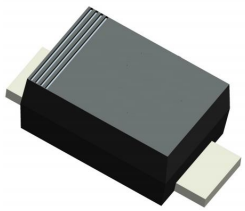
Technical Data
Data Sheet N2999, REV.A

S4D02120V
1200V SIC POWER SCHOTTKY RECTIFIERS



SMBF

Features

- 175°C T_J operation
- Ultra-low switching loss
- Switching speeds independent of operating temperature
- Low total conduction losses
- High forward surge current capability
- High package isolation voltage
- Terminals finish: 100% Pure Tin
- "-A" is an AEC-Q101 qualified device
- Pb – Free Device
- All SMC parts are traceable to the wafer lot
- Additional electrical and life testing can be performed upon request

Circuit Diagram

Description

This 1200V 2A diode is high voltage Schottky rectifier that has very low total conduction losses and very stable switching characteristics over temperature extremes. The S4D02120V is ideal for energy sensitive, high frequency applications in challenging environments.

Applications

- Alternative energy inverters
- Power Factor Correction (PFC)
- Free-Wheeling diodes
- Switching supply output rectification
- Reverse polarity protection

Maximum Ratings@T_A=25˚C unless otherwise specified

Characteristics	Symbol	Condition	Max.	Units
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_{DC}	-	1200	V
Average Rectified Forward Current	$I_{F(AV)1}$	Tc=25˚C	5	A
	$I_{F(AV)2}$	Tc=145˚C	2	A
Peak One Cycle Non-Repetitive Surge Current	I_{FSM1}	10ms, Half Sine pulse, Tc =25˚C	18	A
	I_{FSM2}	10ms, Half Sine pulse, Tc =110˚C	12	A
Repetitive Peak Forward Surge Current	I_{FRM1}	10ms, Half Sine pulse, Tc =25˚C	10	A
	I_{FRM2}	10ms, Half Sine pulse, Tc =110˚C	8	A
Power Dissipation	P_{tot1}	Tc =25˚C	15	W
	P_{tot2}	Tc =110˚C	6.5	W

Electrical Characteristics@T_A=25˚C unless otherwise specified

Characteristics	Symbol	Condition	Typ.	Max.	Units
Forward Voltage Drop*	V_{F1}	@ 2A, Pulse, T_J = 25 ˚C	1.4	1.8	V
	V_{F2}	@ 2A, Pulse, T_J = 175 ˚C	2.0	2.5	V
Reverse Current*	I_{R1}	@V_R = rated V_R T_J = 25 ˚C	1	10	uA
	I_{R2}	@V_R = rated V_R T_J = 175 ˚C	2	40	uA
Junction Capacitance	C_T	VR=0V, Tj=25˚C,f=1MHz	160	-	pF
Reverse Recovery Charge	Q_c	I_F = 2A, di/dt = 200A/μs VR = 800 V, T_J =25˚C	12.33	-	nC
Capacitance Stored Energy	E_C	V_R = 800 V, T_J =25˚C	6.33	-	μJ

* Pulse width < 300 μs, duty cycle < 2%

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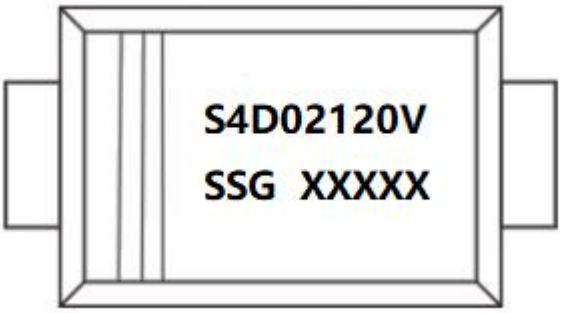
Thermal-Mechanical Specifications:

Characteristics	Symbol	Condition	Specification	Units
Junction Temperature	T_J	-	-55 to +175	˚C
Storage Temperature	T_{stg}	-	-55 to +175	˚C
Typical Thermal Resistance Junction to Case	$R_{\theta JC}$	DC operation	10	˚C/W

Marking Diagram



Where XXXX is YYWWL

S4D = Device Type
V = Package type
12 = Reverse Voltage (1200V)
2 = Forward Current (2A)
YY = Year
WW = Week
L = Lot Number

Cautions: Molding resin
Epoxy resin UL:94V-0

Ordering Information

Device	Package	Shipping
S4D02120V	SMBF	5000pcs / reel

For information on tape and reel specifications, including part orientation and tape sizes, please refer to our tape and reel packaging specification.

