



## SMBG Plastic-Encapsulate Diodes

### US2A THRU US2M High Efficient Rectifier Diodes

#### Features

- $I_{F(AV)}$  2A
- $V_{RRM}$  50V-1000V
- High surge current capability
- Polarity: Color band denotes cathode

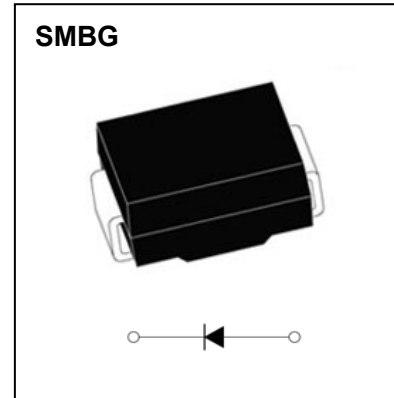
#### Applications

- Rectifier

#### Marking

- US2X

X : From A To M



#### Limiting Values(Absolute Maximum Rating)

| Item   | Symbol         | Unit             | Test Conditions   | US2        |     |     |     |     |     |      |
|--|----------------|------------------|---|------------|-----|-----|-----|-----|-----|------|
|  |                |                  |   | A          | B   | D   | G   | J   | K   | M    |
| Repetitive Peak Reverse Voltage                  | $V_{RRM}$      | V                |   | 50         | 100 | 200 | 400 | 600 | 800 | 1000 |
| Maximum RMS Voltage                              | $V_{RMS}$      | V                |   | 35         | 70  | 140 | 280 | 420 | 560 | 700  |
| Average Forward Current                          | $I_{F(AV)}$    | A                | 60Hz Half-sine wave,<br>Resistance load                 | 2.0        |     |     |     |     |     |      |
| Surge(Non-repetitive)Forward Current             | $I_{FSM}$      | A                | 60Hz Half-sine wave,<br>1 cycle, $T_a=25^\circ\text{C}$ | 50         |     |     |     |     |     |      |
| Operation Junction and Storage Temperature Range | $T_J, T_{STG}$ | $^\circ\text{C}$ |   | -55 ~ +150 |     |     |     |     |     |      |

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

| Item                          | Symbol           | Unit                      | Test Condition  | US2                     |   |   |     |     |   |   |
|-------------------------------|------------------|---------------------------|---|-------------------------|---|---|-----|-----|---|---|
|                               |                  |                           |   | A                       | B | D | G   | J   | K | M |
| Peak Forward Voltage          | $V_F$            | V                         | $I_F=2.0\text{A}$   | 1.0                     |   |   | 1.3 | 1.7 |   |   |
| Maximum reverse recovery time | $t_{rr}$         | ns                        | $I_F=0.5\text{A}, I_R=1.0\text{A}, I_{rr}=0.25\text{A}$   | 50                      |   |   |     | 75  |   |   |
| Peak Reverse Current          | $I_{RRM1}$       | $\mu\text{A}$             | $V_{RM}=V_{RRM}$  | $T_a=25^\circ\text{C}$  |   |   |     |     |   |   |
|                               | $I_{RRM2}$       |                           |   | $T_a=125^\circ\text{C}$ |   |   |     |     |   |   |
| Thermal Resistance(Typical)   | $R_{\theta J-A}$ | $^\circ\text{C}/\text{W}$ | Between junction and ambient                              | 68                      |   |   |     |     |   |   |
|                               | $R_{\theta J-L}$ |                           | Between junction and terminal                             | 18                      |   |   |     |     |   |   |
| Juction Capacitance (Typical) | $C_j$            | pF                        | Measured at 1MHZ and Applied Reverse Voltage of 4.0 V.D.C | 26                      |   |   | 20  | 10  |   |   |

#### Notes:

Thermal resistance from junction to ambient and from junction to lead mounted on FR4 PCB double sided copper mini pad

