

## SBA320AFC ~ SBA340AFC Series

### Surface Mount Extreme Low Vf Schottky Barrier Rectifier

**Voltage**

**20~40 V**

**Current**

**3 A**

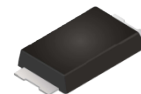
#### Features

- Extreme low forward voltage drop
- Low power loss, high efficiency
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

#### Mechanical Data

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

**SMAF-C**



### Maximum Ratings ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

| PARAMETER                                                                            | SYMBOL             | SBA320AFC   | SBA330AFC | SBA340AFC | UNITS |
|--------------------------------------------------------------------------------------|--------------------|-------------|-----------|-----------|-------|
| Maximum Recurrent Peak Reverse Voltage                                               | V <sub>RRM</sub>   | 20          | 30        | 40        | V     |
| Maximum RMS Voltage                                                                  | V <sub>RMS</sub>   | 14          | 21        | 28        | V     |
| Maximum DC Blocking Voltage                                                          | V <sub>R</sub>     | 20          | 30        | 40        | V     |
| Maximum Average Forward Rectified Current                                            | I <sub>F(AV)</sub> | 3           |           |           | A     |
| Peak Forward Surge Current : 8.3 ms Single Half Sine-Wave Superimposed On Rated Load | I <sub>FSM</sub>   | 50          |           |           | A     |
| Typical Thermal Resistance<br><div>(Note 2)</div> <div>(Note 1)</div>                | R <sub>θJC</sub>   | 15          |           |           | °C/W  |
|                                                                                      | R <sub>θJA</sub>   | 150         |           |           |       |
| Operating Junction Temperature Range                                                 | T <sub>J</sub>     | -55 to +150 |           |           | °C    |
| Storage Temperature Range                                                            | T <sub>STG</sub>   | -55 to +150 |           |           | °C    |

### Electrical Characteristics

| PARAMETER                           | SYMBOL | TEST CONDITION      |                           | SBA320AFC |      | SBA330AFC |      | SBA340AFC |      | UNITS         |
|-------------------------------------|--------|---------------------|---------------------------|-----------|------|-----------|------|-----------|------|---------------|
|                                     |        |                     |                           | TYP.      | MAX. | TYP.      | MAX. | TYP.      | MAX. |               |
| Forward Voltage                     | $V_F$  | $I_F = 10\text{mA}$ | $T_J = 25^\circ\text{C}$  | 0.19      | -    | 0.19      | -    | 0.21      | -    | V             |
|                                     |        | $I_F = 1\text{A}$   |                           | 0.32      | -    | 0.33      | -    | 0.35      | -    |               |
|                                     |        | $I_F = 3\text{A}$   |                           | -         | 0.44 | -         | 0.46 | -         | 0.48 |               |
|                                     |        | $I_F = 10\text{mA}$ | $T_J = 125^\circ\text{C}$ | 0.05      | -    | 0.06      | -    | 0.06      | -    | V             |
|                                     |        | $I_F = 1\text{A}$   |                           | 0.24      | -    | 0.26      | -    | 0.27      | -    |               |
| Reverse Current <sup>(Note 3)</sup> | $I_R$  | $V_R = 10\text{V}$  | $T_J = 25^\circ\text{C}$  | 31        | -    | 18        | -    | 16        | -    | $\mu\text{A}$ |
|                                     |        | $V_R = 20\text{V}$  |                           | -         | 200  | 28        | -    | 21        | -    |               |
|                                     |        | $V_R = 30\text{V}$  |                           | -         | -    | -         | 200  | 35        | -    |               |
|                                     |        | $V_R = 40\text{V}$  |                           | -         | -    | -         | -    | -         | 150  |               |
|                                     |        | $V_R = 20\text{V}$  | $T_J = 125^\circ\text{C}$ | 8.6       | -    | 5.6       | -    | 5.1       | -    | mA            |
|                                     |        | $V_R = 30\text{V}$  |                           | -         | -    | 10.7      | -    | 7.6       | -    |               |
|                                     |        | $V_R = 40\text{V}$  |                           | -         | -    | -         | -    | 12        | -    |               |

