

## SMBG Plastic-Encapsulate Diodes

### Super Fast Recovery Rectifier Diode

#### Features

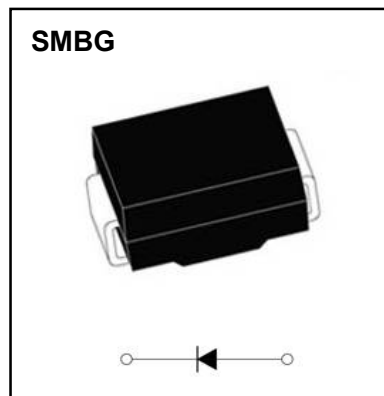
- $I_O$  5A
- $V_{RRM}$  50V-600V
- High surge current capability
- Glass passivated chip
- Polarity: Color band denotes cathode

#### Applications

- Rectifier

#### Marking

- ES5X
- X : From A To J



#### Limiting Values (Absolute Maximum Rating)

| Item                                 | Symbol      | Unit        | Test Conditions                                         | ES5        |     |     |     |     |     |     |     |
|--------------------------------------|-------------|-------------|---------------------------------------------------------|------------|-----|-----|-----|-----|-----|-----|-----|
|                                      |             |             |                                                         | A          | B   | C   | D   | F   | G   | H   | J   |
| Repetitive Peak Reverse Voltage      | $V_{RRM}$   | V           |                                                         | 50         | 100 | 150 | 200 | 300 | 400 | 500 | 600 |
| Maximum RMS Voltage                  | $V_{RMS}$   | V           |                                                         | 35         | 70  | 105 | 140 | 210 | 280 | 350 | 420 |
| Average Forward Current              | $I_{F(AV)}$ | A           | 60Hz Half-sine wave, Resistance load, $T_a=75^{\circ}C$ | 5.0        |     |     |     |     |     |     |     |
| Surge(Non-repetitive)Forward Current | $I_{FSM}$   | A           | 60Hz Half-sine wave, 1 cycle, $T_a=25^{\circ}C$         | 150        |     |     |     |     |     |     |     |
| Junction Temperature                 | $T_J$       | $^{\circ}C$ |                                                         | -55~+150   |     |     |     |     |     |     |     |
| Storage Temperature                  | $T_{STG}$   | $^{\circ}C$ |                                                         | -55 ~ +150 |     |     |     |     |     |     |     |

#### Electrical Characteristics (T=25 $^{\circ}C$ Unless otherwise specified)

| Item                          | Symbol               | Unit | Test Condition                                                   |                     | ES5  |   |   |   |      |   |     |   |
|-------------------------------|----------------------|------|------------------------------------------------------------------|---------------------|------|---|---|---|------|---|-----|---|
|                               |                      |      |                                                                  |                     | A    | B | C | D | F    | G | H   | J |
| Peak Forward Voltage          | V <sub>F</sub>       | V    | I <sub>F</sub> =5.0A                                             |                     | 0.95 |   |   |   | 1.25 |   | 1.7 |   |
| Maximum reverse recovery time | t <sub>rr</sub>      | ns   | I <sub>F</sub> =0.5A,I <sub>R</sub> =1.0A,I <sub>rr</sub> =0.25A |                     | 35   |   |   |   |      |   |     |   |
| Peak Reverse Current          | I <sub>RRM1</sub>    | μA   | V <sub>RM</sub> =V <sub>RRM</sub>                                | T <sub>a</sub> =25℃ | 10   |   |   |   |      |   |     |   |
|                               | T <sub>a</sub> =100℃ |      |                                                                  | 500                 |      |   |   |   |      |   |     |   |
| Thermal Resistance(Typical)   | R <sub>θJ-A</sub>    | ℃/W  | Between junction and ambient                                     |                     | 50   |   |   |   |      |   |     |   |
|                               | R <sub>θJ-L</sub>    |      | Between junction and terminal                                    |                     | 15   |   |   |   |      |   |     |   |

