

US1AAFC ~ US1MAFC Series

Surface Mount Ultra Fast Recovery Rectifier

Voltage

50~1000 V

Current

1 A

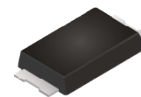
Features

- Glass passivated chip junction
- Ultrafast reverse recovery time
- Low forward voltage drop
- Low switching losses, high efficiency
- High forward surge capability
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

Mechanical Data

- Case : Molded plastic, SMAF-C
- Terminals : Solderable per MIL-STD-750, Method 2026
- Approx. Weight : 0.0012 ounces, 0.034 grams

SMAF-C



Maximum Ratings and Thermal Characteristics (T_A = 25°C unless otherwise noted)

| PARAMETER | SYMBOL | US1AAFC | US1BAFC | US1DAFC | US1GAFC | US1JAFC | US1KAFC | US1MAFC | UNITS |
|--|--------------------|-------------|---------|---------|---------|---------|---------|---------|-------|
| Maximum Recurrent Peak Reverse Voltage | V _{RRM} | 50 | 100 | 200 | 400 | 600 | 800 | 1000 | V |
| Maximum RMS Voltage | V _{RMS} | 35 | 70 | 140 | 280 | 420 | 560 | 700 | V |
| Maximum DC Blocking Voltage | V _R | 50 | 100 | 200 | 400 | 600 | 800 | 1000 | V |
| Maximum Average Forward Rectified Current | I _{F(AV)} | 1 | | | | | | | A |
| Peak Forward Surge Current : 8.3 ms Single Half Sine-Wave Superimposed On Rated Load | I _{FSM} | 30 | | | | | | | A |
| Forward Voltage at 1A | V _F | 1 | | | 1.4 | 1.7 | | | V |
| Reverse Current | I _R | 1 | | | | | | | uA |
| Typical Junction Capacitance Measured at 1 MHz And Applied V _R = 4V | C _J | 20 | | | 15 | 10 | | | pF |
| Reverse Recovery Time ^(Note 1) | T _{RR} | 50 | | | | 100 | | | ns |
| Typical Thermal Resistance ^(Note 2) | R _{θJL} | 22 | | | | | | | °C/W |
| | R _{θJA} | 150 | | | | | | | |
| Operating Junction Temperature Range | T _J | -55 to +150 | | | | | | | °C |
| Storage Temperature Range | T _{STG} | -55 to +150 | | | | | | | °C |

NOTES:

1. Reverse Recovery Test Conditions: I_F=0.5A, I_R=1A, Recover to 0.25A
2. Mounted on a FR4 PCB, single-sided copper, with 10cm x 10cm copper pad area
3. Mounted on a FR4 PCB, single-sided copper, standard footprint

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TYPICAL CHARACTERISTIC CURVES