# Typical Characteristics

FIG.1: FORWARD CURRENT DERATING CURVE

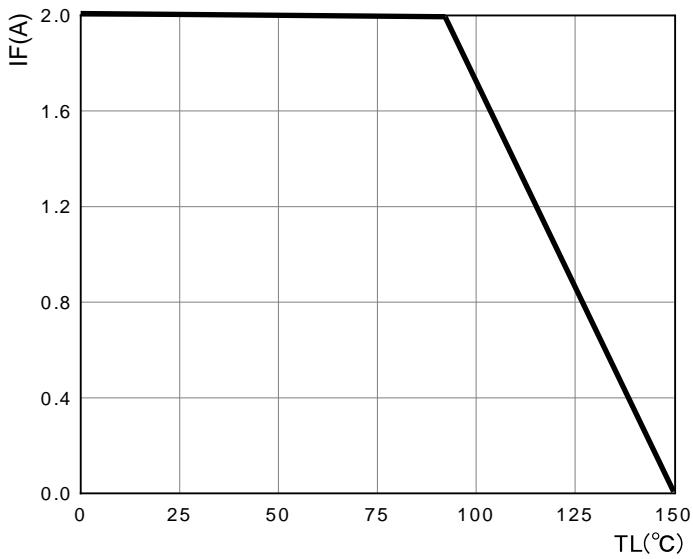
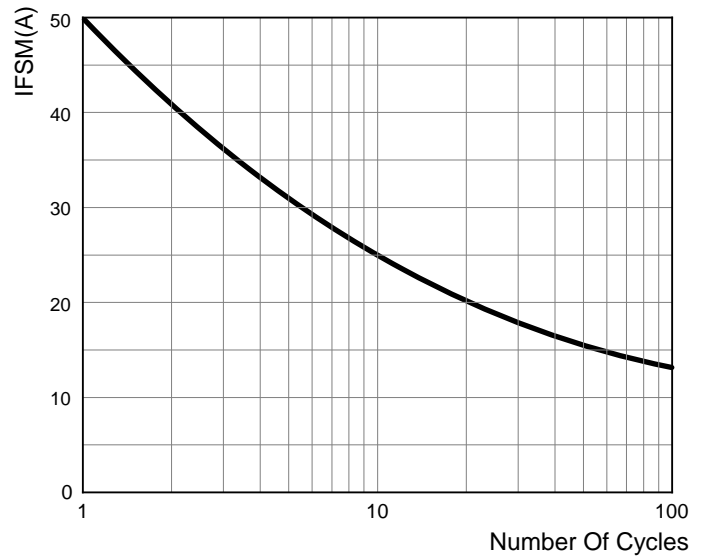
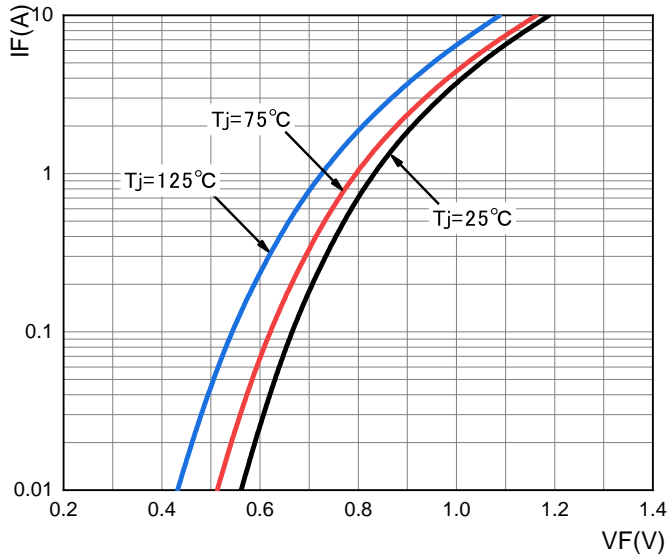