#### Notes:

Thermal resistance from junction to ambient and from junction to lead mounted on P.C.B. with 0.27" x 0.27" (7.0 mm x 7.0 mm)<sup>er</sup> copper pad areas

## Typical Characteristics

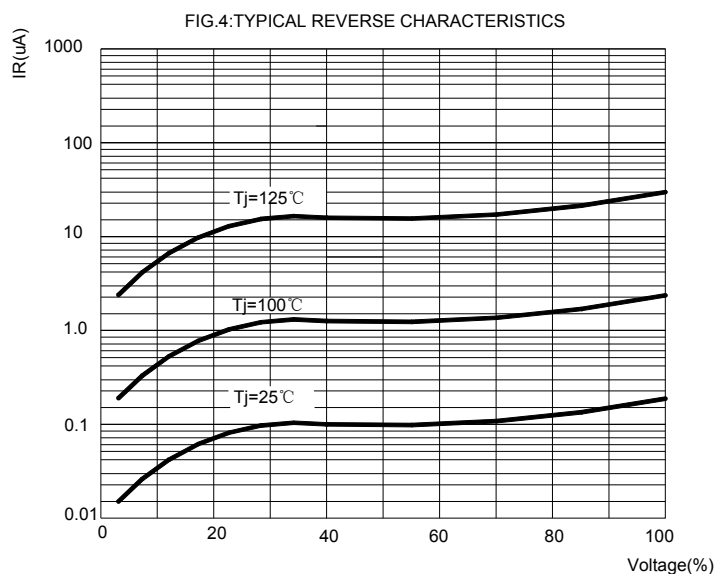
