



SBA0520CA / SBA0530CA / SBA0540CA

EXTREME LOW VF SCHOTTKY RECTIFIER

| | | | |
|----------------|----------------|----------------|--------------|
| Voltage | 20-40 V | Current | 0.5 A |
|----------------|----------------|----------------|--------------|

Features

- Ultra low forward voltage, low power loss
- Surface mount package
- Ultra thin profile package for space constrained utilization
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

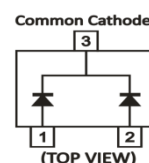
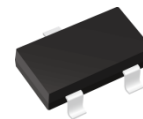
Applications

- Low voltage rectification
- Reverse polarity protection
- Low power consumption applications

Mechanical Data

- Case: Molded plastic, SOT-23
- Terminals: Solderable per MIL-STD-750, Method 2026
- Approx. Weight: 0.0003 ounces, 0.0084 grams

SOT-23



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

| PARAMETER | SYMBOL | SBA0520CA | SBA0530CA | SBA0540CA | UNIT |
|--|-----------------------|-------------|-----------|-----------|--------------------|
| Maximum repetitive peak reverse voltage | V_{RRM} | 20 | 30 | 40 | V |
| Maximum rms voltage | V_{RMS} | 14 | 21 | 28 | V |
| Maximum dc blocking voltage | V_R | 20 | 30 | 40 | V |
| Maximum average forward rectified current | $I_{F(AV)}$ | 0.5 | | | A |
| Peak forward surge current: 8.3ms single half sine-wave Superimposed on rated load | I_{FSM} | 2 | | | A |
| Typical thermal resistance | $R_{\theta JA}^{(1)}$ | 350 | | | $^\circ\text{C/W}$ |
| | $R_{\theta JC}^{(2)}$ | 180 | | | |
| Operating junction temperature range | T_J | -55 to +150 | | | $^\circ\text{C}$ |
| Storage temperature range | T_{STG} | -55 to +150 | | | $^\circ\text{C}$ |

Electrical Characteristics

| PARAMETER | SYMBOL | TEST CONDITION | SBA0520CA | | SBA0530CA | | SBA0540CA | | UNIT |
|-----------------|-------------|---------------------------|-----------|------|-----------|------|-----------|------|---------------|
| | | | TYP. | MAX. | TYP. | MAX. | TYP. | MAX. | |
| Forward voltage | V_F | $I_F = 10\text{mA}$ | 0.24 | - | 0.25 | - | 0.23 | - | V |
| | | $I_F = 100\text{mA}$ | 0.32 | - | 0.33 | - | 0.35 | - | |
| | | $I_F = 500\text{mA}$ | - | 0.48 | - | 0.52 | - | 0.6 | |
| | | $T_J = 25^\circ\text{C}$ | | | | | | | |
| Reverse current | $I_R^{(3)}$ | $V_R = 10\text{V}$ | 4.6 | - | 4 | - | 1.3 | - | μA |
| | | $V_R = 20\text{V}$ | - | 100 | 9 | - | 1.9 | - | |
| | | $V_R = 30\text{V}$ | - | - | - | 100 | 3.1 | - | |
| | | $V_R = 40\text{V}$ | - | - | - | - | - | 50 | |
| | | $V_R = 20\text{V}$ | 1.7 | - | 1.4 | - | 0.5 | - | mA |
| | | $V_R = 30\text{V}$ | - | - | 3.5 | - | 0.8 | - | |
| | | $V_R = 40\text{V}$ | - | - | - | - | 1.3 | - | |
| | | $T_J = 125^\circ\text{C}$ | | | | | | | |

Note : 1. Mounted on a FR4 PCB, single-sided copper, mini pad.

