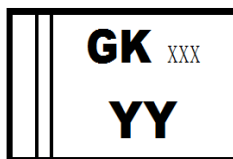


## FEATURES

- \* For surface mount application
- \* Built-in strain relief
- \* Excellent clamping capability
- \* Low profile package
- \* Fast response time: Typically less than 1.0ps from 0 volt to BV min.
- \* Typical  $I_R$  less than 1 A above 10V
- \* High temperature soldering guaranteed: 260°C / 10 seconds at terminals

## MECHANICAL DATA

- \* Case: Molded plastic
- \* Epoxy: UL 94V-0 rate flame retardant
- \* Lead: Solderable per MIL-STD-202, method 208 guaranteed
- \* Polarity: Color band denotes cathode end except Bidirectional
- \* Mounting position: Any



- "GK" represents the brand name
- "XXX" represents the periodic code
- "YY" represents the product type marking

## VOLTAGE RANGE

180 Volts

600 Watts Peak Power

## MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Rating 25°C ambient temperature unless otherwise specified.  
Single phase half wave, 60Hz, resistive or inductive load.  
For capacitive load, derate current by 20%.

| RATINGS                                                                                                      | SYMBOL           | VALUE       | UNITS              |
|--------------------------------------------------------------------------------------------------------------|------------------|-------------|--------------------|
| Peak Power Dissipation at $T_A=25^\circ\text{C}$ , $T_P=1\text{ms}$ (NOTE 1)                                 | $P_{PK}$         | Minimum 600 | Watts              |
| Peak Forward Surge Current at 8.3ms Single Half Sine-Wave superimposed on rated load (JEDEC method) (NOTE 3) | $I_{FSM}$        | 100         | Amps               |
| Typical Thermal Resistance Between junction and case                                                         | $R_{\theta J-C}$ | 20          | $^\circ\text{C/W}$ |
| Typical Thermal Resistance Between junction and Air                                                          | $R_{\theta J-A}$ | 95          | $^\circ\text{C/W}$ |
| Operating and Storage Temperature Range                                                                      | $T_J, T_{STG}$   | -55 to +150 | $^\circ\text{C}$   |

### NOTES:

1. Non-repetitive current pulse per Fig. 3 and derated above  $T_A=25^\circ\text{C}$  per Fig. 2.
2. Mounted on Copper Pad area of  $5.0\text{mm}^2$  (.013mm Thick) to each terminal.
3. 8.3ms single half sine-wave, duty cycle = 4 pulses per minute maximum.

## DEVICES FOR BIDIRECTIONAL APPLICATIONS

- 1. For bi-directional use C suffix for Types .
- 2. Electrical characteristics apply in both directions.