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Ratings and Characteristics Curves

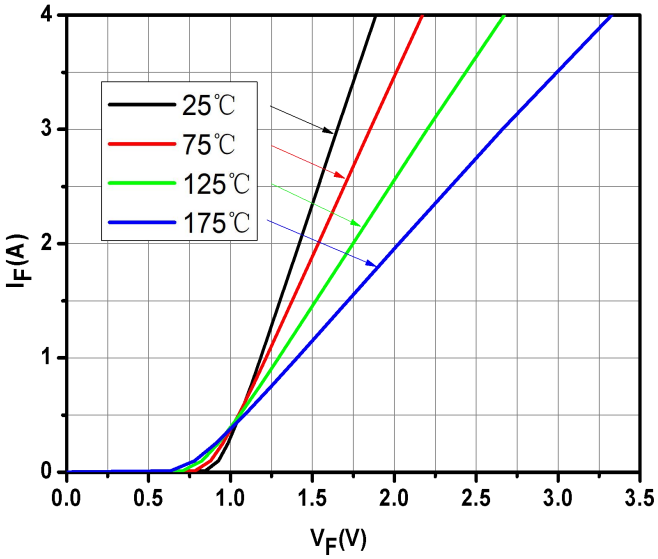

Fig.1-Typical Forward Voltage

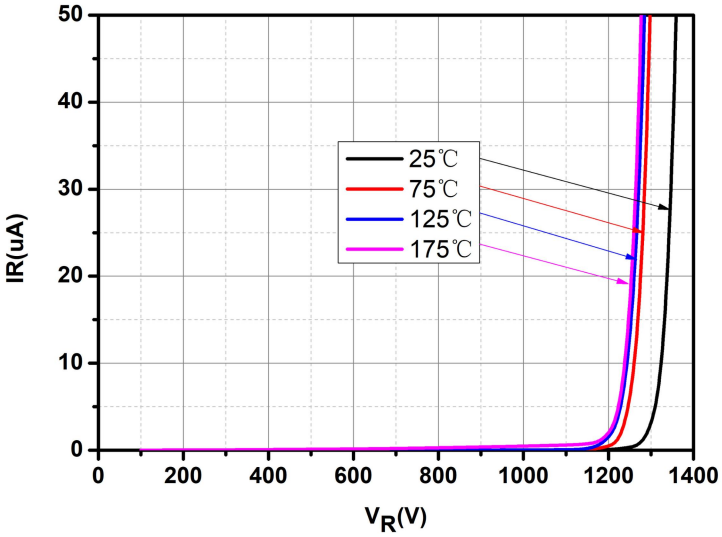

Fig.2-Typical Reverse Characteristics

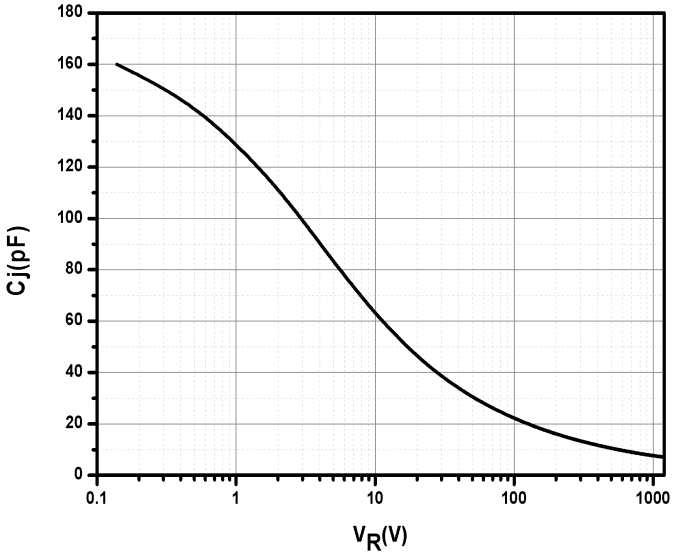

Fig.3-Capacitance vs. Reverse Voltage

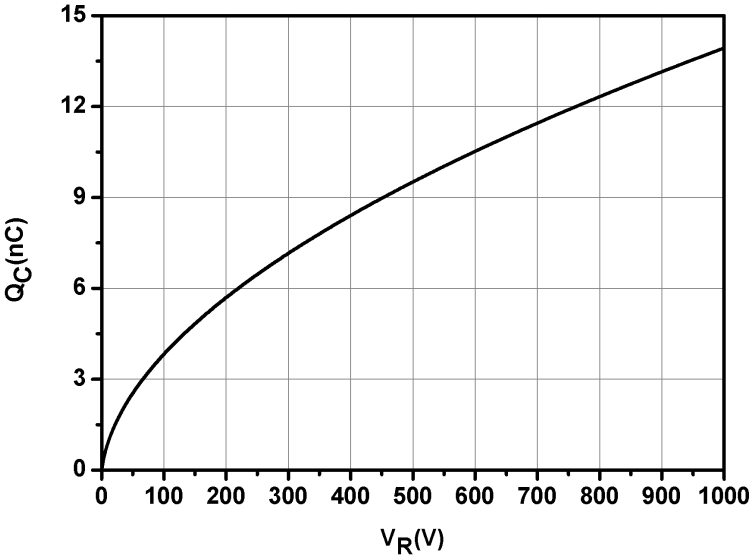

