

## SMA Plastic-Encapsulate Diodes

### High Efficient Rectifier Diodes

#### Features

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

SMA



#### 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, $T_a=25^\circ\text{C}$ | 60         |     |     |     |     |     |      |
| 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 <sub>F</sub>       | V    | I <sub>F</sub> =2.0A                                             |                     | 1.0 |   |   | 1.3 | 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 |                     | 50  |   |   | 75  |     |   |   |
| Peak Reverse Current          | I <sub>RRM1</sub>    | μA   | V <sub>RM</sub> =V <sub>RRM</sub>                                | T <sub>a</sub> =25℃ | 5   |   |   |     |     |   |   |
|                               | T <sub>a</sub> =125℃ |      |                                                                  | 50                  |     |   |   |     |     |   |   |
| Thermal Resistance(Typical)   | R <sub>θJ-A</sub>    | ℃/W  | Between junction and ambient                                     |                     | 75  |   |   |     |     |   |   |
|                               | R <sub>θJ-L</sub>    |      | Between junction and terminal                                    |                     | 27  |   |   |     |     |   |   |
| Juction Capacitance (Typical) | Cj                   | 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

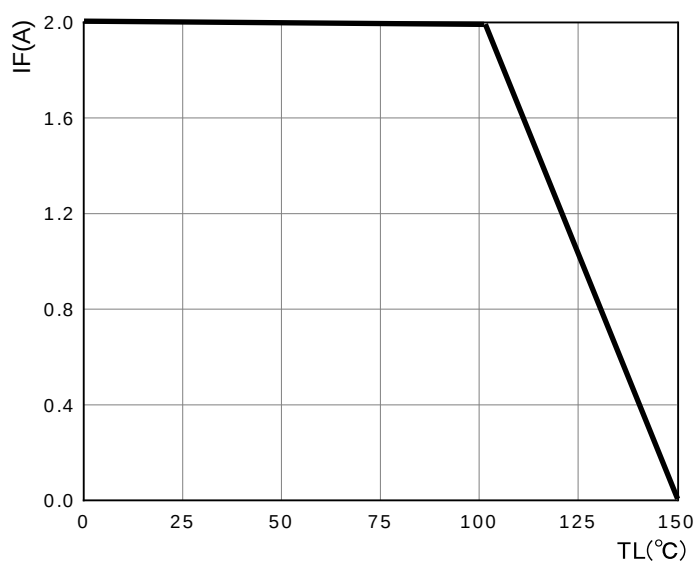
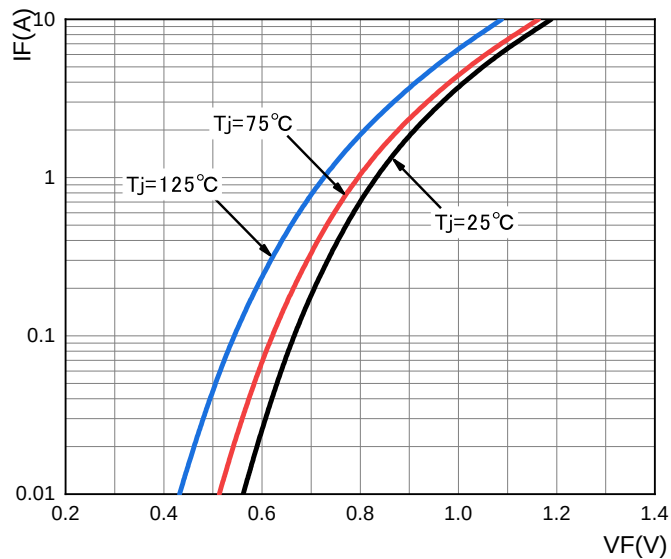