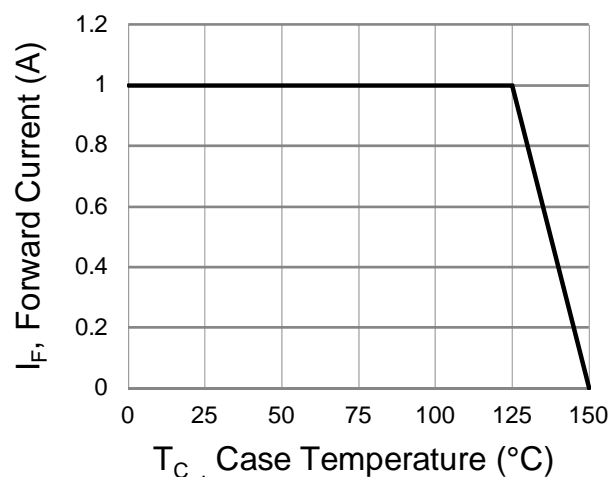


Fig.1 Forward Current Derating Curve

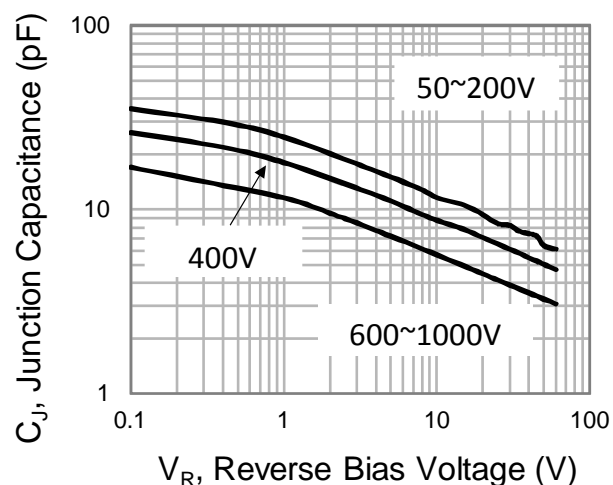


Fig.2 Typical Junction Capacitance

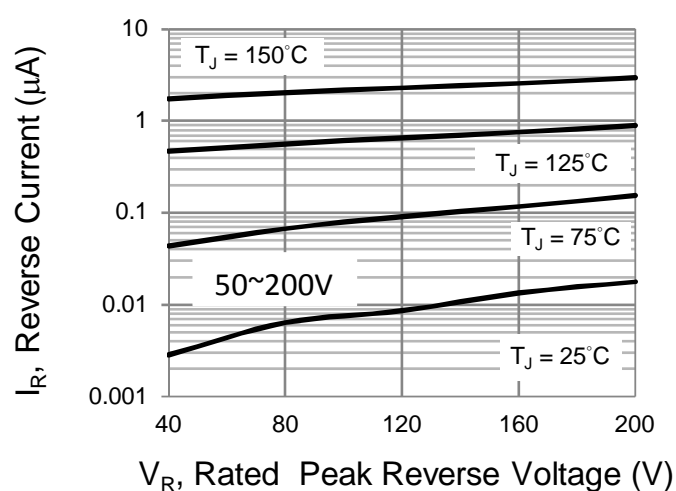


Fig.3 Typical Reverse Characteristics

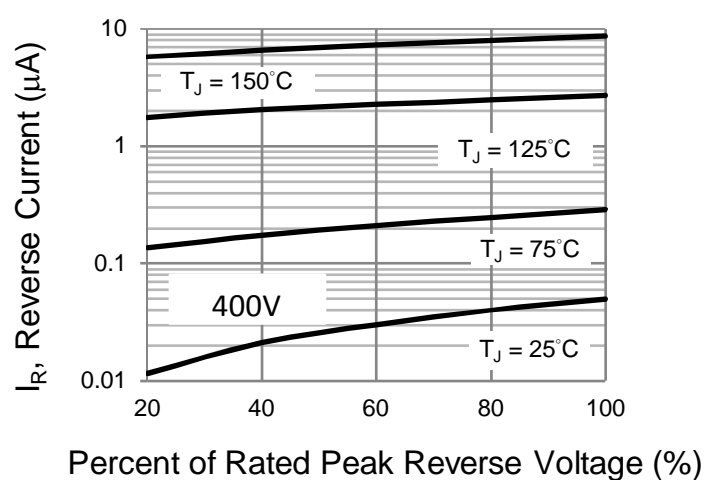


Fig.4 Typical Reverse Characteristics

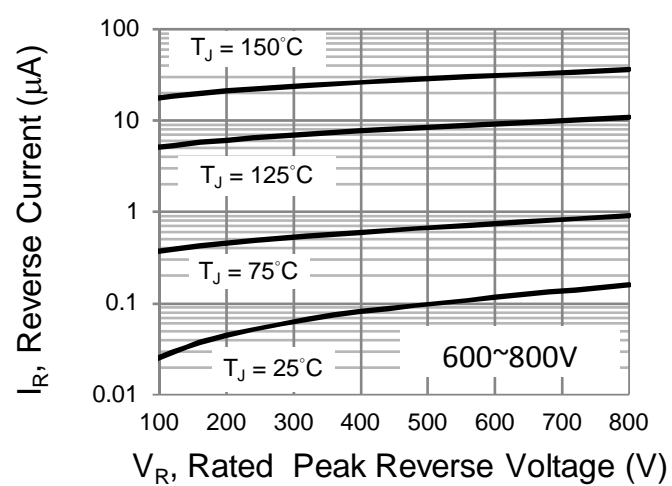


Fig.5 Typical Reverse Characteristics

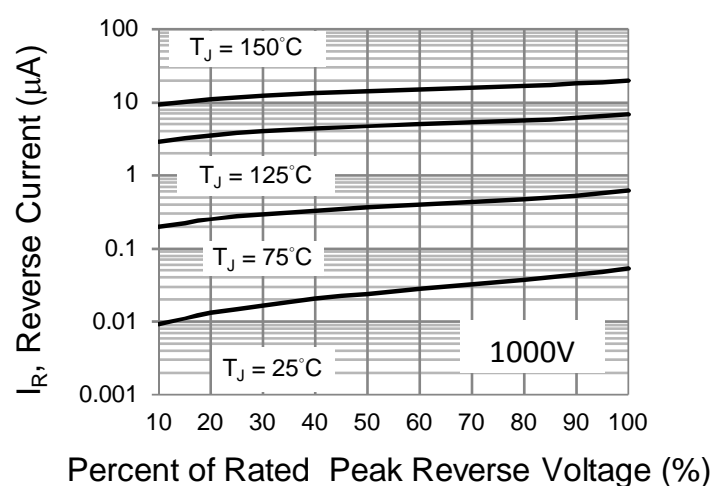


Fig.6 Typical Reverse Characteristics

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TYPICAL CHARACTERISTIC CURVES

