

## SBA120CS / SBA130CS / SBA140CS

### EXTREME LOW VF SCHOTTKY RECTIFIER

**Voltage**

**20-40 V**

**Current**

**1 A**

#### Features

- Ultra low forward voltage drop, low power loss
- Fast switching speed
- Surface mount package
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

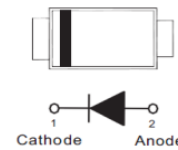
#### Applications

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

#### Mechanical Data

- Case: Molded plastic, SOD-323
- Terminals: Solderable per MIL-STD-750, Method 2026
- Approx. Weight: 0.00014 ounces, 0.0041 grams

SOD-323



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

PARAMETER	SYMBOL	SBA120CS	SBA130CS	SBA140CS	UNIT
Maximum repetitive 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>	1			A
Peak forward surge current: 8.3ms single half sine-wave Superimposed on rated load	I <sub>FSM</sub>	8			A
Typical thermal resistance	R <sub>θJC</sub> <sup>(1)</sup>	230			°C/W
	R <sub>θJA</sub> <sup>(2)</sup>	650			
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		SBA120CS		SBA130CS		SBA140CS		UNIT
				TYP.	MAX.	TYP.	MAX.	TYP.	MAX.	
Forward voltage	$V_F$	$I_F = 10\text{mA}$	$T_J = 25^\circ\text{C}$	0.22	-	0.22	-	0.23	-	V
		$I_F = 0.5\text{A}$		0.35	-	0.36	-	0.39	-	
		$I_F = 1\text{A}$		-	0.45	-	0.47	-	0.51	
		$I_F = 10\text{mA}$	$T_J = 125^\circ\text{C}$	0.09	-	0.1	-	0.1	-	V
		$I_F = 0.5\text{A}$		0.27	-	0.3	-	0.33	-	
Reverse current	$I_R^{(3)}$	$V_R = 10\text{V}$	$T_J = 25^\circ\text{C}$	7.5	-	5.9	-	3.6	-	$\mu\text{A}$
		$V_R = 20\text{V}$		-	100	10	-	4.2	-	
		$V_R = 30\text{V}$		-	-	-	100	6.1	-	
		$V_R = 40\text{V}$		-	-	-	-	-	100	
		$V_R = 20\text{V}$	$T_J = 125^\circ\text{C}$	3.2	-	2.2	-	1.2	-	mA
		$V_R = 30\text{V}$		-	-	3.9	-	1.7	-	
		$V_R = 40\text{V}$		-	-	-	-	2.3	-	
				-	-	-	-	-	-	

Note : 1. Mounted on a FR4 PCB, single-sided copper, with 100cm<sup>2</sup> copper pad area.

2. Mounted on a FR4 PCB, single-sided copper, mini pad.

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

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### TYPICAL CHARACTERISTIC CURVES