Fig.4-Total Capacitance Charge vs. Reverse Voltage

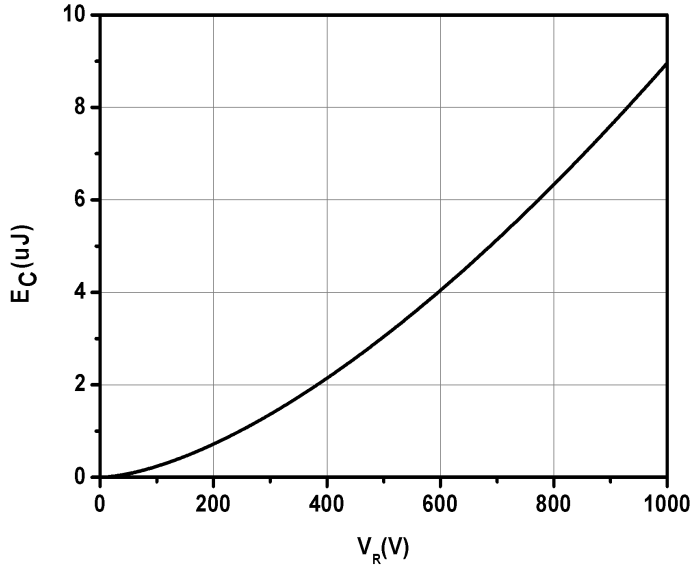

Fig.5-Capacitance Stored Energy

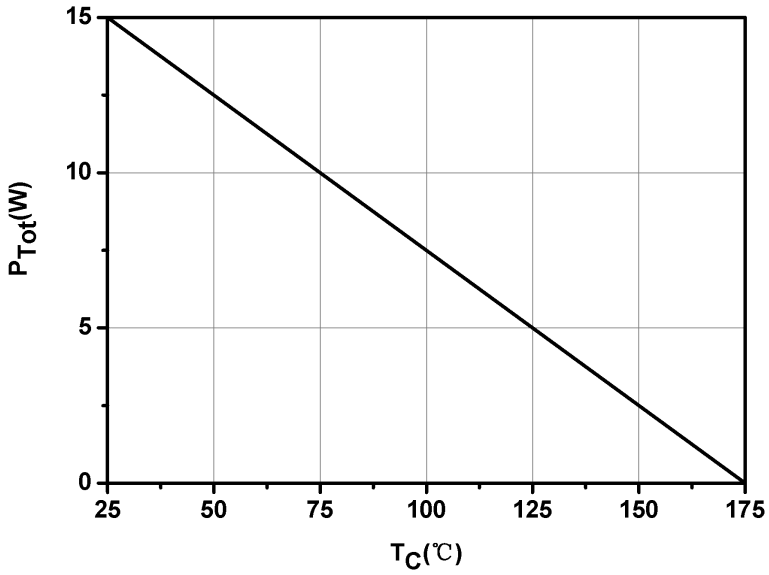

Fig.6-Power Derating

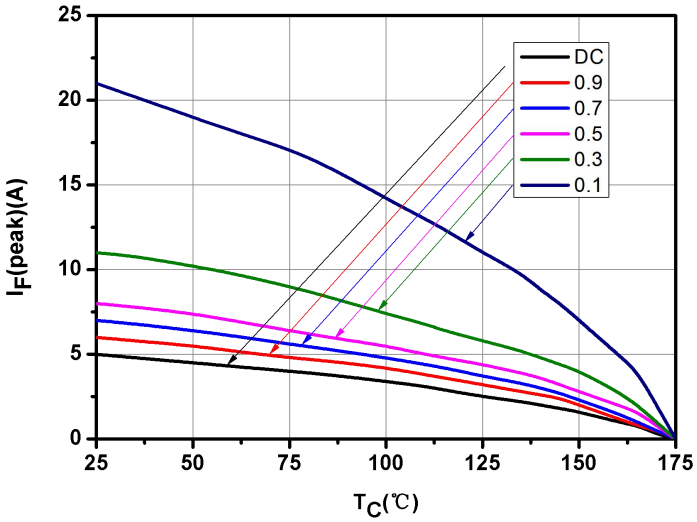

Fig.7-Current Derating

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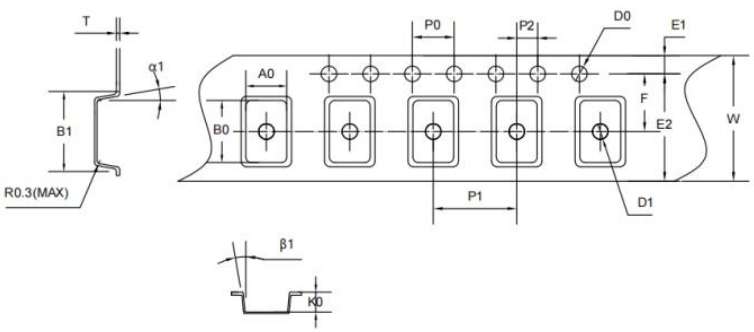
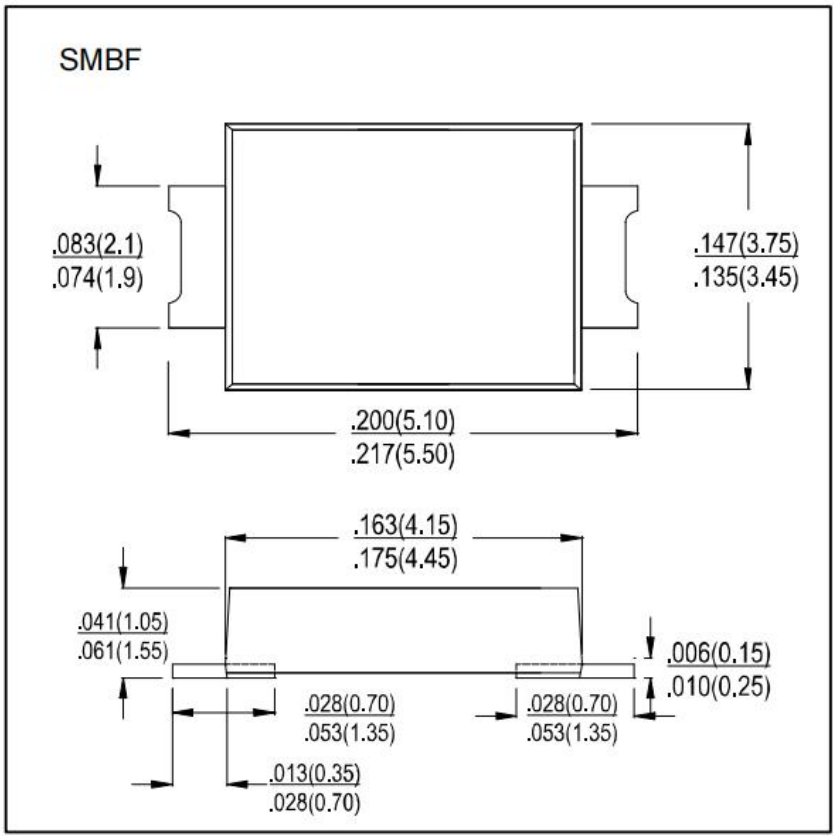
Carrier Tape & Reel Specification SMBF



项目	规格(mm)	允差(mm)	项目	规格(mm)	允差(mm)
W	12.00	±0.10	A0	3.80	±0.10
E1	1.75	±0.10	B0	5.75	±0.05
F	5.50	±0.05	K0	1.40	±0.10
D0	1.55	+0.1/-0.0	T	0.25	+0.04/-0.02
D1	1.50	+0.1/-0.0	10*P0	40.00	±0.20
P0	4.00	±0.10	α1	5°max	
P1	8.00	±0.10	β1	8°max	
P2	2.00	±0.05			

Mechanical Dimensions SMBF



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