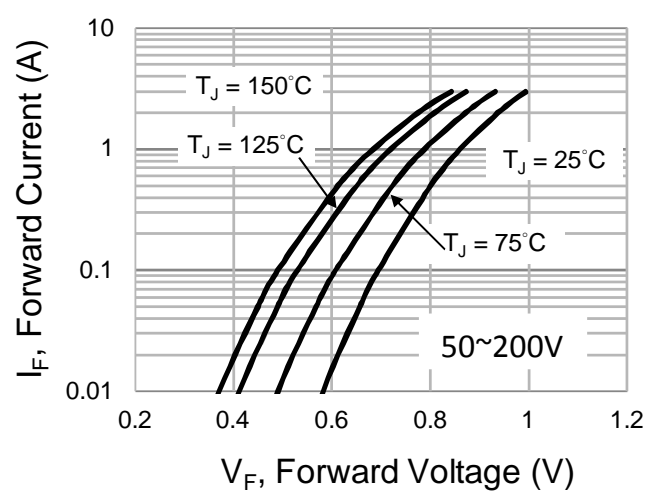


Fig.7 Typical Forward Characteristics

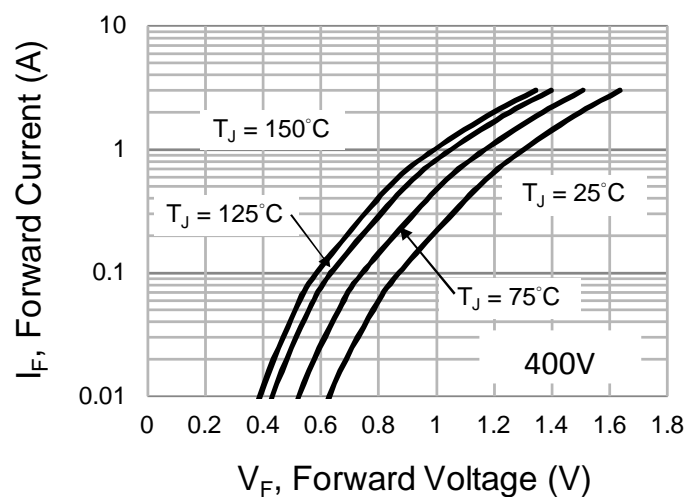


Fig.8 Typical Forward Characteristics

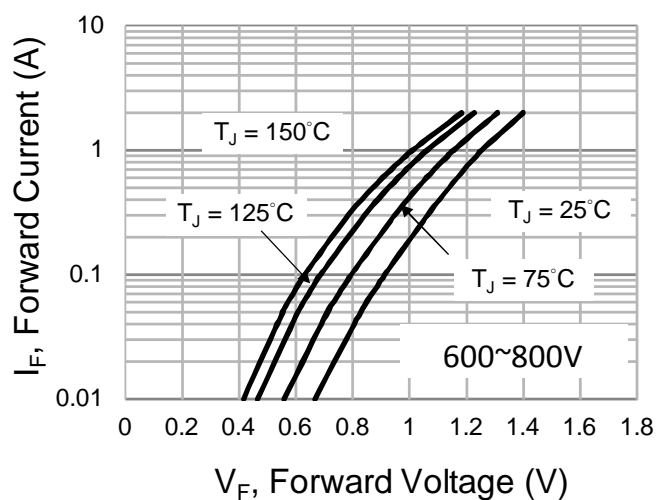


Fig.9 Typical Forward Characteristics

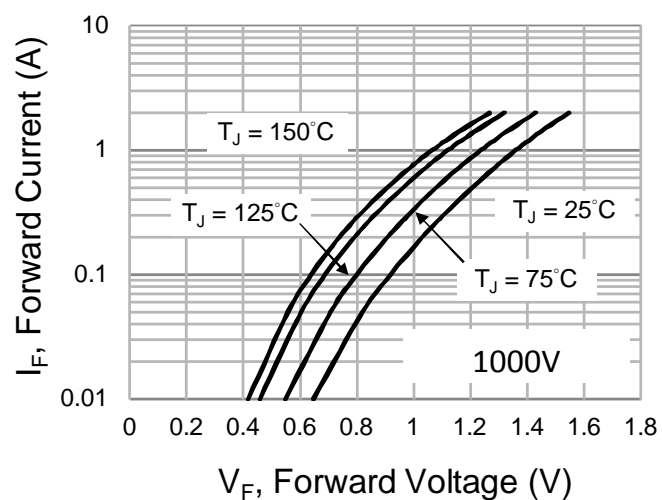


Fig.10 Typical Forward Characteristics



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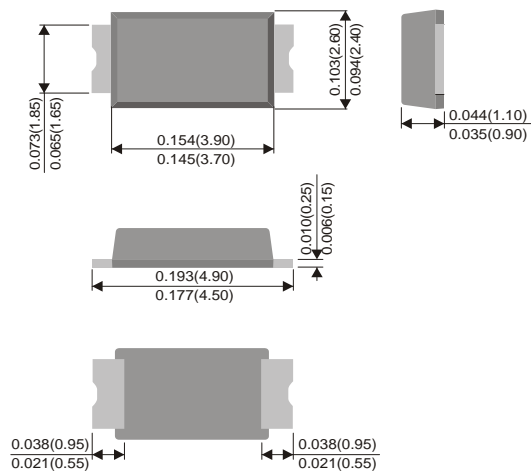
Part No. Packing Code Version

| Part No. Packing Code | Package Type | Packing Type | Marking | Version |
|-----------------------|--------------|------------------|---------|--------------|
| US1AAFC_R1_00001 | SMAF-C | 3K pcs / 7" reel | US1A | Halogen free |
