

Extreme Low Forward Voltage Schottky Rectifiers

SBD0502N6~SBD0504N6

20 to 40V

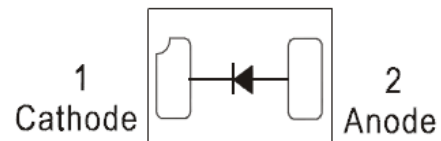
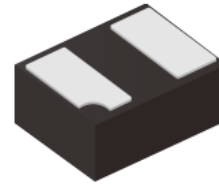
0.5A

DFN1006-2L

Features

- Ultra low forward voltage, Low Power loss
- Surface mount package
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

DFN1006-2L



Applications

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

Mechanical Data

- Case: DFN1006-2L, Plastic
- Terminals: Solderable per MIL-STD-750, Method 2026
- Approx. Weight: 0.00004 ounces, 0.0011 grams

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

Parameter	Symbol	SBD0502N6	SBD0503N6	SBD0504N6	Units
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	$R_{\theta JA}^{(1)}$	430			$^\circ\text{C}/\text{W}$
Operating junction temperature range	T_J	-55 to +150			$^\circ\text{C}$
Storage temperature range	T_{STG}	-55 to +150			$^\circ\text{C}$

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

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Electrical Characteristics

Parameter	Symbol	Test Conditions	SBD0502N6		SBD0503N6		SBD0504N6		Units	
			Typ.	Max.	Typ.	Max.	Typ.	Max.		
Forward Voltage	V_F	$I_F=10\text{mA}$	$T_J=25^\circ\text{C}$	0.24	--	0.25	--	0.26	--	V
		$I_F=100\text{mA}$		0.32	--	0.33	--	0.35	--	
		$I_F=500\text{mA}$		--	0.48	--	0.52	--	0.6	
		$I_F=10\text{mA}$	$T_J=125^\circ\text{C}$	0.13	--	0.13	--	0.15	--	V
		$I_F=100\text{mA}$		0.23	--	0.24	--	0.29	--	
Reverse Current	$I_R^{(2)}$	$V_R=10\text{V}$	$T_J=25^\circ\text{C}$	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	
		$V_R=20\text{V}$	$T_J=125^\circ\text{C}$	1.7	--	1.4	--	0.5	--	mA
		$V_R=30\text{V}$		--	--	3.5	--	0.8	--	
		$V_R=40\text{V}$		--	--	--	--	1.3	--	

Note : 2. Short duration pulse test used to minimize self-heating effect.