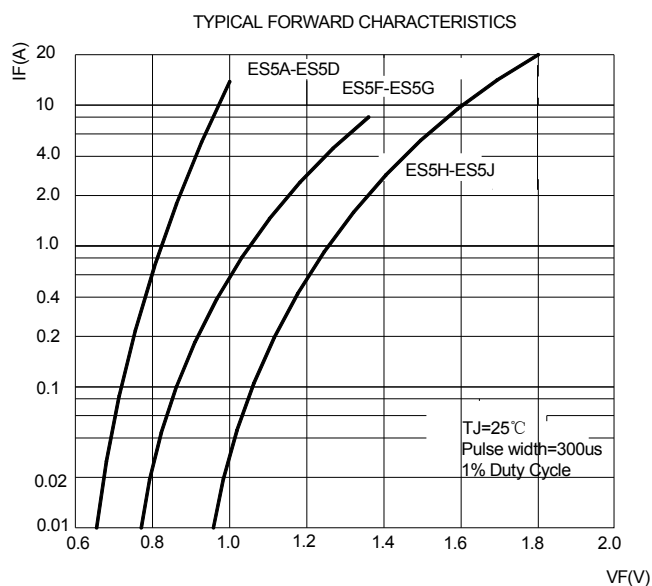
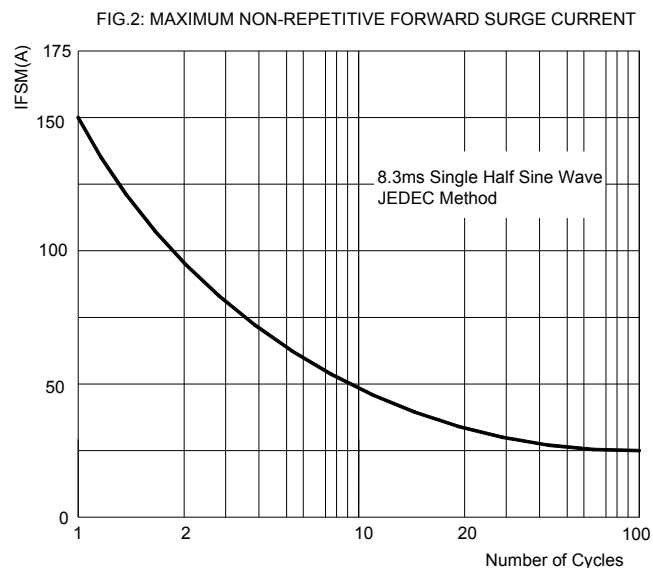
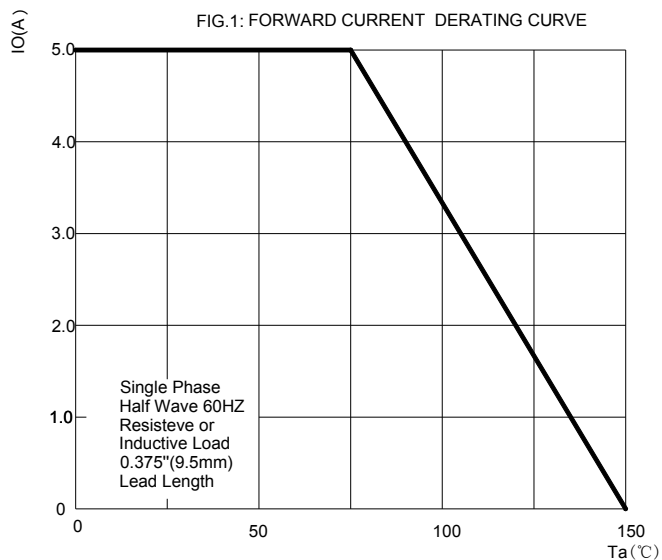
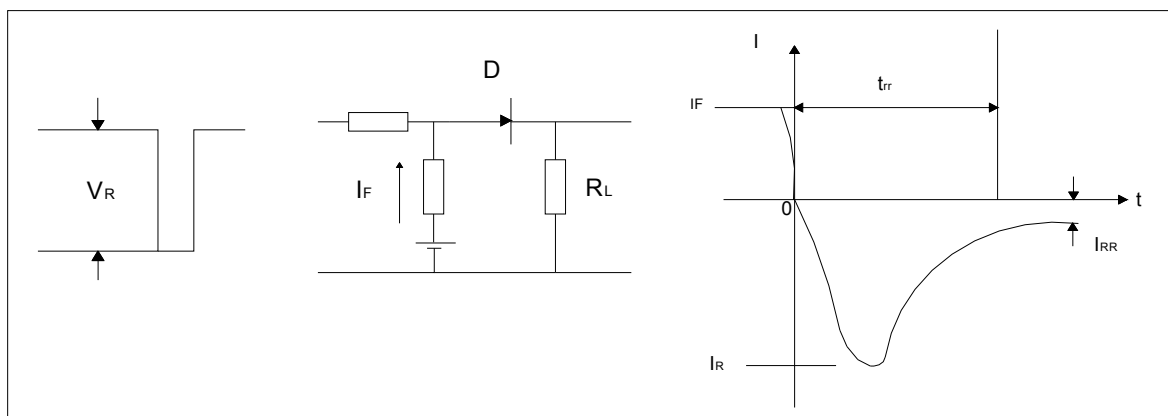
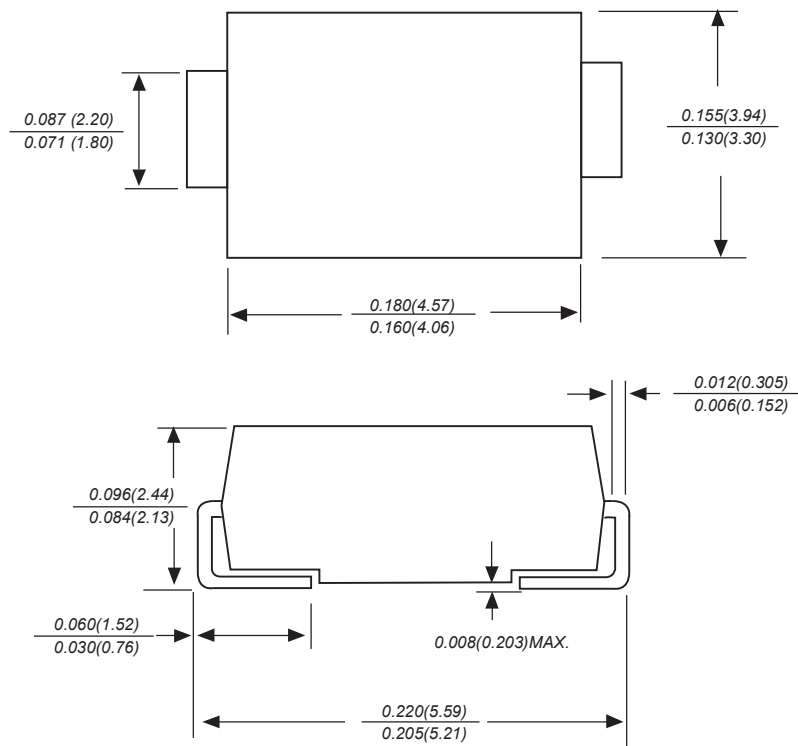