| US1BAFC_R1_00001 | SMAF-C | 3K pcs / 7" reel | US1B | Halogen free |
| US1DAFC_R1_00001 | SMAF-C | 3K pcs / 7" reel | US1D | Halogen free |
| US1GAFC_R1_00001 | SMAF-C | 3K pcs / 7" reel | US1G | Halogen free |
| US1JAFC_R1_00001 | SMAF-C | 3K pcs / 7" reel | US1J | Halogen free |
| US1KAFC_R1_00001 | SMAF-C | 3K pcs / 7" reel | US1K | Halogen free |
| US1MAFC_R1_00001 | SMAF-C | 3K pcs / 7" reel | US1M | Halogen free |

Packaging Information & Mounting Pad Layout

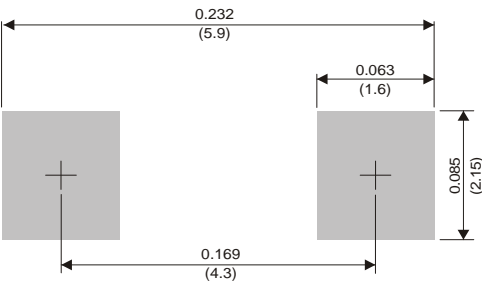
SMAF-C Dimension

Unit: inch(mm)



SMAF-C Pad Layout

Unit: inch(mm)





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