Typical Characteristic Curves

Fig1. Forward Current Derating Curve

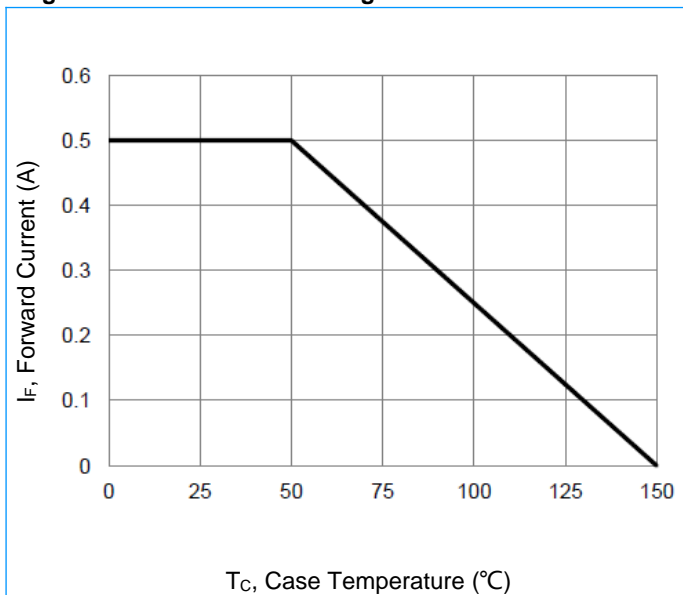
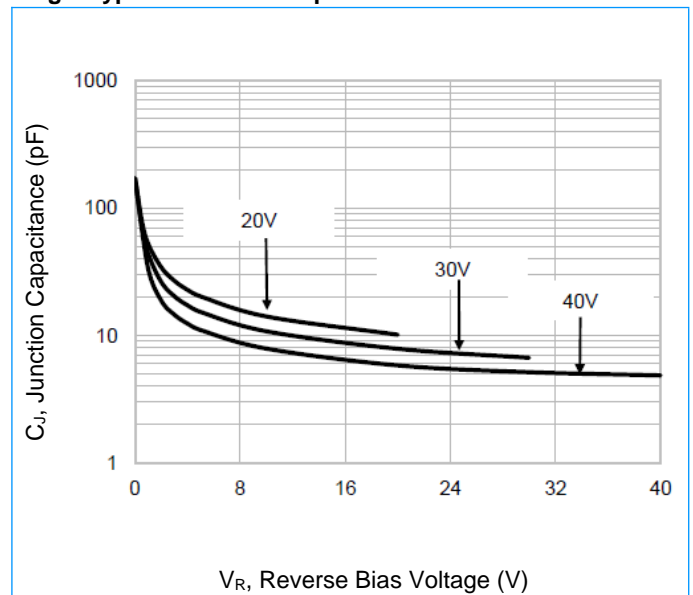


