

## Extreme Low Forward Voltage Schottky Rectifier

SBD302D1~SBD304D1

20 to 40 V

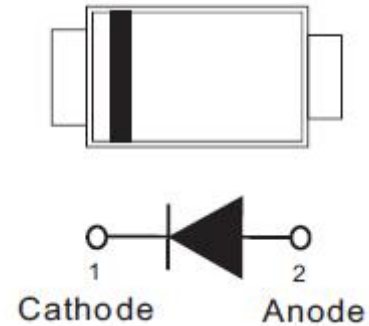
3A

SOD-123FL

### 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

### SOD-123FL



### Applications

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

### Mechanical Data

- ◆ Case: Molded plastic, SOD-123FL
- ◆ Terminals: Solderable per MIL-STD-750, Method 2026
- ◆ Approx. Weight: 0.0006 ounces, 0.0173 grams

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

Parameter	Symbol	SBD302D1	SBD303D1	SBD304D1	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
Average Rectified Current at $T_A=75^{\circ}\text{C}$	$I_{F(AV)}$	3			A
Peak forward surge current: 8.3ms single half sine-wave Superimposed on rated load	$I_{FSM}$	50			A
Typical Thermal Resistance	$R_{\theta JC}^{(2)}$	32			$^{\circ}\text{C}/\text{W}$
	$R_{\theta JA}^{(1)}$	200			
Operating Junction Temperature Range	$T_J$	-50 to +150			$^{\circ}\text{C}$
Storage Temperature Range	$T_{STG}$	-50 to +150			$^{\circ}\text{C}$

- Notes:** 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.

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## Electrical Characteristics

Parameter	Symbol	Test Condition		SBD302D1		SBD303D1		SBD304D1		Unit	
				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		--
		$I_F=3\text{A}$	$T_J=25^\circ\text{C}$	--	0.44	--	0.46	--	0.48	V	
				$I_F=10\text{mA}$	0.05	--	0.06	--	0.06		--
Reverse current	$I_R^{(3)}$	$V_R=10\text{V}$	$T_J=25^\circ\text{C}$	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		--
				$V_R=40\text{V}$	--	--	--	--	--		--

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

## Rating and Characteristic Curves

Fig1. Forward Current Derating Curve

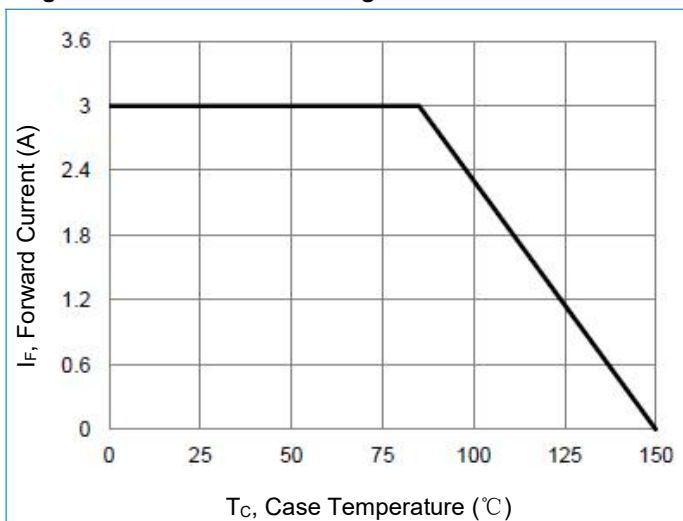
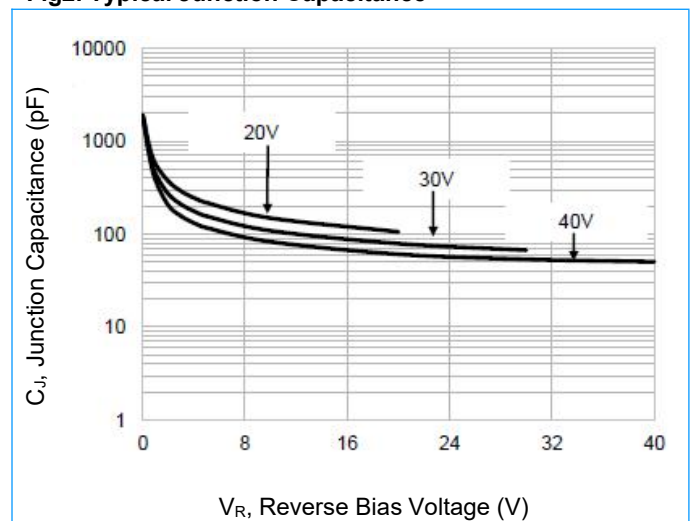


