

### Surface Mount Ultra Fast Recovery Rectifiers

**(Pb)** Lead(Pb)-Free

#### Features:

- \*For Surface Mount Application
- \*Glass Passivated Chip
- \*Low Reverse Leakage Current
- \*Low Forward Voltage Drop And High Current Capability
- \*Plastic Material Has UL Flammability Classification 94V-0

#### Mechanical Data:

- \* Case: Molded Plastic, MINI-SMA(Similar to SOD-123F)
- \* Terminals: Solder Plated, Solderable per ML-STD-750 Method 2026
- \* Polarity: Indicated by Cathode Band
- \* Wight: 0.040 grams

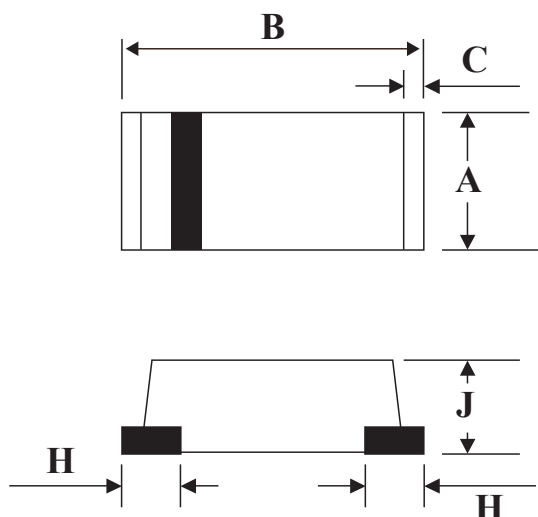
**REVERSE VOLTAGE**  
**50 TO 1000 VOLTS**  
**FORWARD CURRENT**  
**0.5 AMPERE**



**MINI-SMA**  
**(SOD-123F)**

### MINI-SMA Outline Dimension

unit:mm



| MINI-SMA |      |           |
|----------|------|-----------|
| Dim      | Min  | Max       |
| A        | 1.40 | 1.80      |
| B        | 3.50 | 3.90      |
| C        | -    | 0.30(TYP) |
| H        | -    | 0.70(TYP) |
| J        | 1.30 | 1.70      |

## 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%.

| Characteristics                                                                                          | Symbol             | US<br>05AM | US<br>05BM | US<br>05DM | US<br>05GM | US<br>05JM | US<br>05KM | US<br>05MM | Unit |
|----------------------------------------------------------------------------------------------------------|--------------------|------------|------------|------------|------------|------------|------------|------------|------|
| Maximum Recurrent Peak Reverse Voltage                                                                   | V <sub>RRM</sub>   | 50         | 100        | 200        | 400        | 600        | 800        | 1000       | V    |
| Maximum RMS Voltage                                                                                      | V <sub>RMS</sub>   | 35         | 70         | 140        | 280        | 420        | 560        | 700        | V    |
| Maximum DC Blocking Voltage                                                                              | V <sub>DC</sub>    | 50         | 100        | 200        | 400        | 600        | 800        | 1000       | V    |
| Maximum Average Forward Rectified Current @T <sub>A</sub> =50°C                                          | I <sub>F(AV)</sub> | 0.5        |            |            |            |            |            |            | A    |
| Peak Forward Surge Current,<br>8.3 ms Single Half Sine-Wave<br>Superimposed on Rated Load (JEDEC Method) | I <sub>FSM</sub>   | 30         |            |            |            |            |            |            | A    |
| Maximum Instantaneous At 0.5A DC                                                                         | V <sub>F</sub>     | 1.0        |            |            | 1.3        |            | 1.7        |            | V    |
| Maximum DC Reverse Current @T <sub>A</sub> =25°C<br>At Rated DC Blocking Voltage @T <sub>A</sub> =100°C  | I <sub>R</sub>     | 5.0<br>150 |            |            |            |            |            |            | uA   |
| Maximum Reverse Recovery Time                                                                            | T <sub>RR</sub>    | 50         |            |            |            | 75         |            |            | ns   |
| Typical Junction Capacitance (Note 1)                                                                    | C <sub>J</sub>     | 20(TYP)    |            |            |            |            |            |            | PF   |
| Typical Thermal Resistance (Note 2)                                                                      | R <sub>θJA</sub>   | 42(TYP)    |            |            |            |            |            |            | °C/W |
| Operating Temperature Range                                                                              | T <sub>J</sub>     | -55 to+150 |            |            |            |            |            |            | °C   |
| Storage Temperature Range                                                                                | T <sub>STG</sub>   | -55 to+150 |            |            |            |            |            |            | °C   |

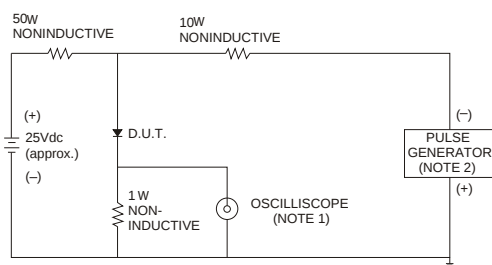
NOTES: 1.Measured at 1.0MHz applied reverse voltage of 4.0V DC.