FIG 2: MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT



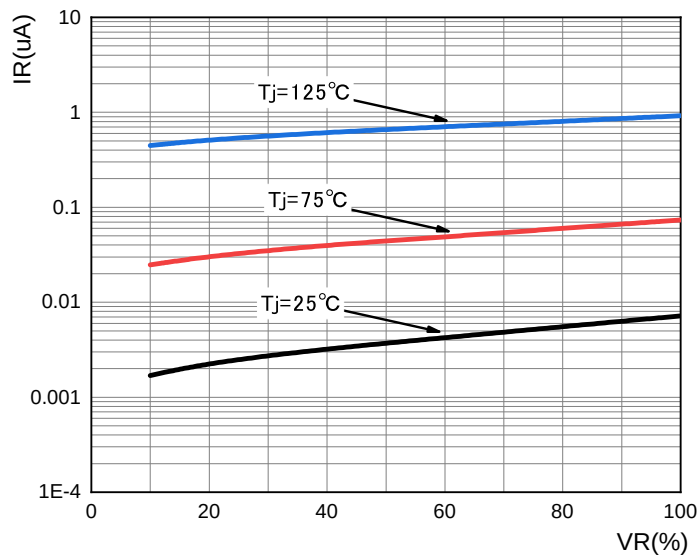
US2A-US2D

FIG.3 : TYPICAL FORWARD CHARACTERISTICS



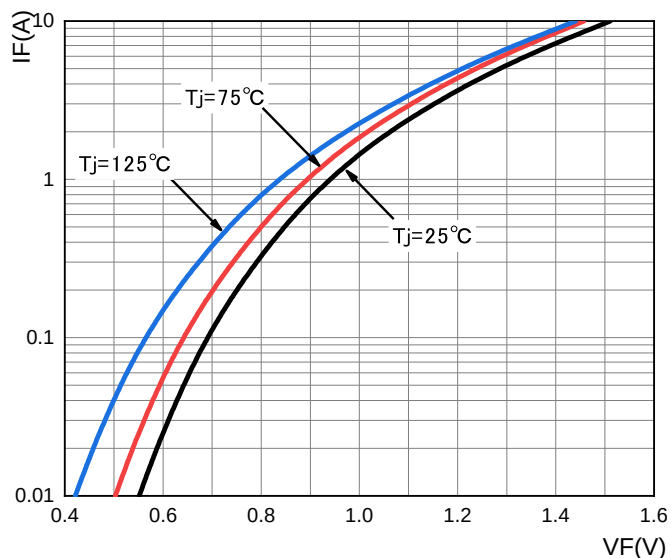
US2A-US2D

FIG.4 TYPICAL REVERSE CHARACTERISTICS



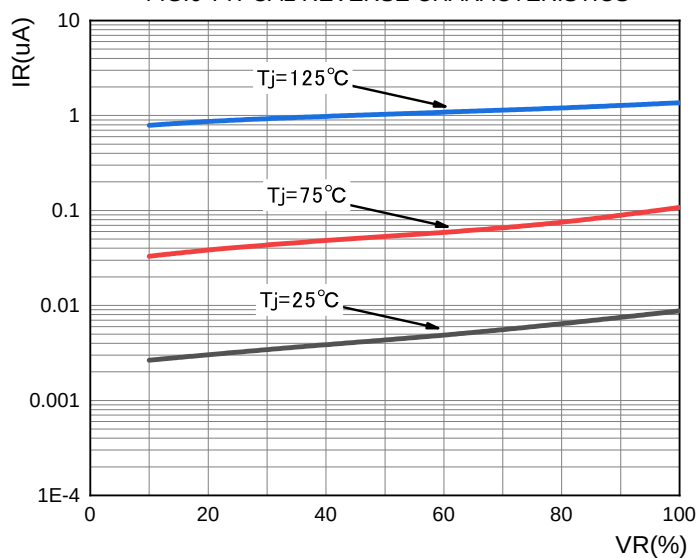
**US2G**

**FIG.5 : TYPICAL FORWARD CHARACTERISTICS**



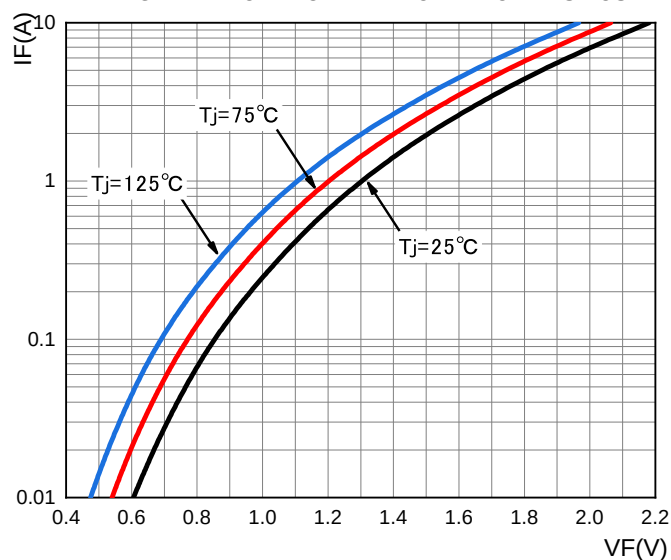