FIG 2: MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT



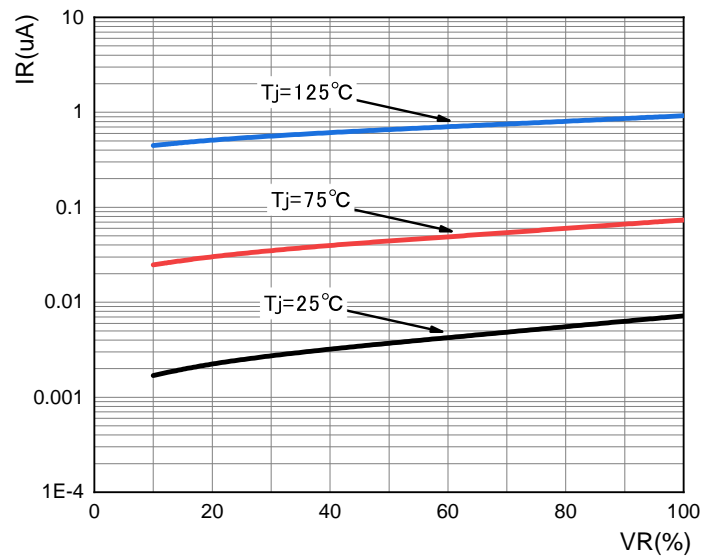
US2A-US2D

FIG.3 : TYPICAL FORWARD CHARACTERISTICS



US2A-US2D

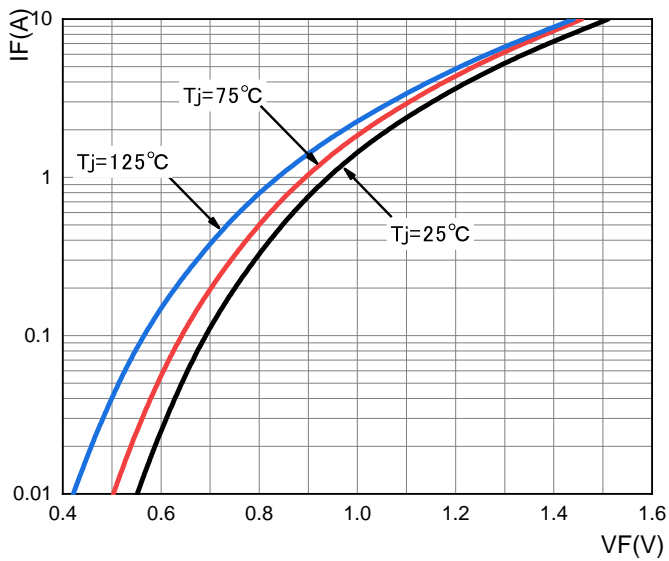
FIG.4 TYPICAL REVERSE CHARACTERISTICS



# Typical Characteristics

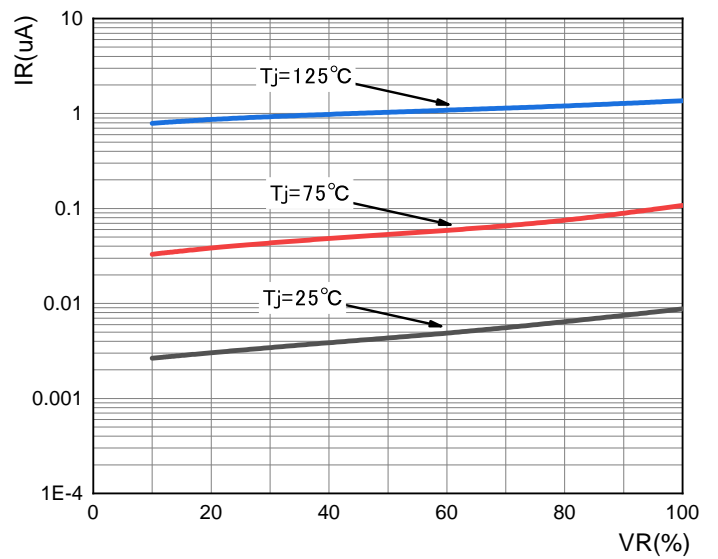
US2G

FIG.5 : TYPICAL FORWARD CHARACTERISTICS