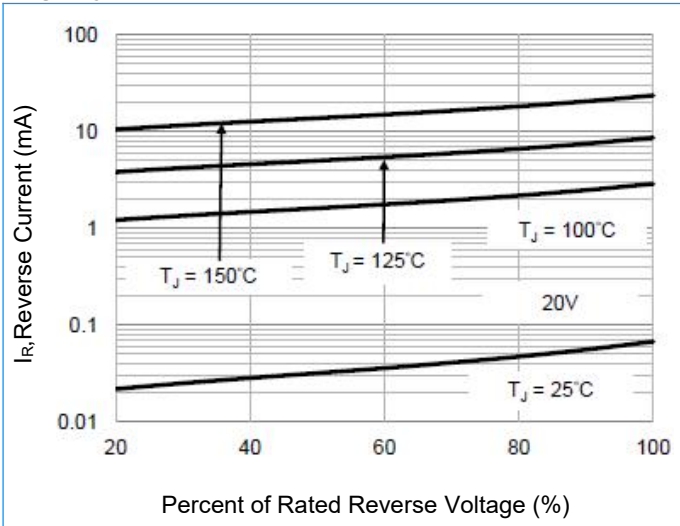
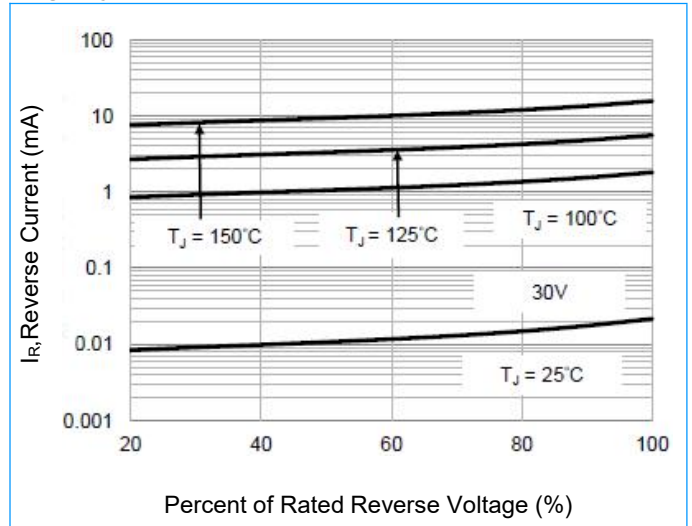
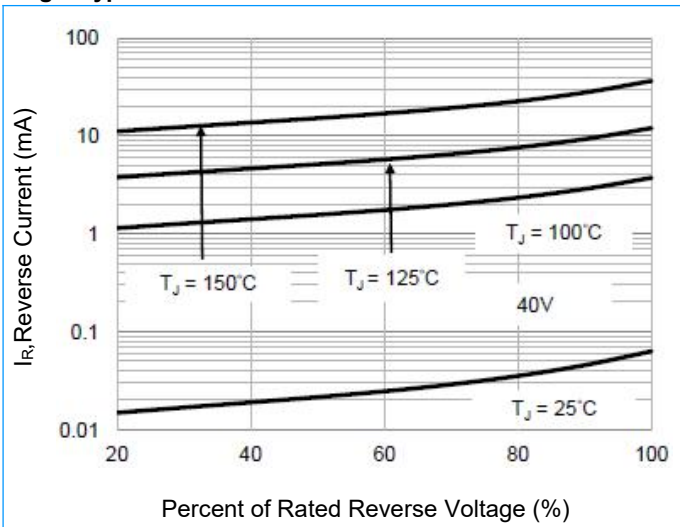
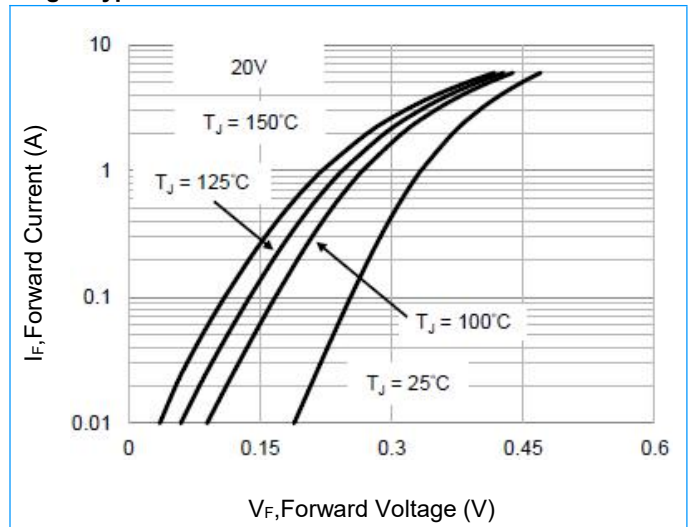
Fig2. Typical Junction Capacitance