2. Mounted on a FR4 PCB, single-sided copper, with 100cm² copper pad area.

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



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TYPICAL CHARACTERISTIC CURVES

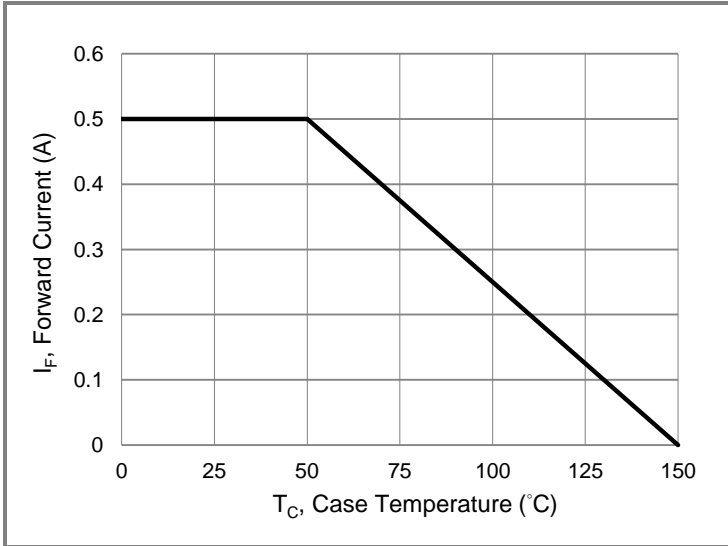


Fig.1 Forward Current Derating Curve

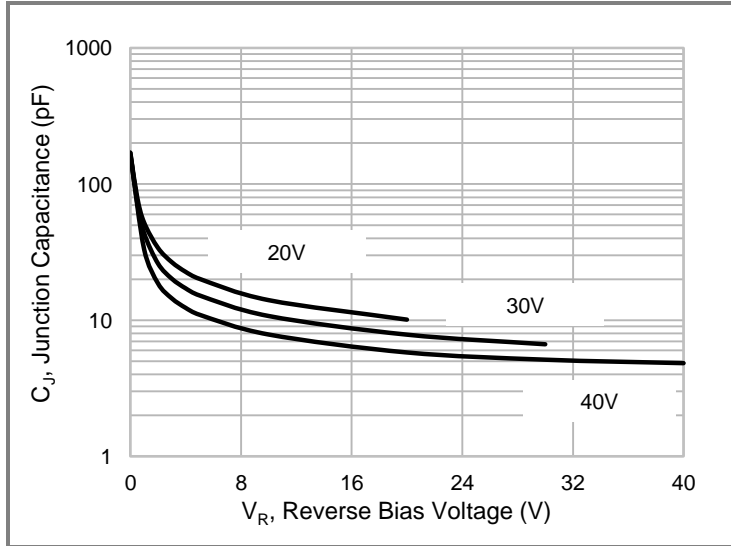


Fig. 2 Typical Junction Capacitance

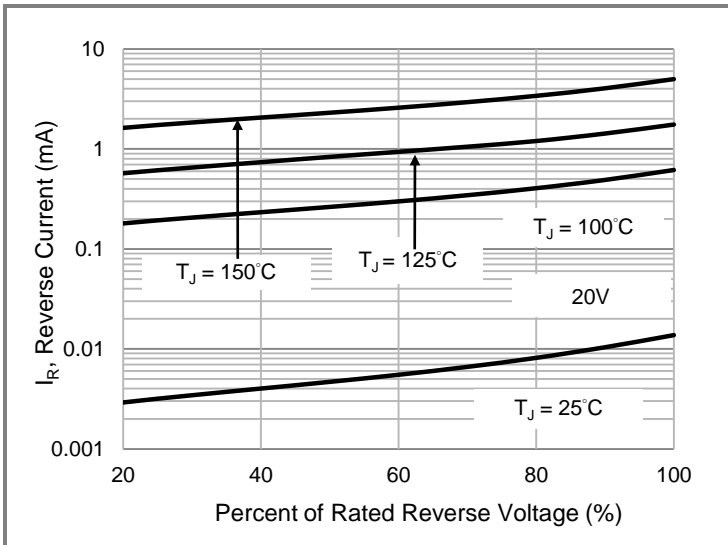