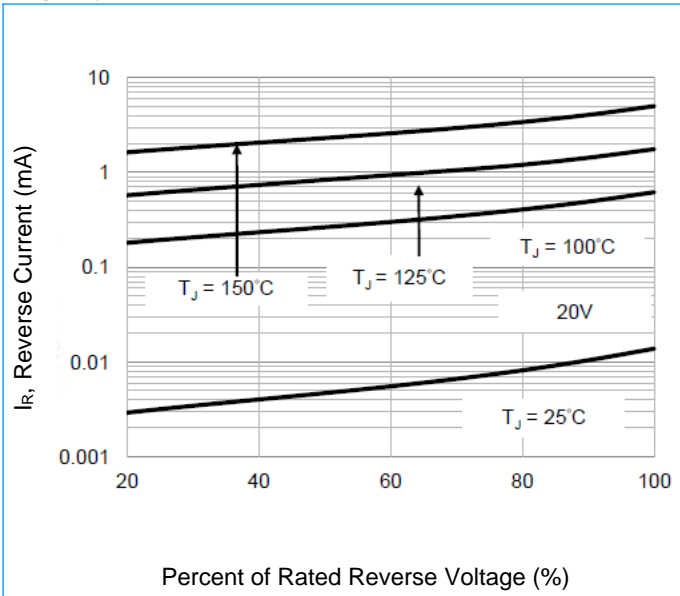
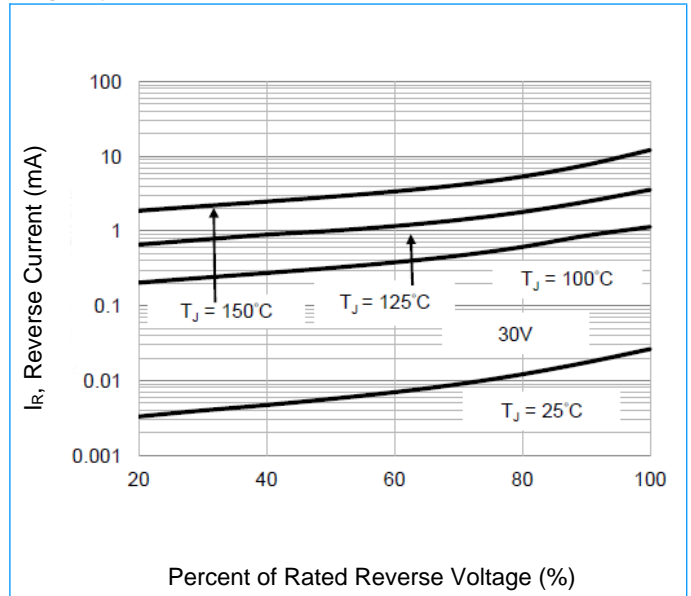
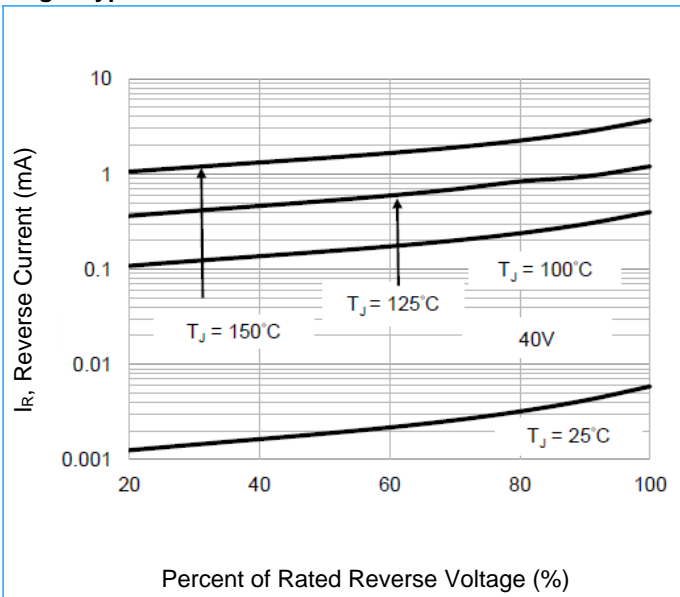
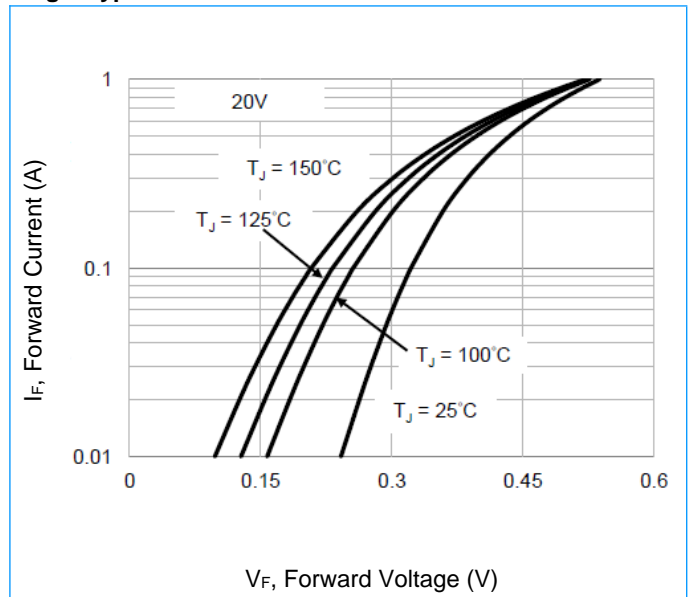
Fig2. Typical Junction Capacitance