Note : 1. Mounted on a FR4 PCB, single-sided copper, standard footprint

2. Mounted on a FR4 PCB, single-sided copper, with 100cm<sup>2</sup> copper pad area

3. Short duration pulse test used to minimize self-heating effect

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### TYPICAL CHARACTERISTIC CURVES

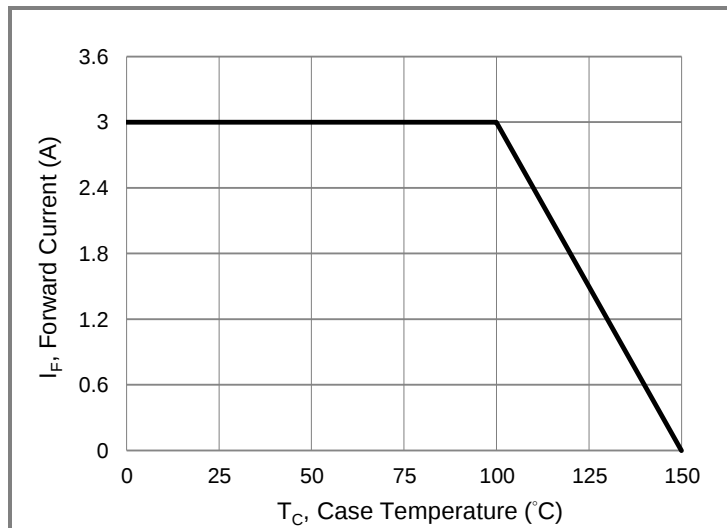


Fig.1 Forward Current Derating Curve

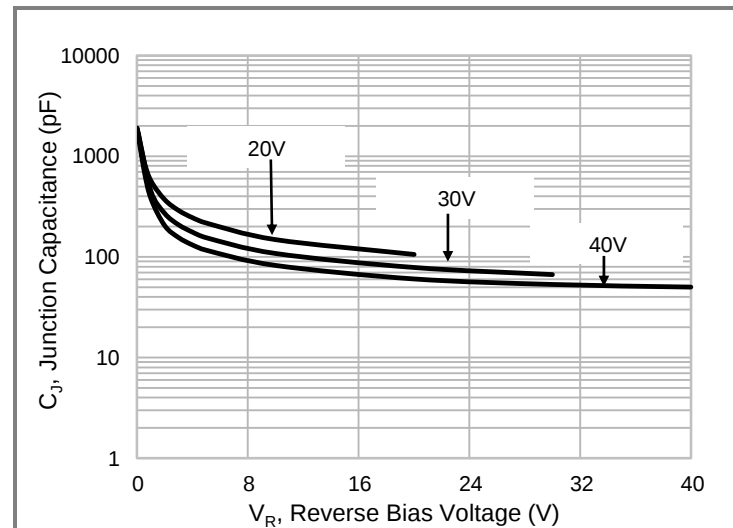