## RATING AND CHARACTERISTIC CURVES

FIG.1-PEAK PULSE POWER DERATING CURVE

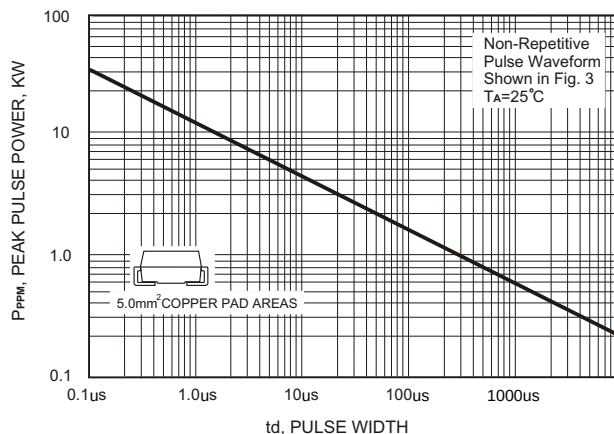


FIG.2-PULSE DERATING CURVE

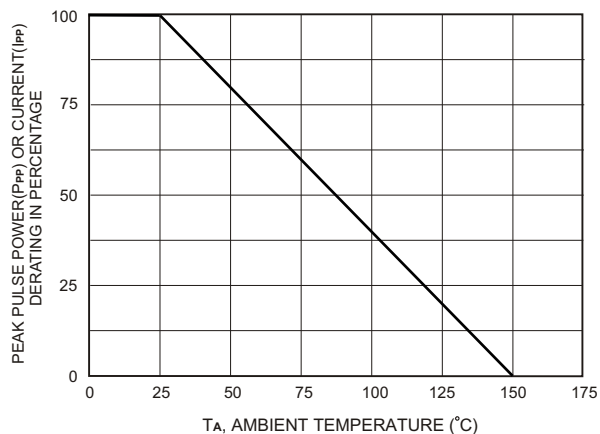


FIG.3-PULSE WAVE FORM

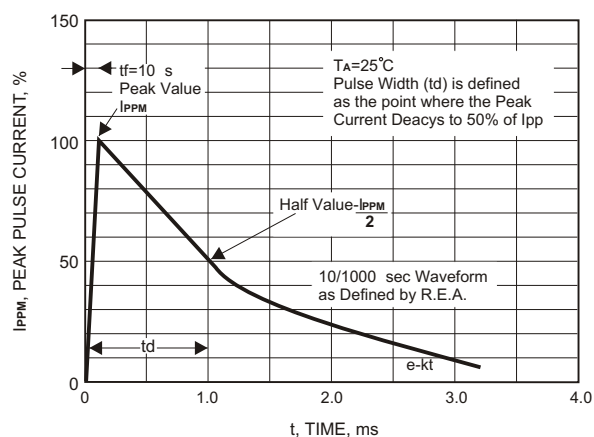


FIG.4 MAXIMUM NON REPETITIVE PEAK FORWARD SURGE CURRENT

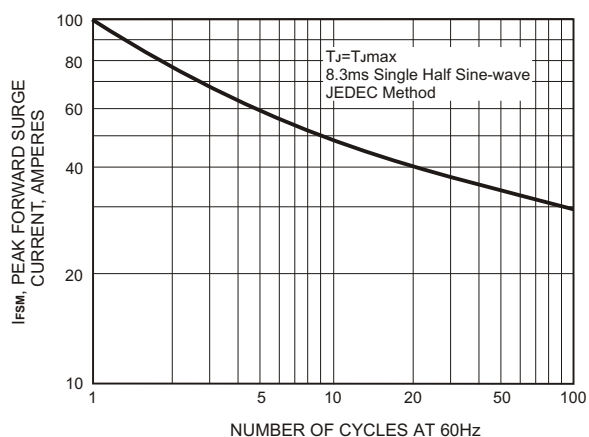
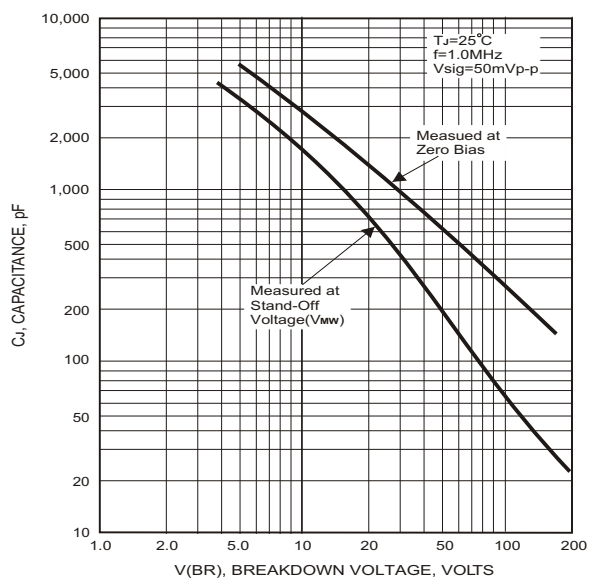


FIG.5-TYPICAL JUNCTION CAPACITANCE

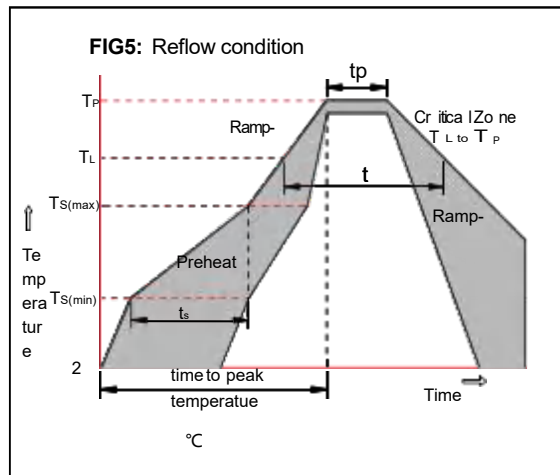


## Characteristics at Ta = 25°C

| Type     |           | Reverse<br>Stand-off<br>Voltage | Breakdown<br>Voltage<br>$V_{BR} @ I_T$ |          | Test<br>Current<br>$I_T$ | Maximum<br>Reverse<br>Leakage | Max. Clamp<br>Voltage<br>$V_C @ I_{PP}$ | Peak Pulse<br>Current<br>$I_{PP}$ |
|----------|-----------|---------------------------------|----------------------------------------|----------|--------------------------|-------------------------------|-----------------------------------------|-----------------------------------|
| UNI      | BI        | $V_{RMW}$<br>V                  | Min<br>V                               | Max<br>V | mA                       | $\mu A$                       | V                                       | A                                 |
| SMBJ180A | SMBJ180CA | 180                             | 201                                    | 222      | 1                        | 1                             | 292                                     | 2.1                               |