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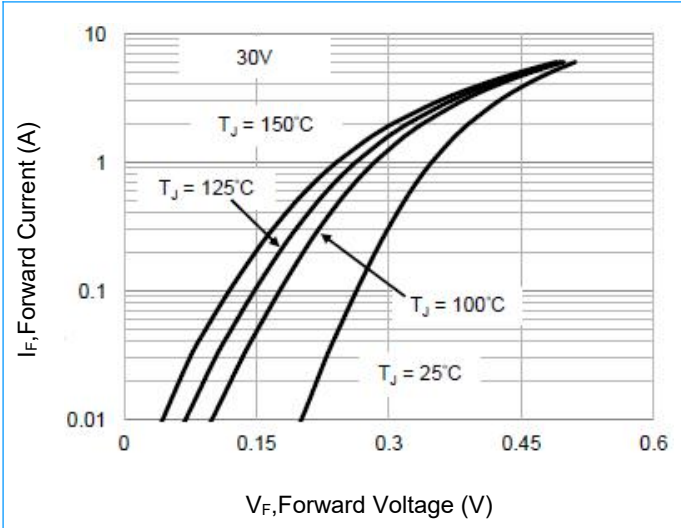
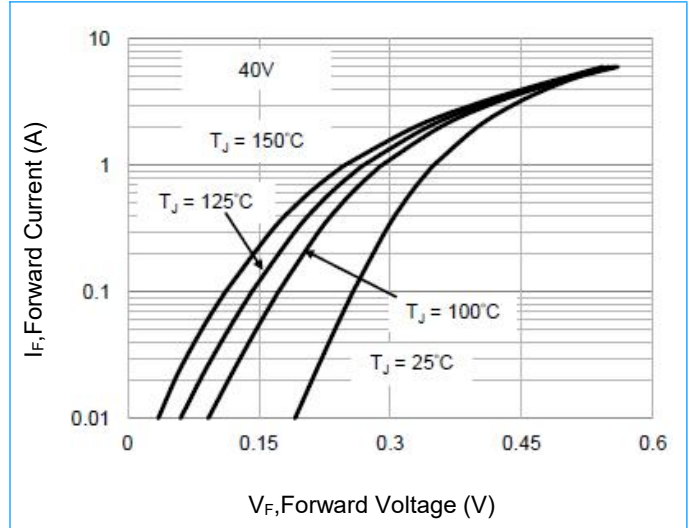
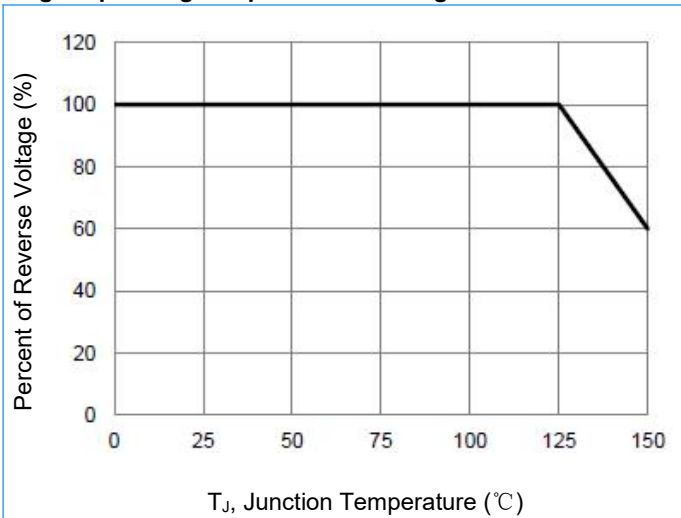
## Rating and Characteristic Curves (Continue)

