

## FEATURES

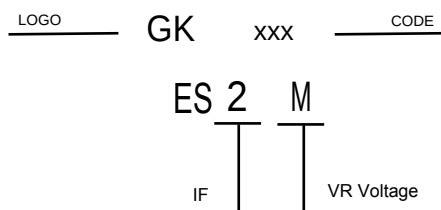
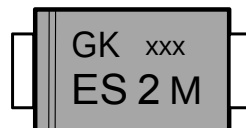
- \* Ideal for surface mount applications
- \* Easy pick and place
- \* Built-in strain relief
- \* Low forward voltage drop

## MECHANICAL DATA

- \* Case: Molded plastic
- \* Epoxy: UL 94V-0 rate flame retardant
- \* Metallurgically bonded construction
- \* Polarity: Color band denotes cathode end
- \* Mounting position: Any



**VOLTAGE RANGE**  
1000 Volts  
**CURRENT**  
2.0 Ampere



## 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%.

| TYPE NUMBER                                                                                        | ES2M       | UNITS |
|----------------------------------------------------------------------------------------------------|------------|-------|
| Maximum Recurrent Peak Reverse Voltage                                                             | 1000       | V     |
| Maximum RMS Voltage                                                                                | 700        | V     |
| Maximum DC Blocking Voltage                                                                        | 1000       | V     |
| Maximum Average Forward Rectified Current                                                          | 2.0        | A     |
| Peak Forward Surge Current, 8.3 ms single half sine-wave superimposed on rated load (JEDEC method) | 60         | A     |
| Maximum Instantaneous Forward Voltage at 2.0A                                                      | 1.7        | V     |
| Maximum DC Reverse Current Ta=25°C                                                                 | 5.0        | μA    |
| at Rated DC Blocking Voltage Ta=100°C                                                              | 150        | μA    |
| Maximum Reverse Recovery Time (Note 1)                                                             | 75         | nS    |
| Typical Junction Capacitance (Note 2)                                                              | 30         | pF    |
| Operating and Storage Temperature Range Tj, Tstg                                                   | -65 — +150 | °C    |

### NOTES:

1. Reverse Recovery Time test condition: IF=0.5A, IR=1.0A, IRR=0.25A
2. Measured at 1MHz and applied reverse voltage of 4.0V D.C.

## RATING AND CHARACTERISTIC CURVES

FIG.1-TYPICAL FORWARD CURRENT DERATING CURVE

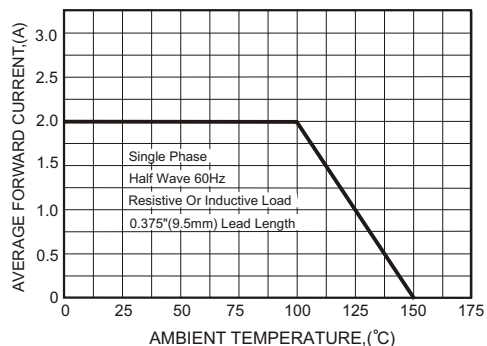
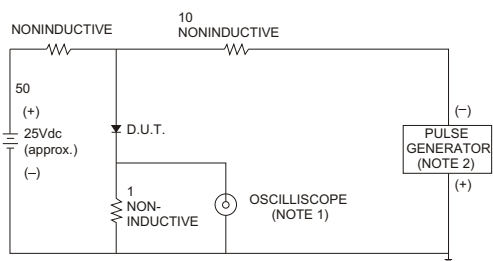


FIG.3- TEST CIRCUIT DIAGRAM AND REVERSE RECOVERY TIME CHARACTERISTICS



NOTES: 1. Rise Time= 7ns max., Input Impedance= 1 megohm.22pF.