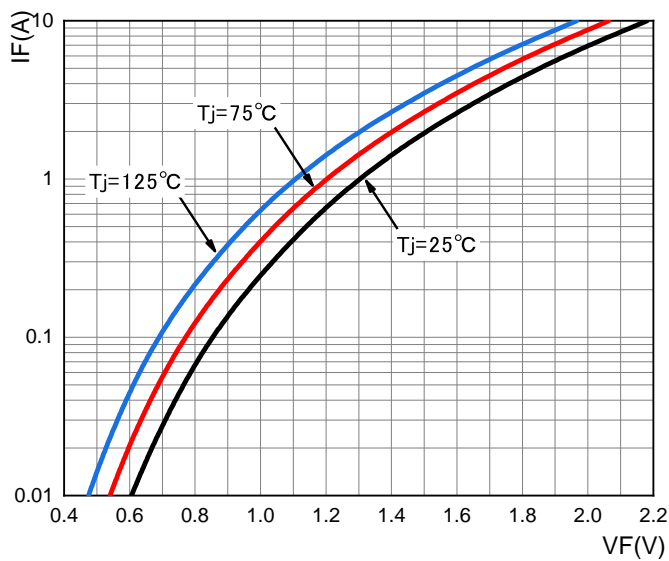
US2G

FIG.6 TYPICAL REVERSE CHARACTERISTICS



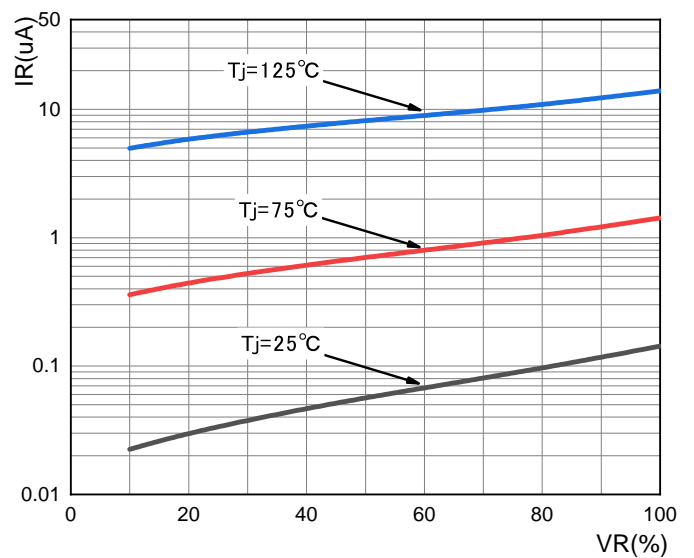
US2J-US2M

FIG.7 : TYPICAL FORWARD CHARACTERISTICS

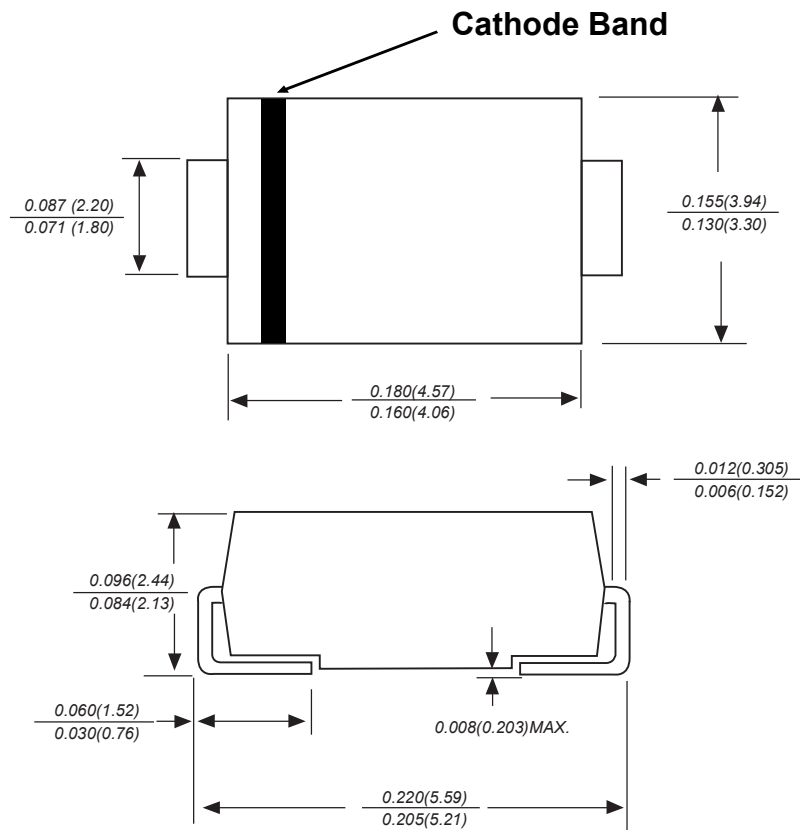


US2J-US2M

FIG.8 TYPICAL REVERSE CHARACTERISTICS

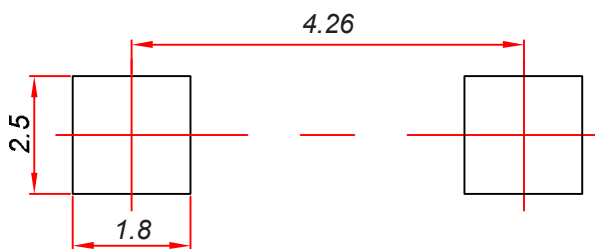


## SMBG Package Outline Dimensions



Dimensions in inches and (millimeters)