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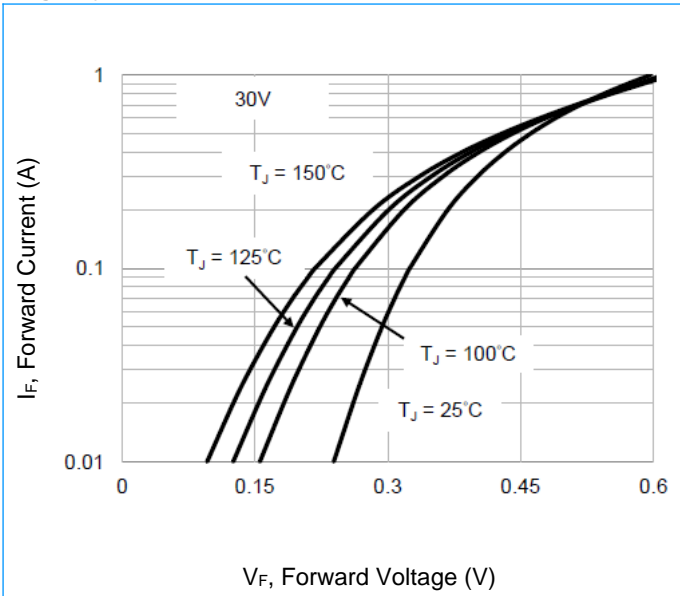
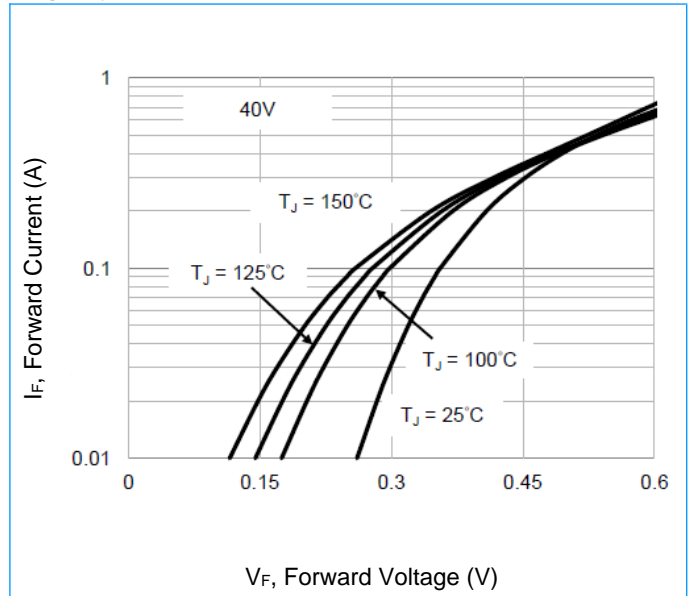
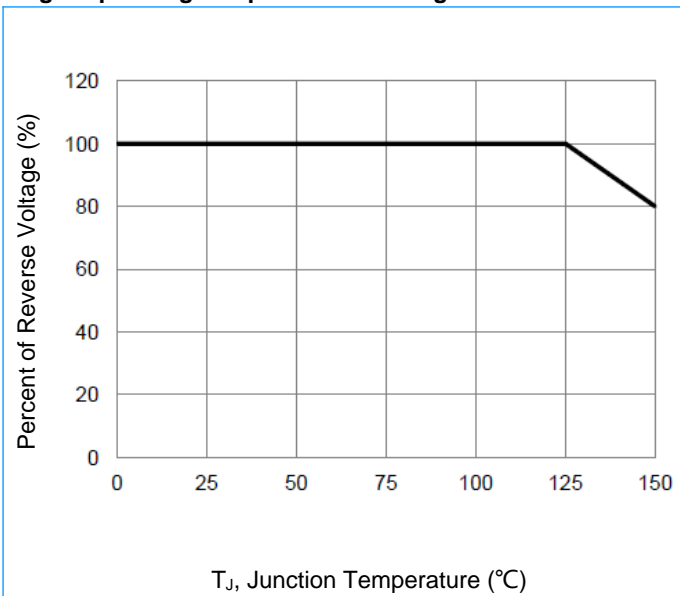
Typical Characteristic Curves (Continue)