**Fig3. Typical Reverse Characteristics**

**Fig4. Typical Reverse Characteristics**

**Fig5. Typical Reverse Characteristics**

**Fig6. Typical Forward Characteristics**


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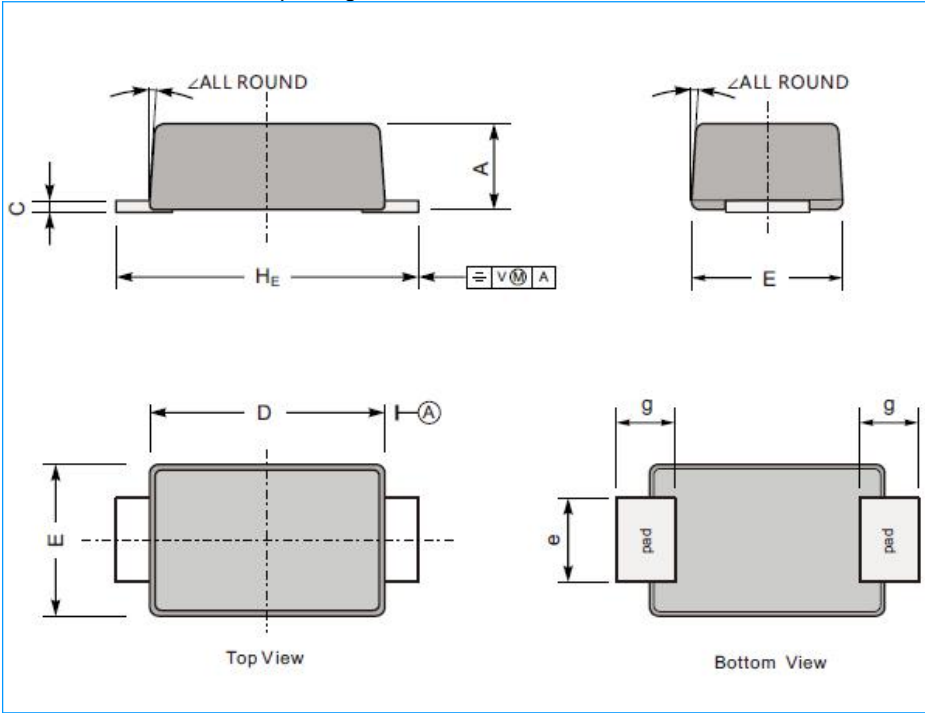
## Rating and Characteristic Curves (Continue)

**Fig7. Typical Forward Characteristics**

**Fig8. Typical Forward Characteristics**

**Fig5. Operating Temperature Derating Curve**


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**SOD-123FL Package Outline (Unit: inch(mm))**

Plastic surface mounted package; 2 leads



Symbol	mm		mil	
	max	min	max	min
<b>A</b>	1.1	0.9	43	35
<b>C</b>	0.20	0.12	7.9	4.7
<b>D</b>	2.9	2.6	114	102
<b>E</b>	1.9	1.7	75	67
<b>e</b>	1.1	0.8	43	31
<b>g</b>	0.9	0.7	35	28
<b>He</b>	3.8	3.5	150	138
$\angle$	7°			

**Packaging Information**

Part Number	Component Package	Quantity	Packaging Option
<b>SBD302D1~SBD304D1</b>	SOD-123FL	3000 PCS	per 7" plastic Reel