



# 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

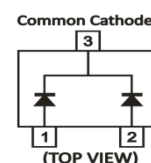
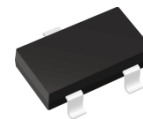
### Applications

- 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	-	$\mu\text{A}$
		$V_R = 20\text{V}$	-	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 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

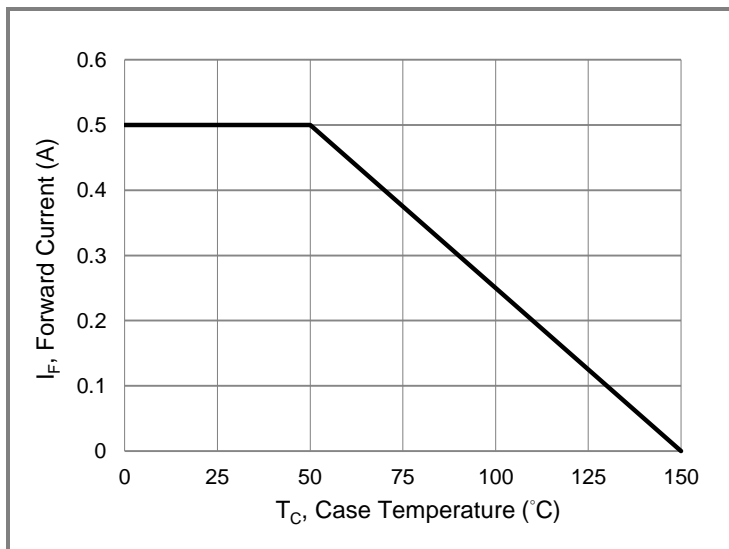