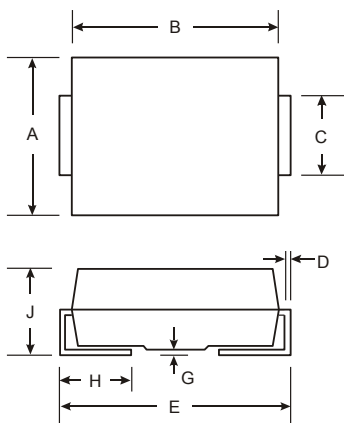
## Soldering parameters

| Reflow Condition                                        |                                   | Pb-Free assembly<br>(see as below) |
|---------------------------------------------------------|-----------------------------------|------------------------------------|
| Pre Heat                                                | -Temperature Min ( $T_{s(min)}$ ) | +150 °C                            |
|                                                         | -Temperature Max( $T_{s(max)}$ )  | +200 °C                            |
|                                                         | -Time (Min to Max) (ts)           | 60-180 secs.                       |
| Average ramp up rate (Liquid us Temp ( $T_L$ ) to peak) |                                   | 3 °C/sec. Max                      |
| $T_{s(max)}$ to $T_L$ - Ramp-up Rate                    |                                   | 3 °C/sec. Max                      |
| Reflow                                                  | -Temperature( $T_L$ )(Liquid us)  | +217 °C                            |
|                                                         | -Temperature( $t_L$ )             | 60-150 secs.                       |
| Peak Temp ( $T_P$ )                                     |                                   | +260(+0/-5) °C                     |
| Time within 5 °C of actual Peak Temp ( $t_P$ )          |                                   | 30 secs. Max                       |
| Ramp-down Rate                                          |                                   | 6 °C/sec. Max                      |
| Time 25 °C to Peak Temp ( $T_P$ )                       |                                   | 8 min. Max                         |
| Do not exceed                                           |                                   | +260 °C                            |

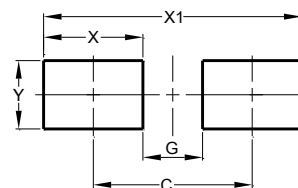


## Package Dimensions & Suggested Pad Layout

### SMB

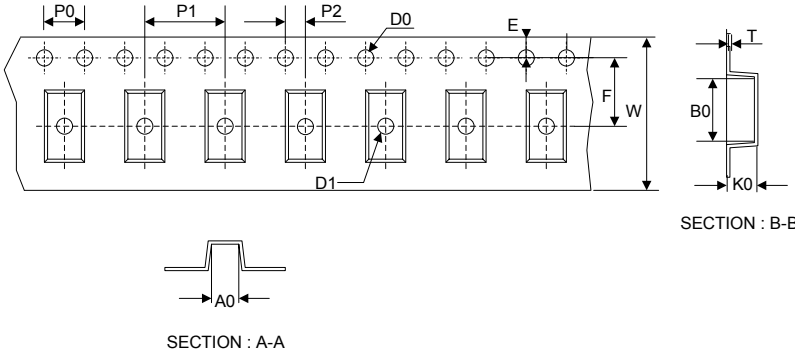
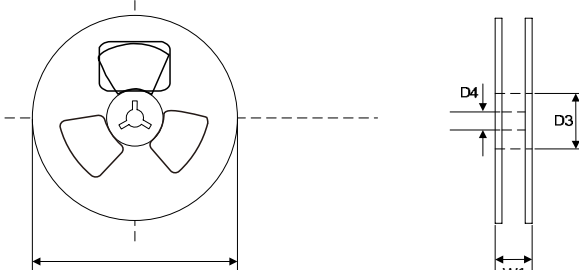


| SMB                  |      |      |
|----------------------|------|------|
| Dim                  | Min  | Max  |
| A                    | 3.30 | 3.94 |
| B                    | 4.06 | 4.70 |
| C                    | 1.91 | 2.11 |
| D                    | 0.15 | 0.31 |
| E                    | 5.08 | 5.59 |
| G                    |      | 0.20 |
| H                    | 0.76 | 1.50 |
| J                    | 2.13 | 2.44 |
| All Dimensions in mm |      |      |



| Dimensions | Value (in mm) |
|------------|---------------|
| C          | 4.70          |
| G          | 2.20          |
| X          | 2.50          |
| X1         | 7.20          |
| Y          | 2.80          |

## Tape & reel specification

| Tape                                                                                                                        |  | Symbol            | Dimension (mm) |
|-----------------------------------------------------------------------------------------------------------------------------|--|-------------------|----------------|
|  <p>SECTION : A-A</p> <p>SECTION : B-B</p> |  | P0                | 4.00±0.20      |
|                                                                                                                             |  | P1                | 8.00±0.20      |
|                                                                                                                             |  | P2                | 2.00±0.20      |
|                                                                                                                             |  | D0                | 1.60±0.20      |
|                                                                                                                             |  | D1                | 1.60±0.20      |
|                                                                                                                             |  | E                 | 1.75±0.20      |
|                                                                                                                             |  | F                 | 5.50±0.15      |
|                                                                                                                             |  | W                 | 12.00±0.20     |
|                                                                                                                             |  | A0                | 4.00±0.20      |
|                                                                                                                             |  | B0                | 5.45±0.20      |
|                                                                                                                             |  | K0                | 2.50±0.25      |
|                                                                                                                             |  | T                 | 0.20±0.10      |
|                                                                                                                             |  | D2                | 330.0±5.0      |
|                                                                                                                             |  | D3                | 73.0Min.       |
| 13" Reel                                                                                                                    |  | D4                | 14.0±2.5       |
|                                           |  | W1                | 16.0±2.5       |
|                                                                                                                             |  | Quantity: 3000PCS |                |