2.Thermal Resistance Junction to Ambient.

## Device Marking

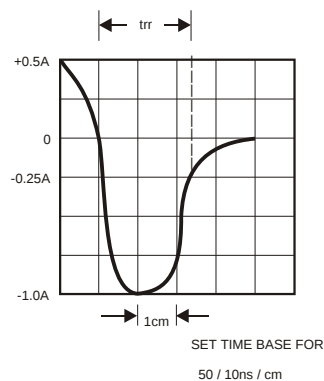
| Item   | Marking | Item   | Marking |
|--------|---------|--------|---------|
| US05AM | F1      | US05JM | F5      |
| US05BM | F2      | US05KM | F6      |
| US05DM | F3      | US05MM | F7      |
| US05GM | F4      |        |         |

## RATING AND CHARACTERISTIC CURVES

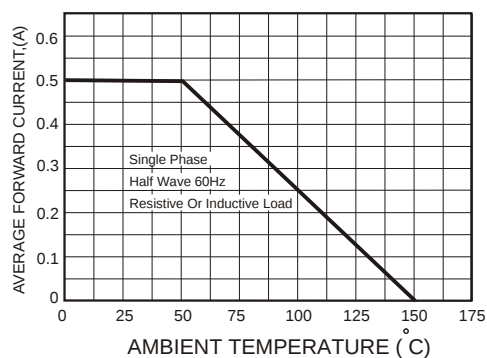


NOTES: 1. Rise Time= 7ns max., Input Impedance= 1 megohm.22pF.

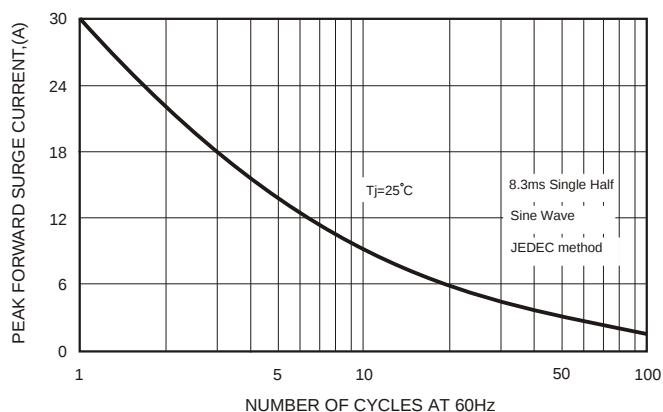
2. Rise Time= 10ns max., Source Impedance= 50 ohms.



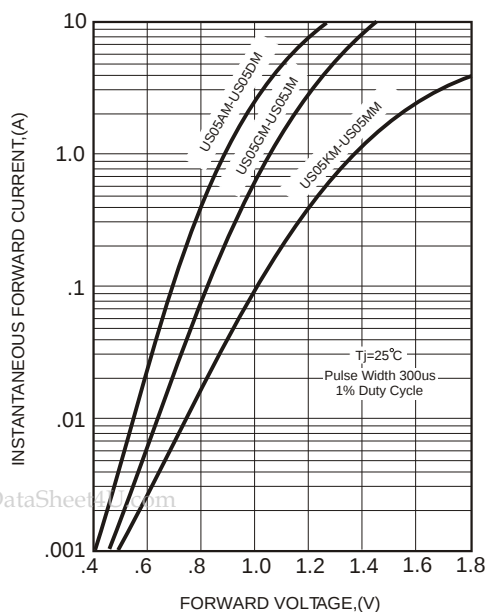
**FIG.1- Test Circuit Diagram and Reverse Recovery Time Characteristics**



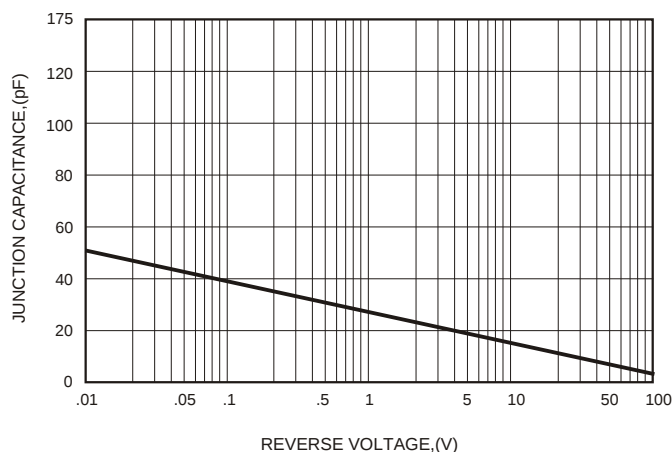
**FIG.2-Typical Forward Current Derating Curve**



**FIG.3-Maximum Non-repetitive Forward Surge Current**



**FIG.4-Typical Forward Characteristics**



**FIG.5-Typical Junction Capacitance**