Fig.1 Forward Current Derating Curve

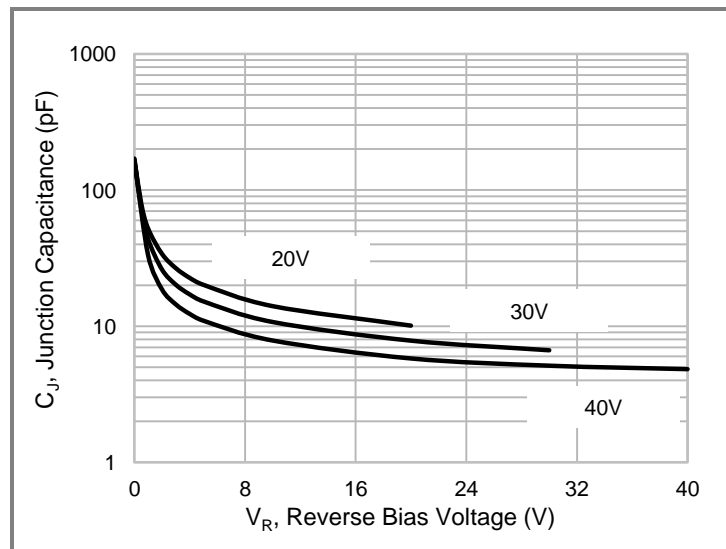


Fig. 2 Typical Junction Capacitance

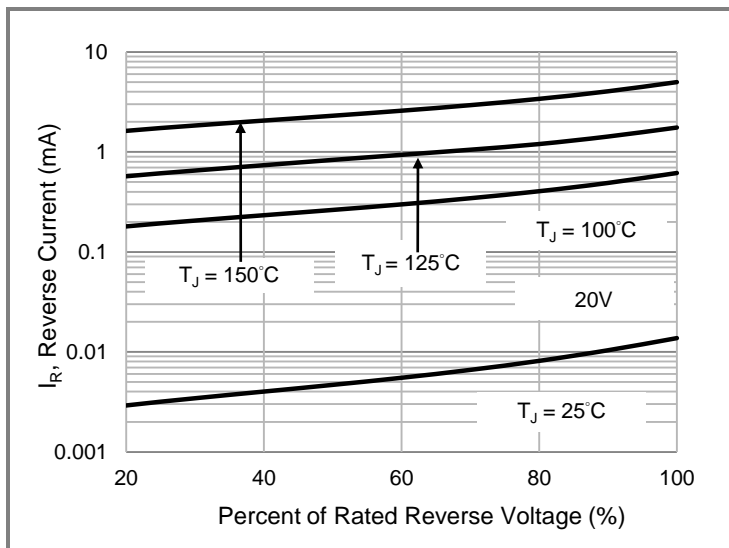


Fig.3 Typical Reverse Characteristics

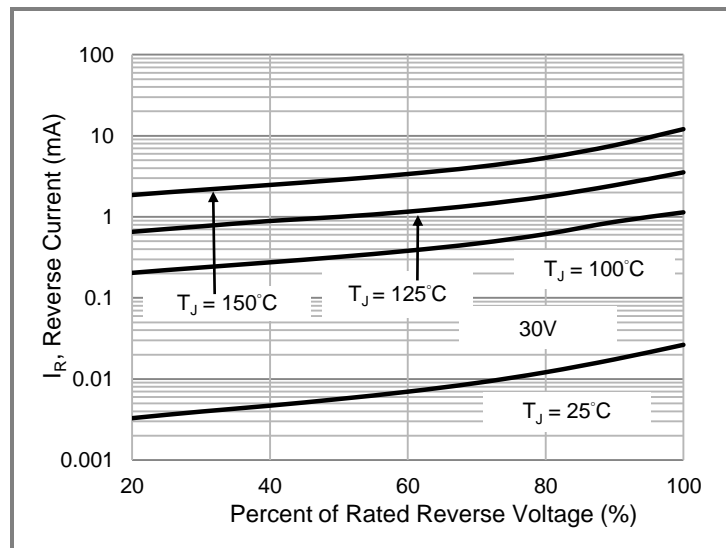


Fig.4 Typical Reverse Characteristics

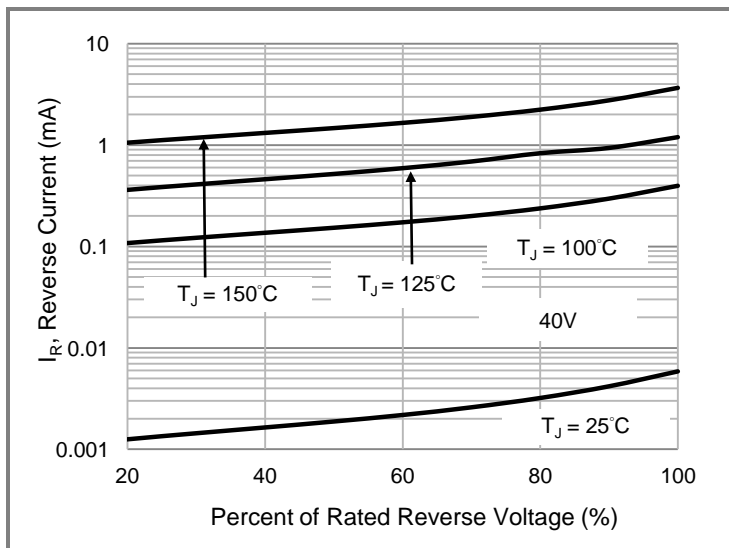


Fig.5 Typical Reverse Characteristics

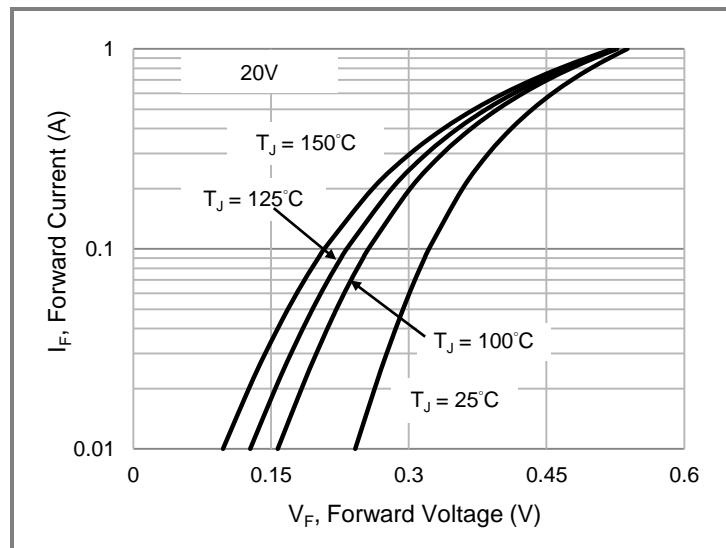
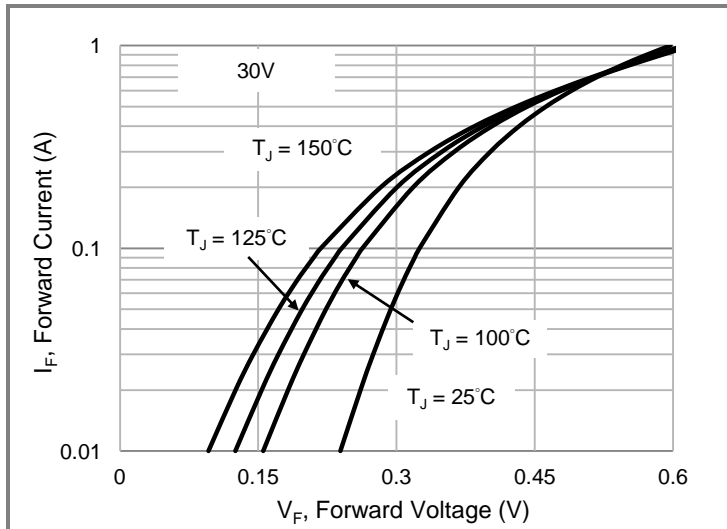