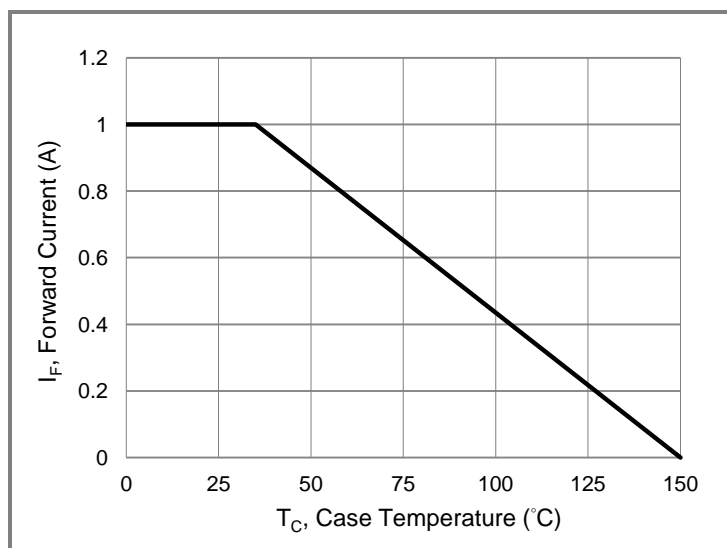


Fig.1 Forward Current Derating Curve

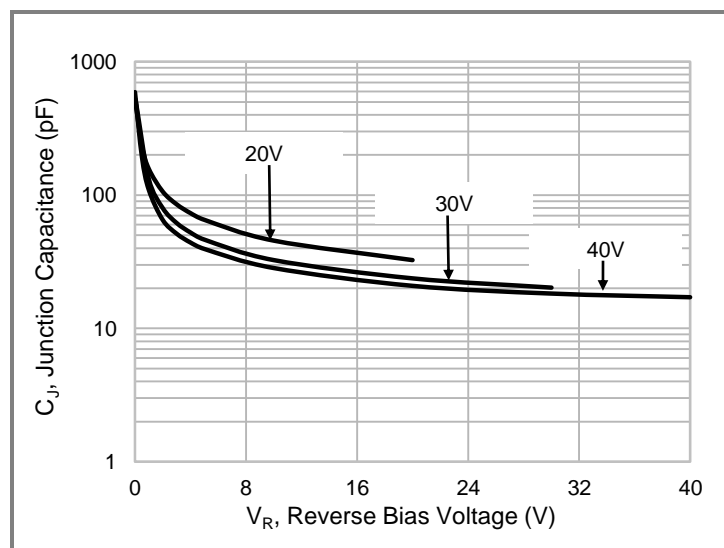


Fig. 2 Typical Junction Capacitance

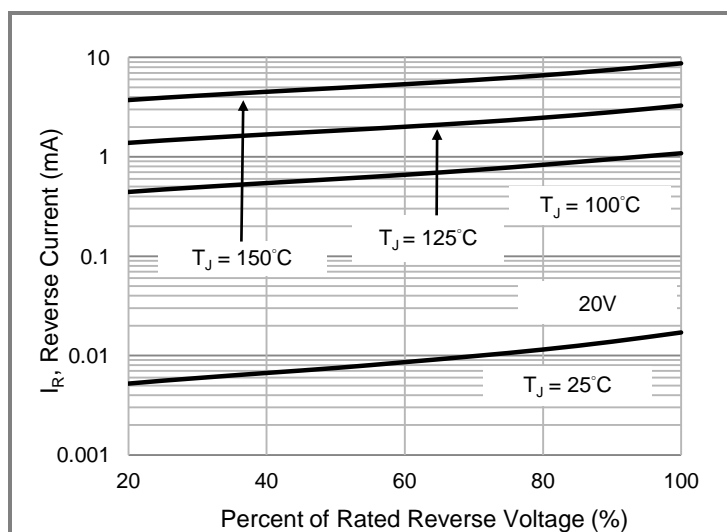


Fig.3 Typical Reverse Characteristics

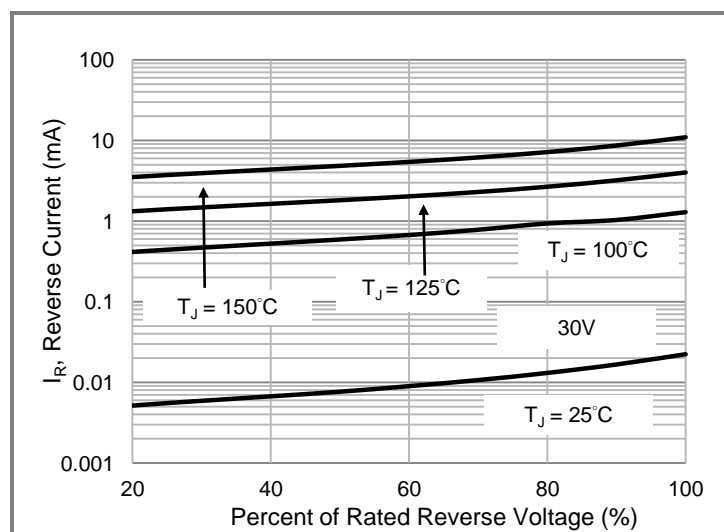