Fig.3 Typical Reverse Characteristics

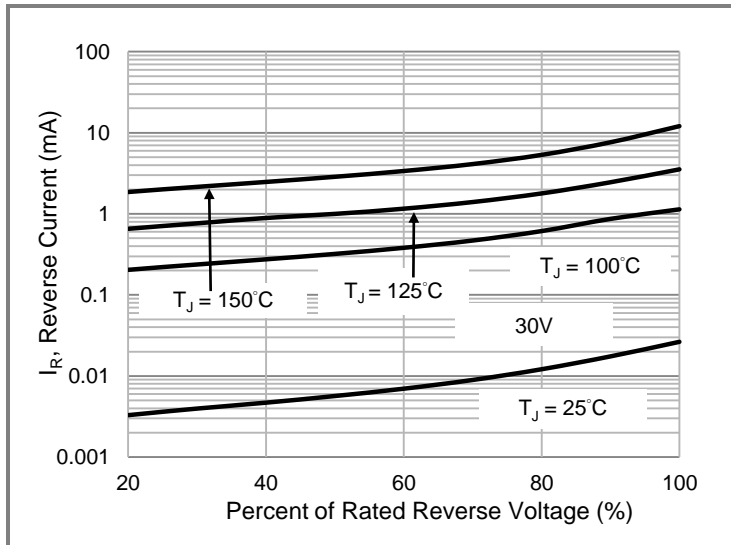


Fig.4 Typical Reverse Characteristics

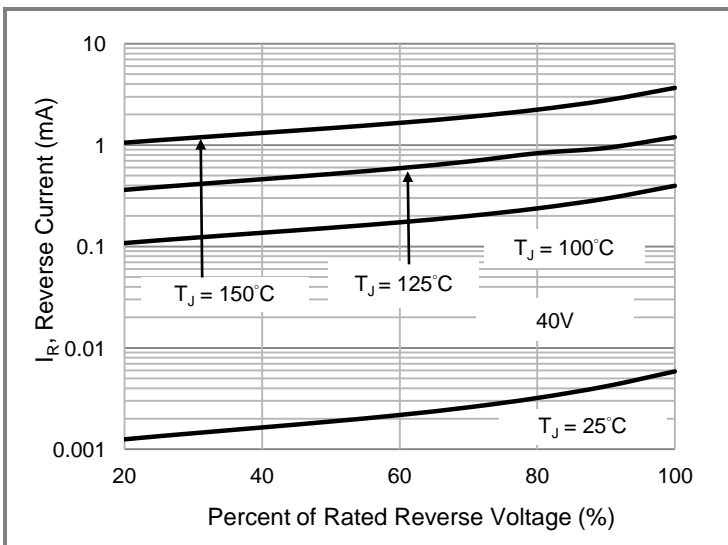


Fig.5 Typical Reverse Characteristics

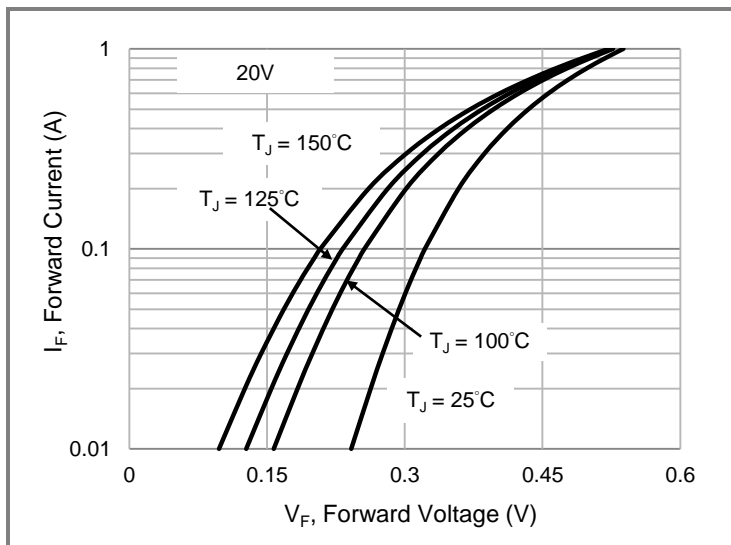


Fig.6 Typical Forward Characteristics



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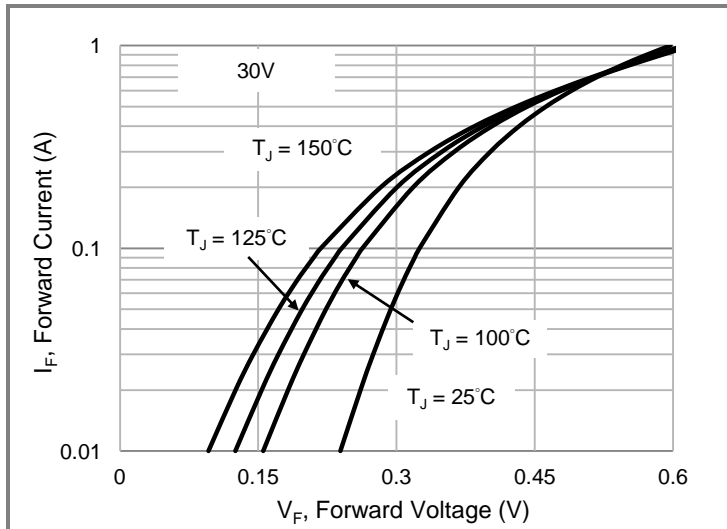