2. Rise Time= 10ns max., Source Impedance= 50 ohms.

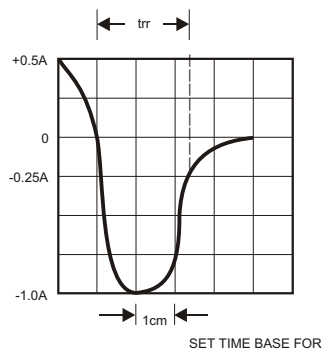


FIG.2-TYPICAL FORWARD CHARACTERISTICS

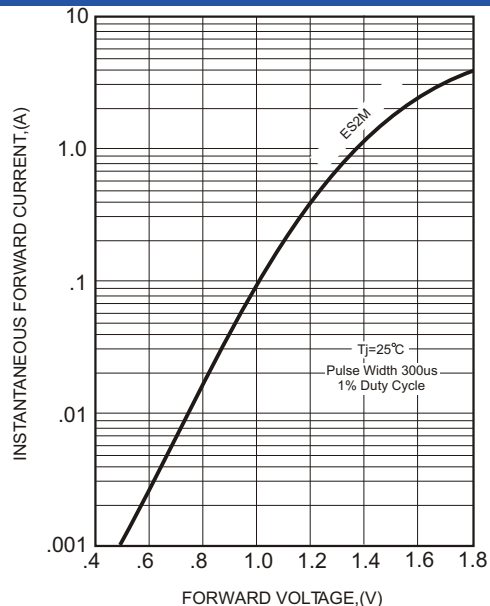


FIG.4-MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

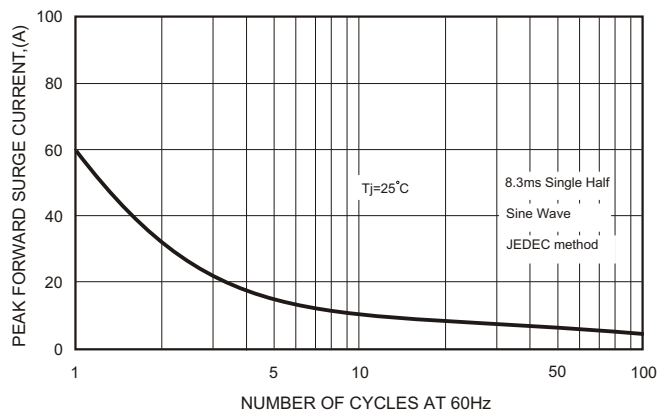
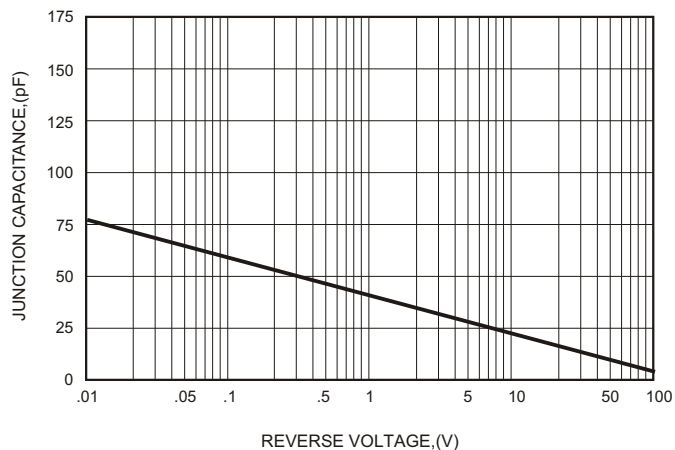
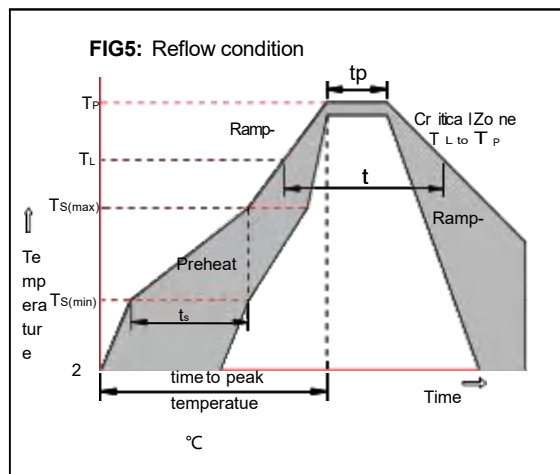


FIG.5-TYPICAL JUNCTION CAPACITANCE



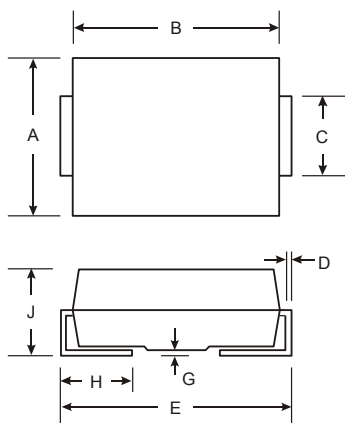
## Soldering parameters

| 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                            |

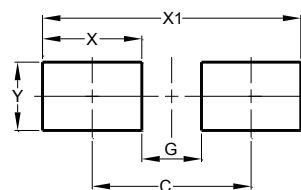


## Package Dimensions & Suggested Pad Layout

### SMB

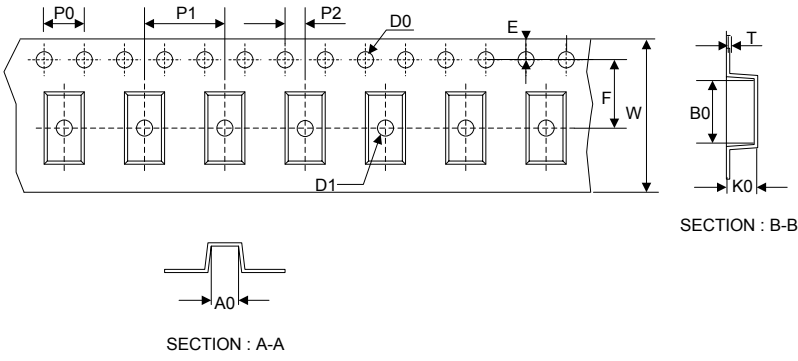
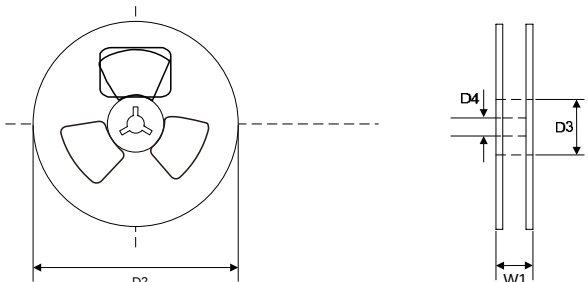


| SMB                  |      |      |
|----------------------|------|------|
| Dim                  | Min  | Max  |
| A                    | 3.30 | 3.94 |
| B                    | 4.06 | 4.70 |
| C                    | 1.91 | 2.11 |
| D                    | 0.15 | 0.31 |
| E                    | 5.08 | 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      |
|                                                                                                                             |  |  <p>Quantity: 3000PCS</p> |                |
| 13" Reel                                                                                                                    |  | D2                                                                                                          | 330.0±5.0      |
|                                                                                                                             |  | D3                                                                                                          | 73.0Min.       |
|                                                                                                                             |  | D4                                                                                                          | 14.0±2.5       |
|                                                                                                                             |  | W1                                                                                                          | 16.0±2.5       |