Fig.4 Typical Reverse Characteristics

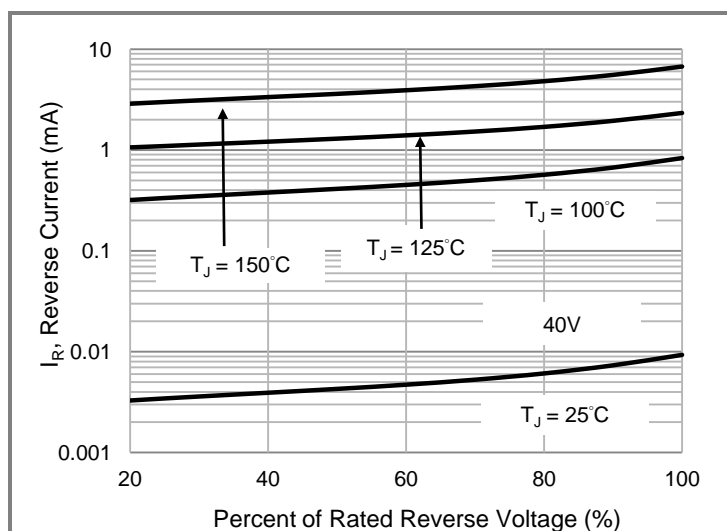


Fig.5 Typical Reverse Characteristics

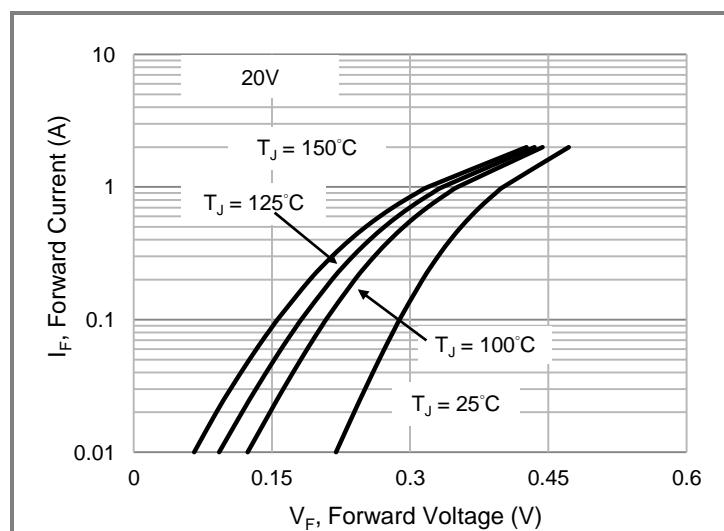


Fig.6 Typical Forward Characteristics

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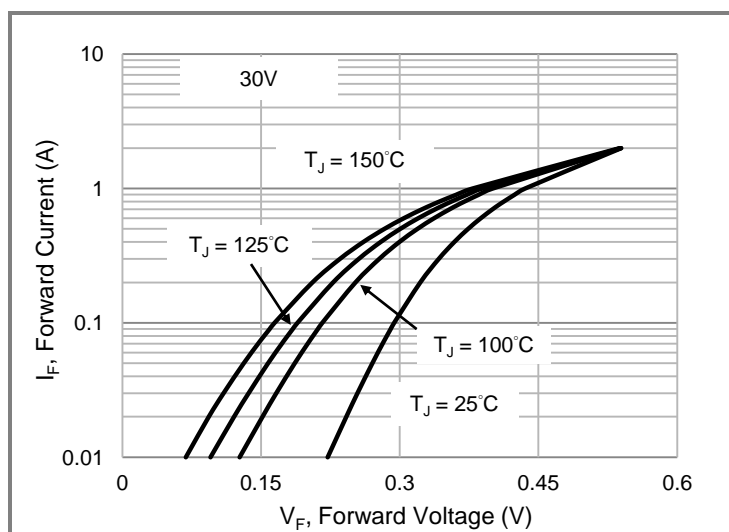