Fig.7 Typical Forward Characteristics

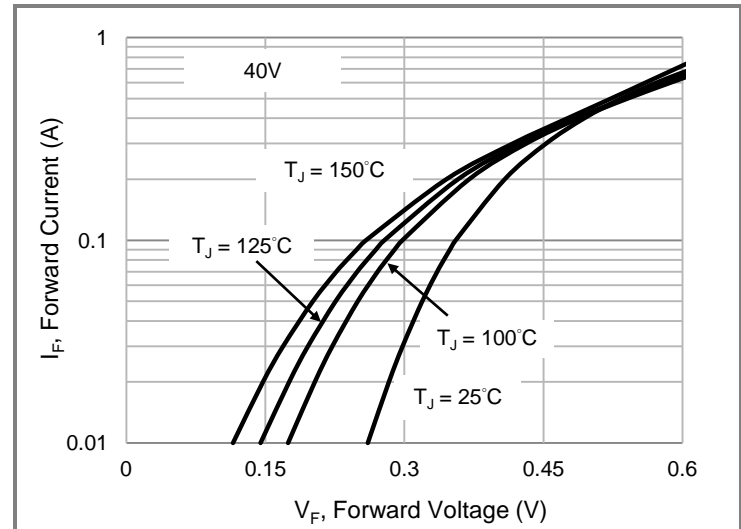


Fig.8 Typical Forward Characteristics

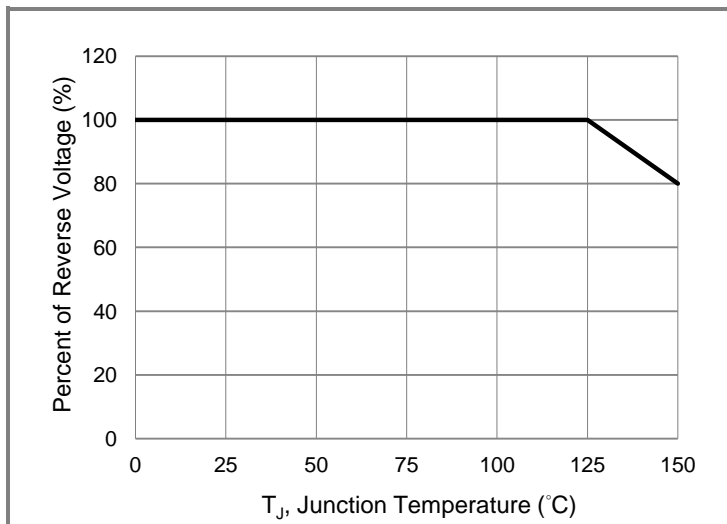


Fig.9 Operating Temperature Derating Curve

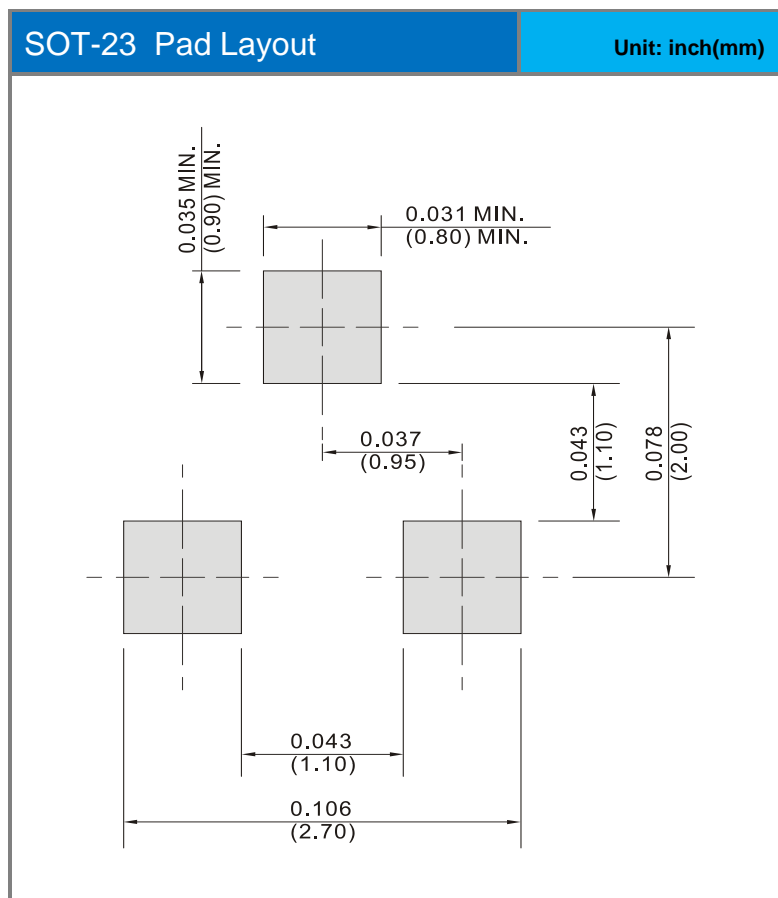
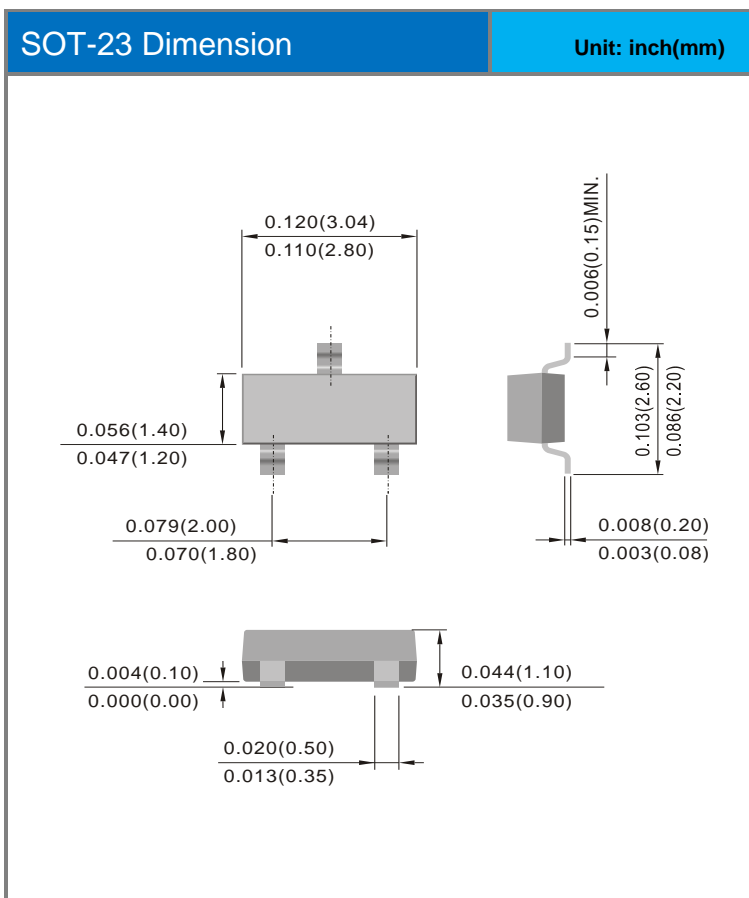


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Part No Packing Code Version

| Part No Packing Code | Package Type | Packing Type | Marking | Version |
|----------------------|--------------|------------------|---------|--------------|
| SBA0520CA_R1_00001 | SOT-23 | 3K pcs / 7" reel | 2AS | Halogen free |
| SBA0530CA_R1_00001 | SOT-23 | 3K pcs / 7" reel | 3AS | Halogen free |
| SBA0540CA_R1_00001 | SOT-23 | 3K pcs / 7" reel | 4AS | Halogen free |

Packaging Information & Mounting Pad Layout





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