FIG.5: Diagram of circuit and Testing wave form of reverse recovery time

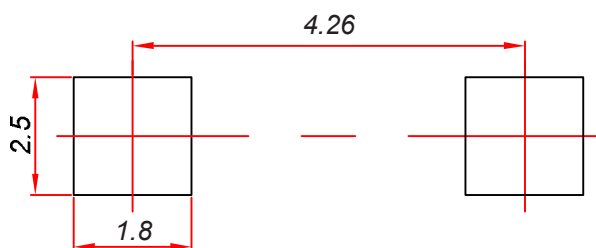


## SMBG Package Outline Dimensions



Dimensions in inches and (millimeters)

## SMBG Suggested Pad Layout



### Note:

1. Controlling dimension: in millimeters.
2. General tolerance:  $\pm 0.05\text{mm}$ .
3. The pad layout is for reference purposes only.

### NOTICE

JSMD reserve the right to make modifications, enhancements, improvements, corrections or other changes without further notice to any product herein. JSMD does not assume any liability arising out of the application or use of any product described herein.

## Reel Taping Specifications For Surface Mount Devices–SMBG



**FIG: CONFIGURATION OF SURFACE MOUNTED DEVICES TAPING**

| ITEM                  | SYMBOL | SMBG mm(inch)           |
|-----------------------|--------|-------------------------|
| Carrier width         | A      | 4.09±0.1(0.161±0.004)   |
| Carrier length        | B      | 5.82±0.1(0.229±0.004)   |
| Carrier depth         | C      | 2.50±0.1(0.100±0.004)   |
| Sprocket hole         | d      | 1.55±0.05 (0.061±0.002) |
| Reel outside diameter | D      | 330±2.0(13±0.079)       |
| Reel inner diameter   | D1     | 75 ±1.0 ( 2.95 ±0.039)  |
| Feed hole diameter    | D2     | 13±0.5(0.512±0.020)     |
| Stroket hole position | E      | 1.75±0.1(0.069±0.004)   |
| Punch hole position   | F      | 5.65±0.05(0.222±0.002)  |
| Punch hole pitch      | P      | 8.0±0.1(0.315±0.004)    |
| Sprocket hole pitch   | P0     | 4.0±0.1(0.157±0.004)    |
| Embossment center     | P1     | 2.0±0.1(0.079±0.004)    |
| Totall tape thickness | T      | 0.32±0.1 (0.013±0.004)  |
| Tape width            | W      | 12.0±0.2(0.472±0.008)   |
| Reel width            | W1     | 16.8±2.0(0.661±0.079)   |

NOTE:Devices are packde in accordance with EIA standard RS-481-A and specification given above.