Fig. 2 Typical Junction Capacitance

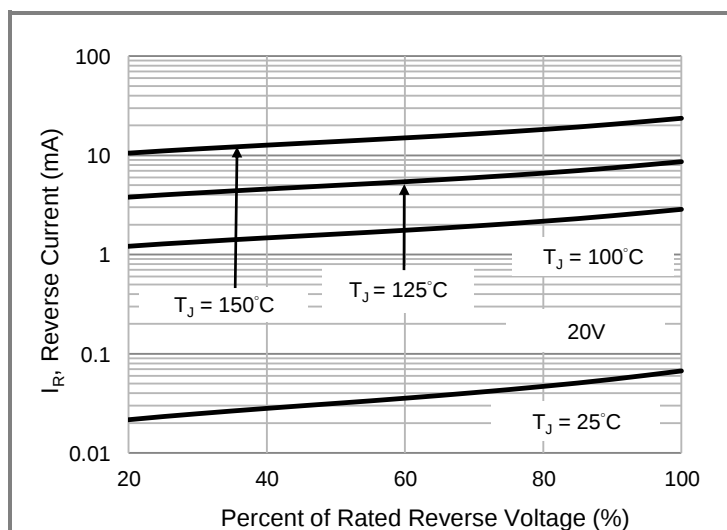


Fig.3 Typical Reverse Characteristics

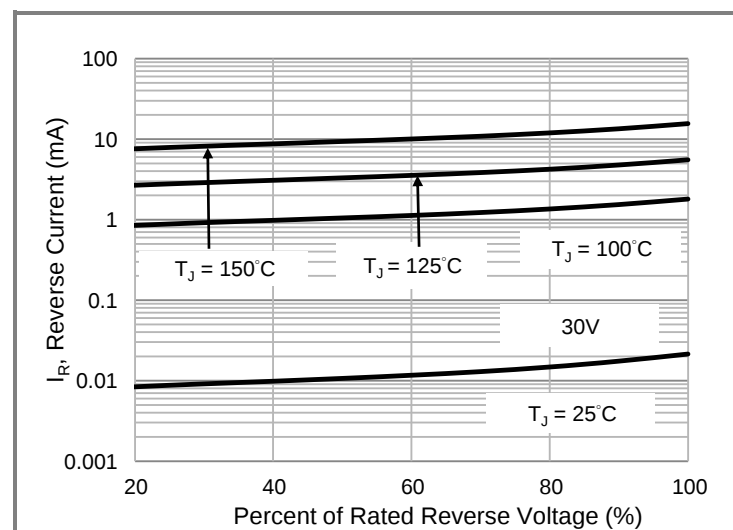


Fig.4 Typical Reverse Characteristics

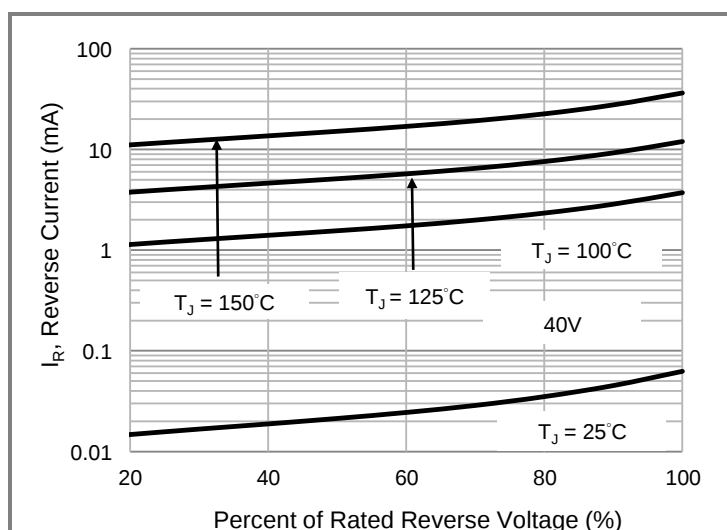


Fig.5 Typical Reverse Characteristics

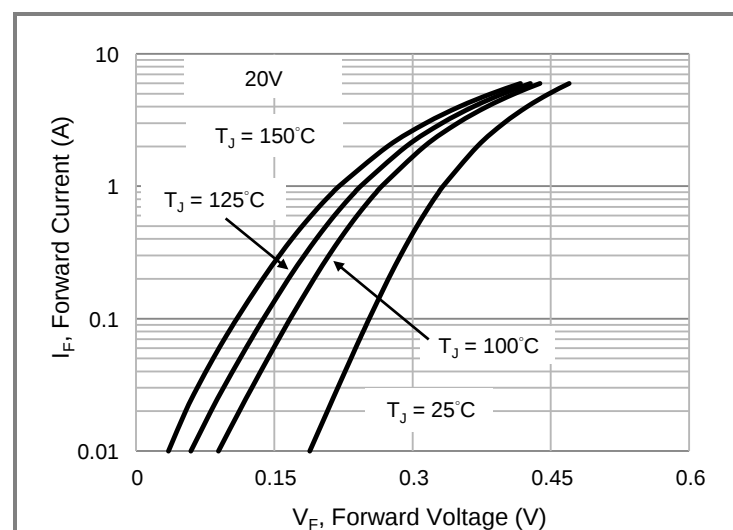


Fig.6 Typical Forward Characteristics

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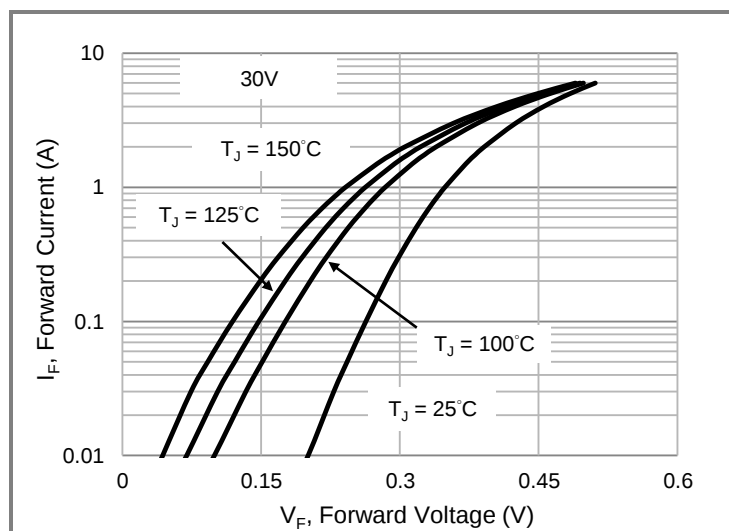