**US2G**

**FIG.6 TYPICAL REVERSE CHARACTERISTICS**



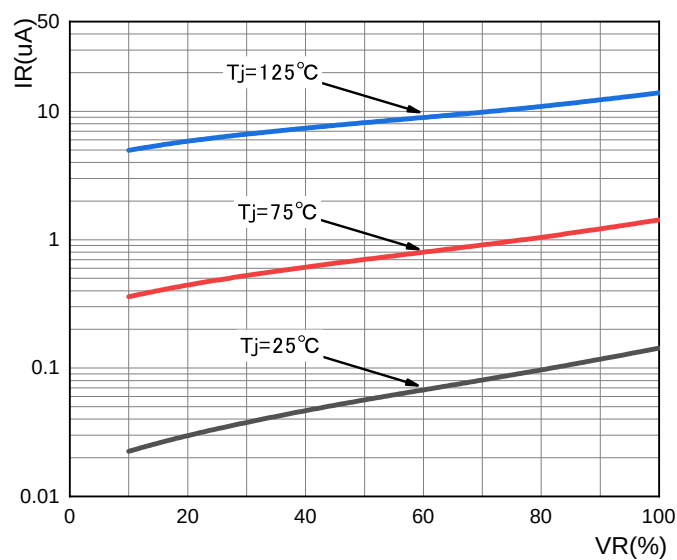
**US2J-US2M**

**FIG.7 : TYPICAL FORWARD CHARACTERISTICS**

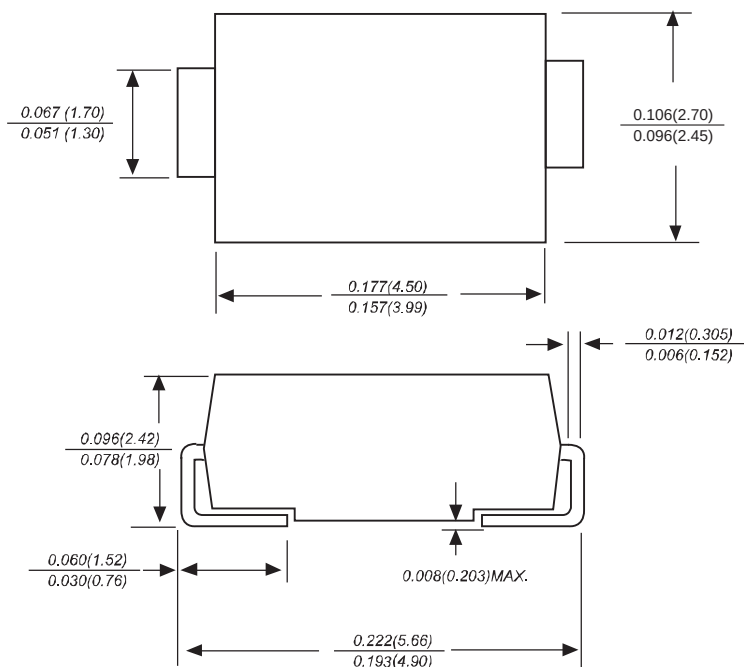


**US2J-US2M**

**FIG.8 TYPICAL REVERSE CHARACTERISTICS**

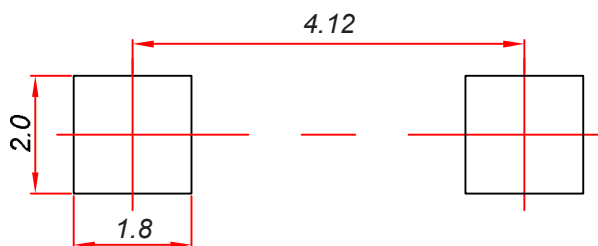


## SMA Package Outline Dimensions



Dimensions in inches and (millimeters)