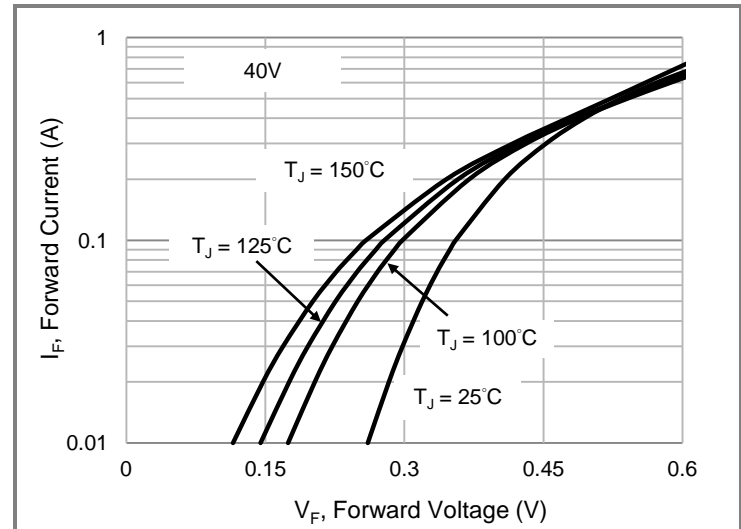
Fig.6 Typical Forward Characteristics



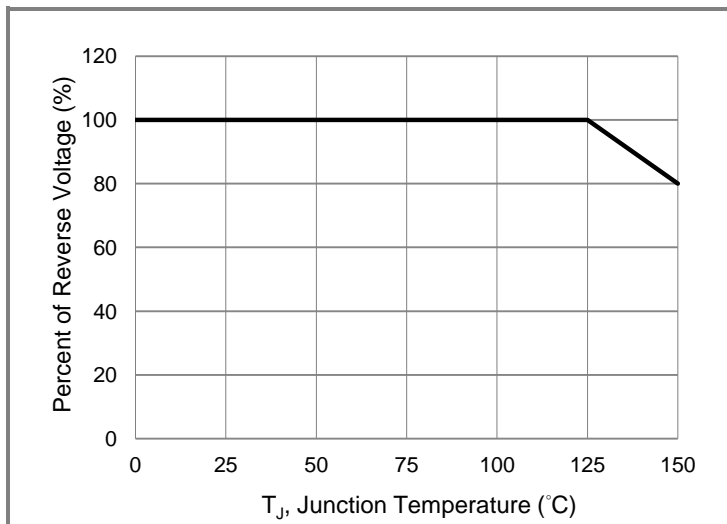
**SBA0520CA / SBA0530CA / SBA0540CA**



**Fig.7 Typical Forward Characteristics**



**Fig.8 Typical Forward Characteristics**



**Fig.9 Operating Temperature Derating Curve**



# SBA0520CA / SBA0530CA / SBA0540CA

## 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