Fig.7 Typical Forward Characteristics

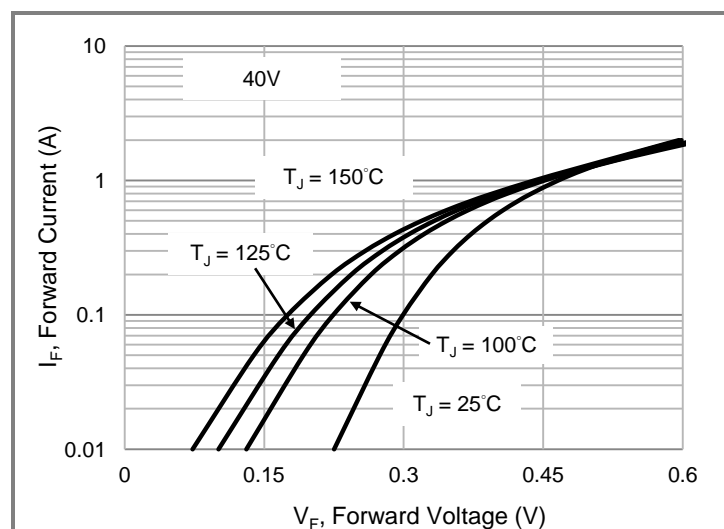


Fig.8 Typical Forward Characteristics

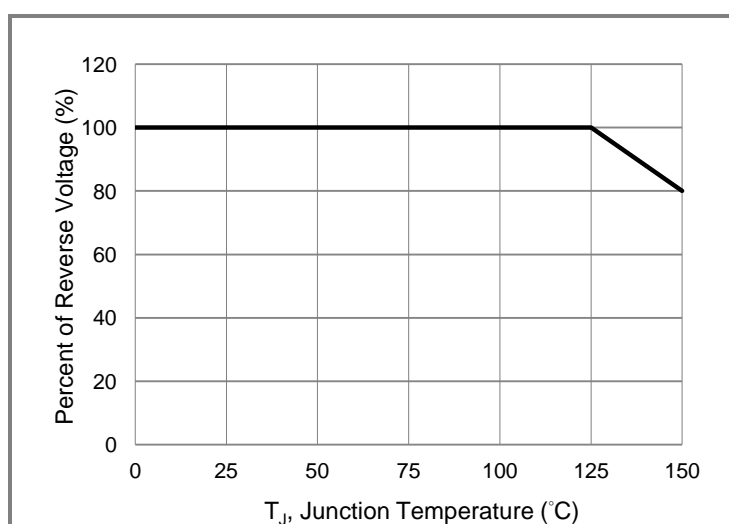


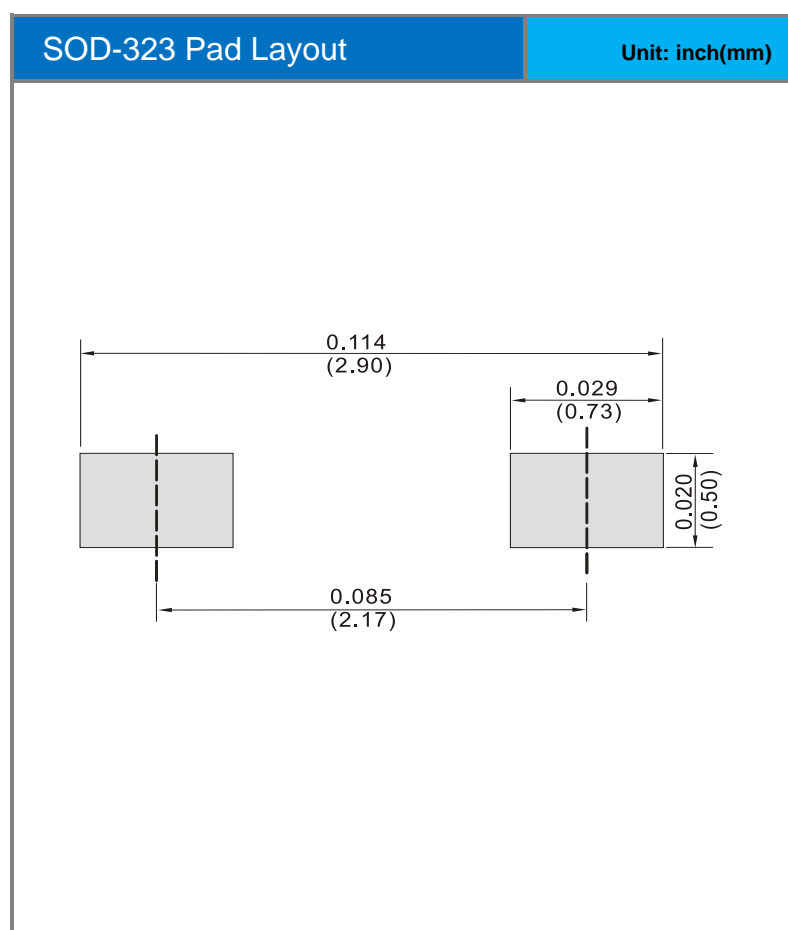
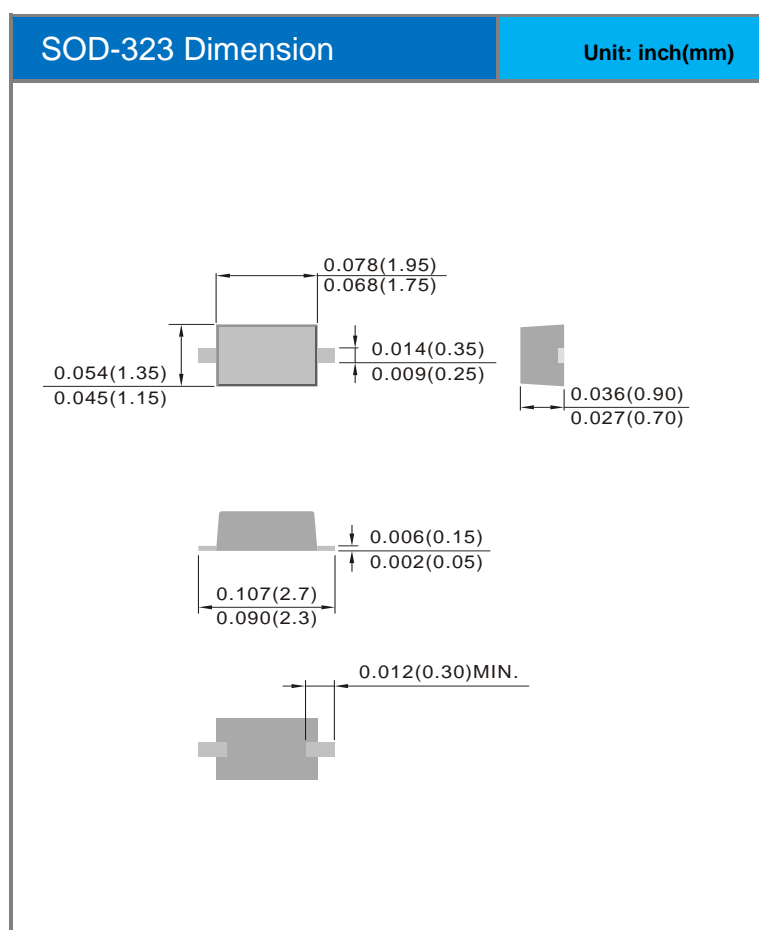
Fig.9 Operating Temperature Derating Curve

## SBA120CS / SBA130CS / SBA140CS

### Part No Packing Code Version

Part No Packing Code	Package Type	Packing Type	Marking	Version
SBA120CS_R1_00001	SOD-323	5K pcs / 7" reel	A7	Halogen free
SBA130CS_R1_00001	SOD-323	5K pcs / 7" reel	B7	Halogen free
SBA140CS_R1_00001	SOD-323	5K pcs / 7" reel	C7	Halogen free

### Packaging Information & Mounting Pad Layout





## **SBA120CS / SBA130CS / SBA140CS**

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