Fig3. Typical Reverse Characteristics

Fig4. Typical Reverse Characteristics

Fig5. Typical Reverse Characteristics

Fig6. Typical Forward Characteristics


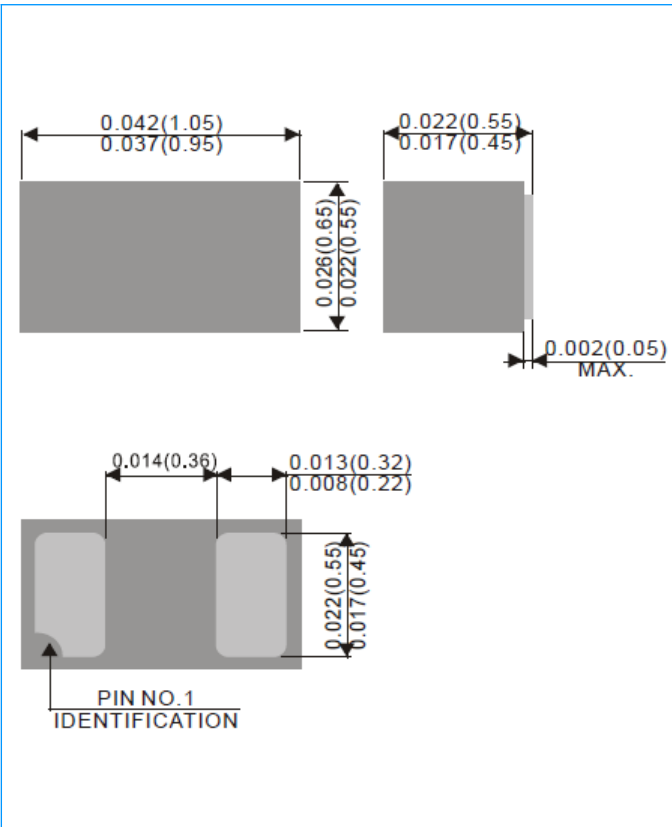
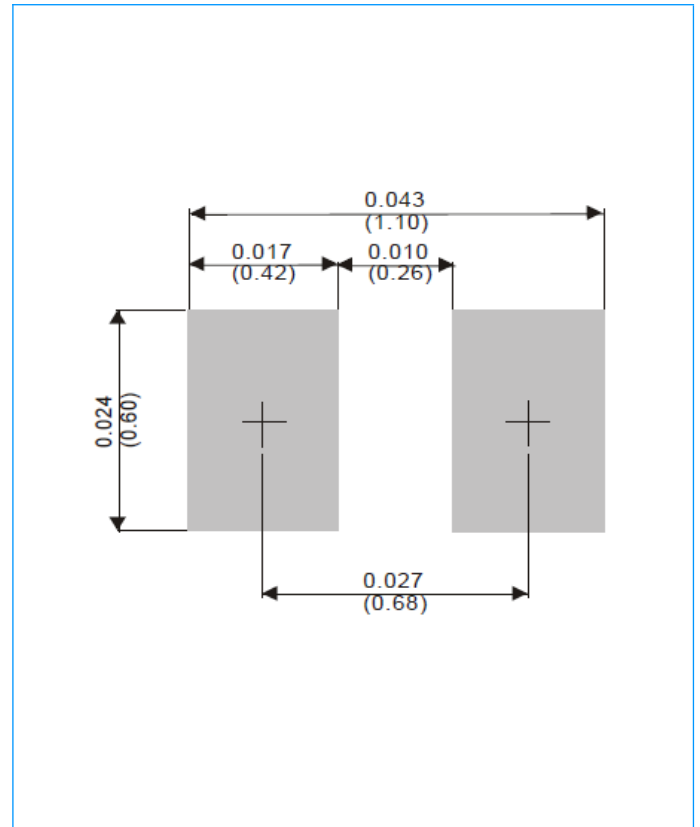
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Typical Characteristic Curves (Continue)

Fig7. Typical Forward Characteristics

Fig8. Typical Forward Characteristics

Fig9. Operating Temperature Derating Curve


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DFN1006-2L
DFN1006-2L Package Dimensions (Unit: inch(mm))

DFN1006-2L Pad Layout (Unit: inch(mm))

Ordering Information

Part Number	Package	Packing Type
SBD0502N6~SBD0504N6	DFN1006-2L	Tape & Reel 8000PCS /7" Reel