## SMBG Suggested Pad Layout



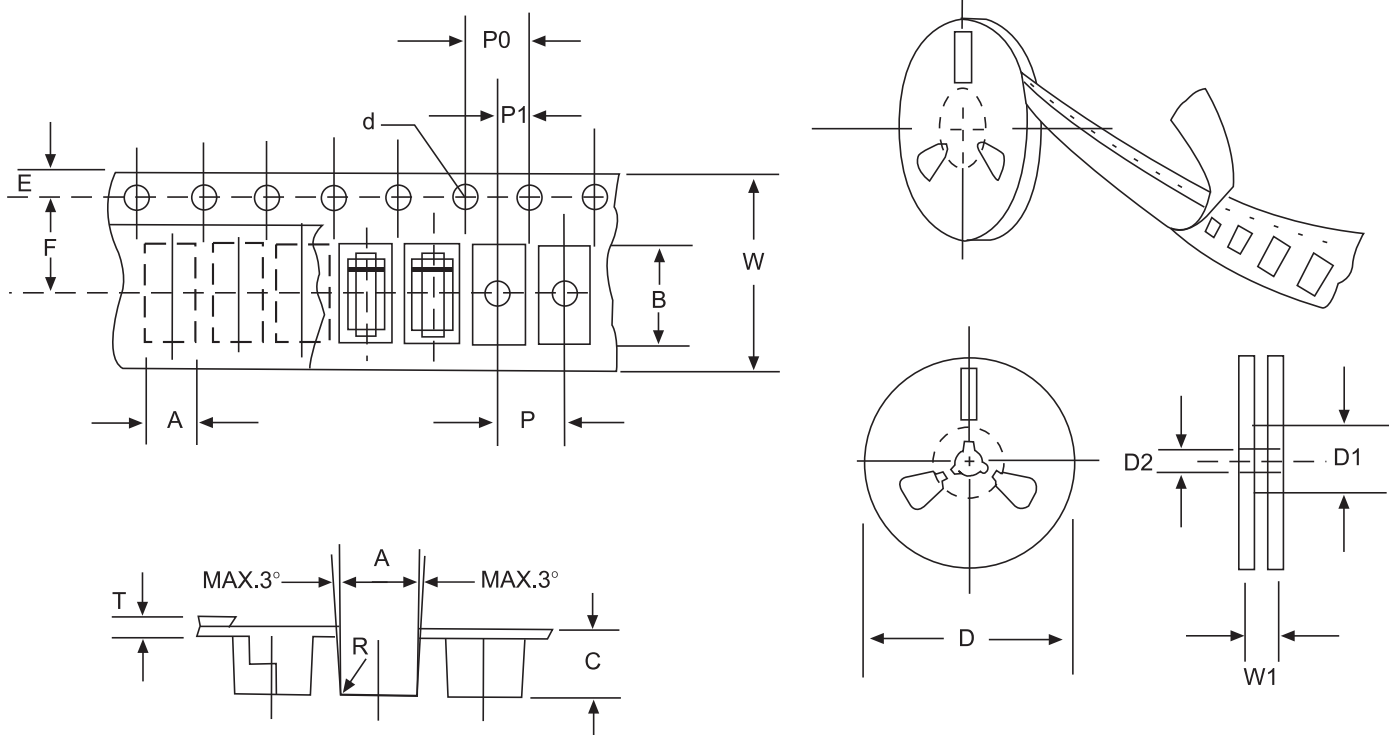
### Note:

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

### NOTICE

JSCJ reserves the right to make modifications, enhancements, improvements, corrections or other changes without further notice to any product herein. JSCJ 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)     |
| Strocket 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)    |
| Total 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 packed in accordance with EIA standard RS-481-A and specification given above.