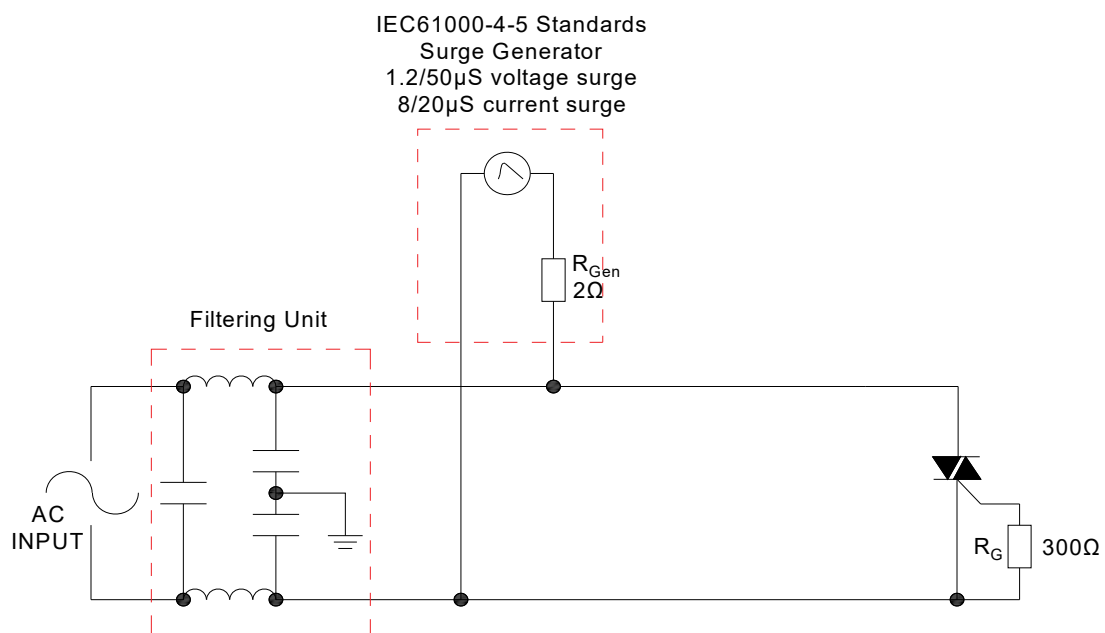
**FIG.1:** Maximum power dissipation versus RMS on-state current

**FIG.2:** RMS on-state current versus case temperature  
 $I_{T(RMS)}$  (A)

**FIG.3:** Surge peak on-state current versus number of cycles

**FIG.4:** On-state characteristics (maximum values)

**FIG.5:** Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 20\text{ms}$ , and corresponding value of  $I^2t$  ( $dI/dt < 100\text{A}/\mu\text{s}$ )

**FIG.6:** Relative variations of gate trigger current, holding current and latching current versus junction temperature


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



## ORDERING INFORMATION

| Order code          | Voltage<br>$V_{DRM}/V_{RRM}$ (V) | IGT(mA) | Package | Base<br>qty.<br>(pcs) | Delivery<br>mode |
|---------------------|----------------------------------|---------|---------|-----------------------|------------------|
| JST60SJ-1200/1600BW | 1200/1600                        | 50      | TO-247J | 30                    | Tube             |

## Document Revision History

| Date        | Revision | Changes     |
|-------------|----------|-------------|
| Apr 7, 2022 | 1        | Last update |

[illegible]

| Ref. | Dimensions  |       |       |        |       |       |
|------|-------------|-------|-------|--------|-------|-------|
|      | Millimeters |       |       | Inches |       |       |
|      | Min.        | Typ.  | Max.  | Min.   | Typ.  | Max.  |
| A    | 15.50       | 15.80 | 16.10 | 0.610  | 0.622 | 0.634 |
| B    | 20.80       | 21.00 | 22.20 | 0.819  | 0.827 | 0.835 |
| C    | 19.70       | 20.00 | 20.30 | 0.776  | 0.787 | 0.799 |
| D    | 1.80        | 2.00  | 2.20  | 0.071  | 0.079 | 0.087 |
| E    | 1.90        | 2.10  | 2.30  | 0.075  | 0.083 | 0.091 |
| F    | 1.00        | 1.20  | 1.40  | 0.039  | 0.047 | 0.055 |
| G    | 5.25        |       | 5.65  | 0.207  |       | 0.222 |
| H    | 4.80        | 5.00  | 5.20  | 0.189  | 0.197 | 0.205 |
| J    | 1.90        | 2.00  | 2.10  | 0.075  | 0.079 | 0.083 |
| K    | 2.20        | 2.35  | 2.50  | 0.087  | 0.093 | 0.098 |
| L    | 0.41        | 0.60  | 0.79  | 0.016  | 0.024 | 0.031 |

[illegible]

| PACKAGE | OUTLINE | TUBE<br>(PCS) | INNER BOX<br>(PCS) | PER CARTON |
|---------|---------|---------------|--------------------|------------|
| TO-247J | TUBE    | 30            | 450                | 2,250      |



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