Fig.7 Typical Forward Characteristics

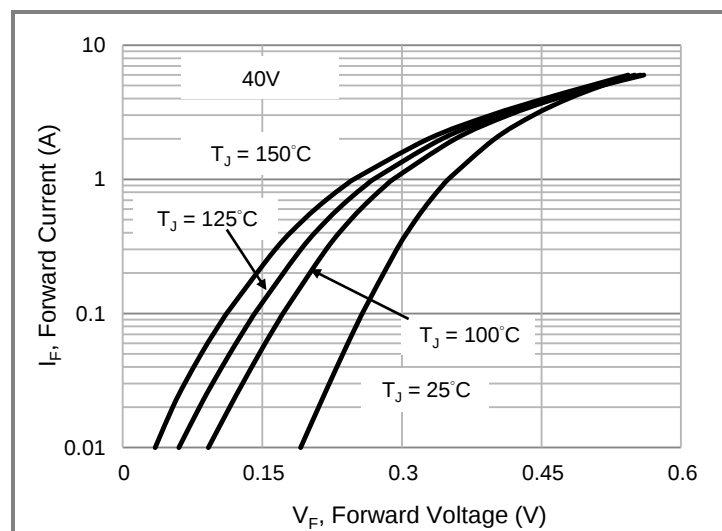


Fig.8 Typical Forward Characteristics

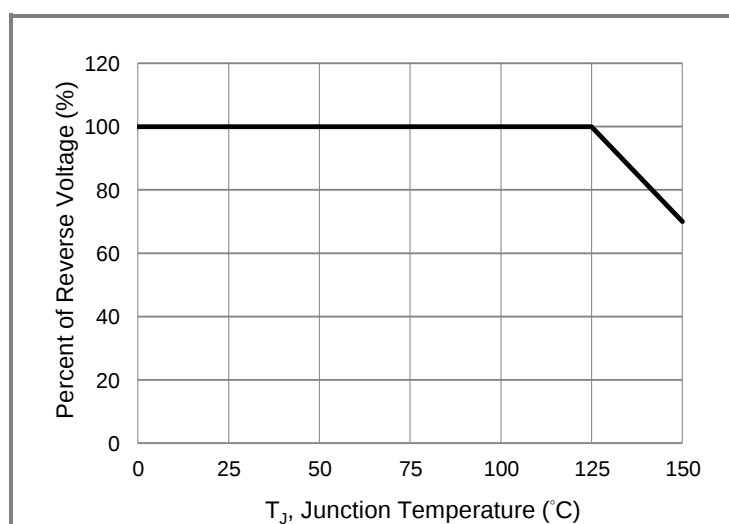


Fig.9 Operating Temperature Derating Curve

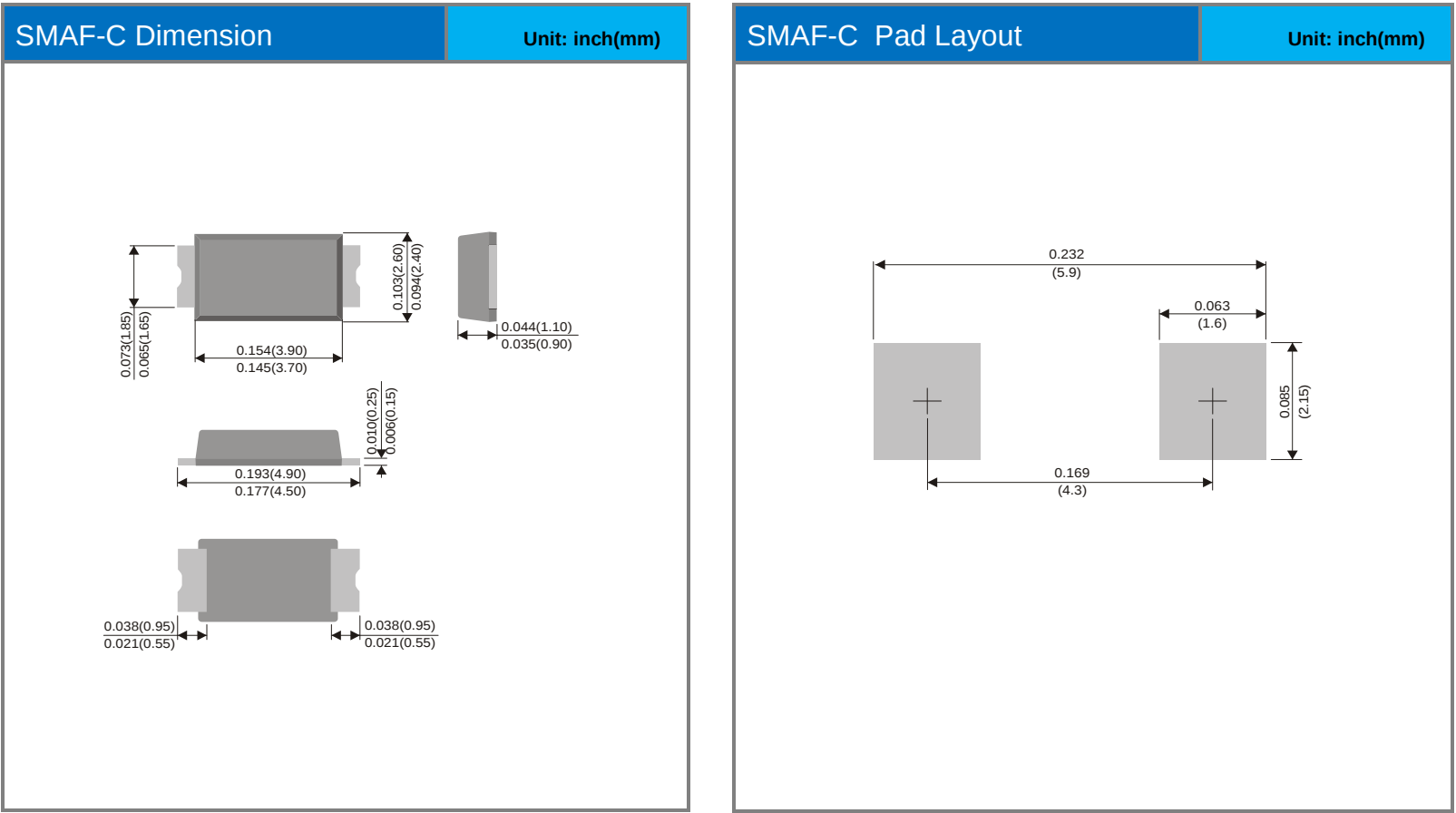


SBA320AFC ~ SBA340AFC Series

Part No. Packing Code Version

| Part No. Packing Code | Package Type | Packing Type     | Marking | Version      |
|-----------------------|--------------|------------------|---------|--------------|
| SBA320AFC_R1_00001    | SMAF-C       | 3K pcs / 7" reel | SBA320  | Halogen free |
| SBA330AFC_R1_00001    | SMAF-C       | 3K pcs / 7" reel | SBA330  | Halogen free |
| SBA340AFC_R1_00001    | SMAF-C       | 3K pcs / 7" reel | SBA340  | Halogen free |

Packaging Information & Mounting Pad Layout





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