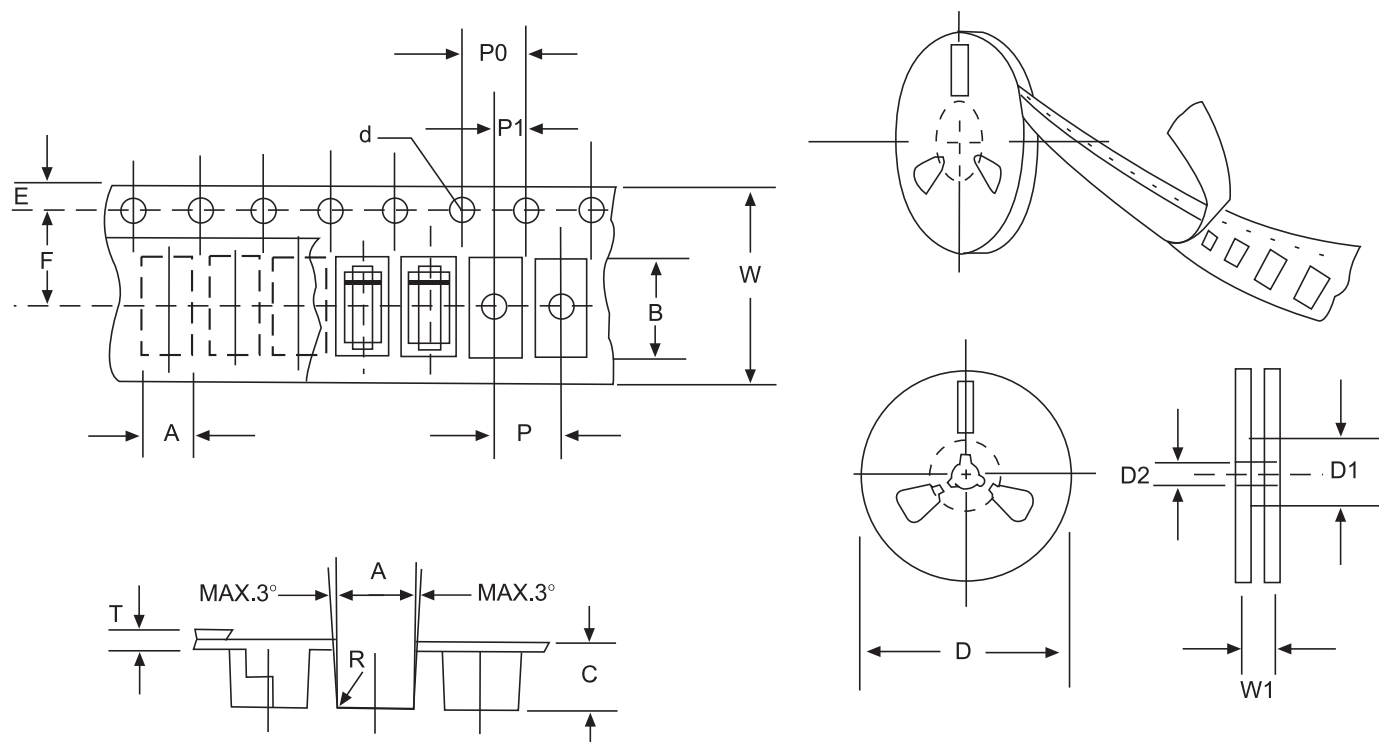
## SMA Suggested Pad Layout



### Note:

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

## Reel Taping Specifications For Surface Mount Devices- SMA



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

| ITEM                   | SYMBOL | SMA mm(inch)             |
|------------------------|--------|--------------------------|
| Carrier width          | A      | 2.79±0.1(0.110±0.004)    |
| Carrier length         | B      | 5.33±0.1(0.210±0.004)    |
| Carrier depth          | C      | 2.36±0.1(0.093±0.004)    |
| Sprocket hole          | d      | 1.55±0.05(0.061±0.002)   |
| Reel outside diameter  | D      | 279±2.0 (11± 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      | 5.5±0.05(0.217±0.002)    |
| Punch hole pitch       | P      | 4.0±0.1(0.157±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      | 0.28±0.02(0.011 ±0.0008) |
| 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.