

S4D02120T 1200V SIC POWER SCHOTTKY RECTIFIERS



SOD-123FL

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 S4D02120T 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}	T _c =25°C	5	A
	I _{F (AV)2}	T _c =145°C	2	A
Repetitive Peak Forward Surge Current	I _{FRM1}	10ms, Half Sine pulse, T _c =25°C	18	A
	I _{FRM2}	10ms, Half Sine pulse, T _c =110°C	12	A
Peak One Cycle Non-Repetitive Surge Current	I _{FSM1}	10ms, Half Sine pulse, T _c =25°C	10	A
	I _{FSM2}	10ms, Half Sine pulse, T _c =110°C	8	A
Power Dissipation	P _{tot1}	T _c =25°C	15	W
	P _{tot2}	T _c =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	V _R =0V, T _J =25°C, f=1MHz	160	-	pF
Reverse Recovery Charge	Q _c	I _F = 2A, di/dt = 200A/μs V _R = 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%

Thermal-Mechanical Specifications:

Characteristics	Symbol	S4D02120T	Units
Junction Temperature	T_J	-55 to +175	°C
Storage Temperature	T_{stg}	-55 to +175	°C
Typical Thermal Resistance Junction to Case	R_{qJC}	10	°C/W

Marking Diagram



Where XXXX is YYWWL

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

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

Ordering Information

Device	Package	Shipping
S4D02120T	SOD-123FL	3000pcs / reel

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

Ratings and Characteristics Curves

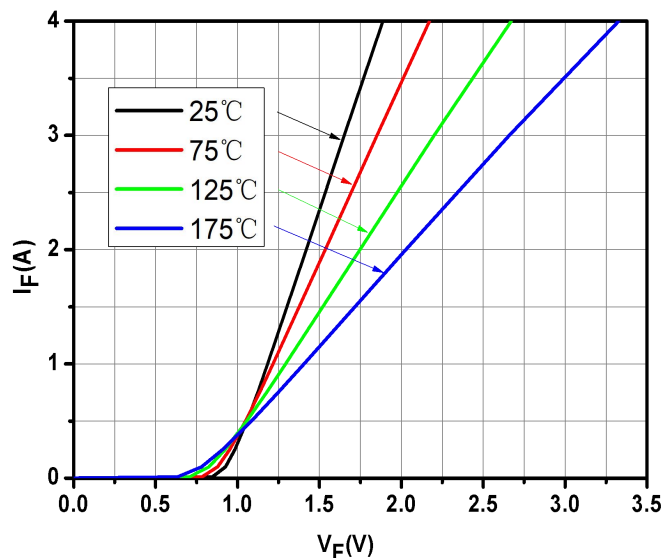


Fig.1-Typical Forward Voltage Characteristics

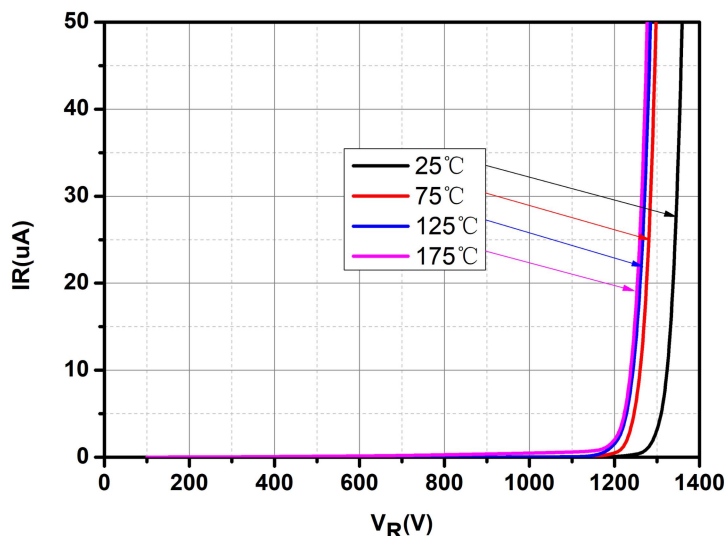


Fig.2-Typical Reverse Characteristics

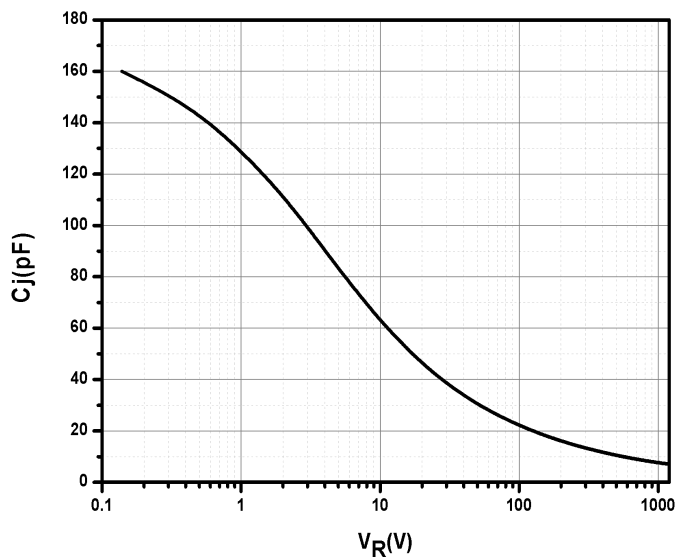


Fig.3-Capacitance vs. Reverse Voltage

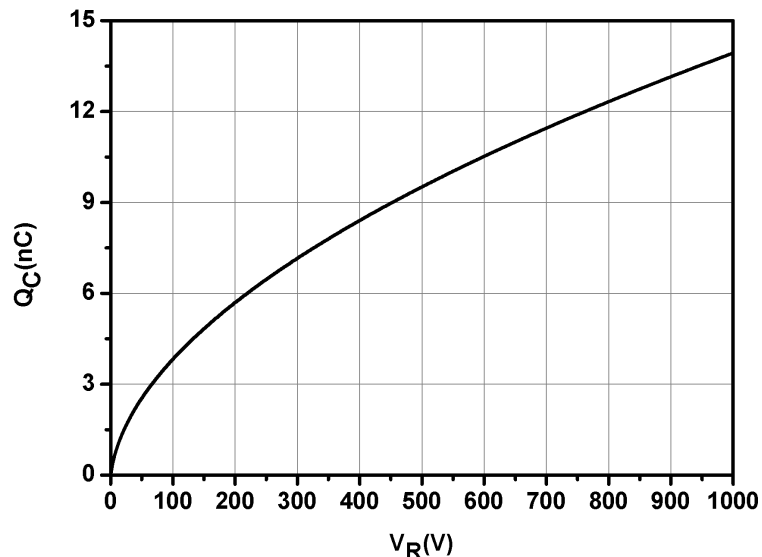


Fig.4-Total Capacitance Charge vs. Reverse Voltage

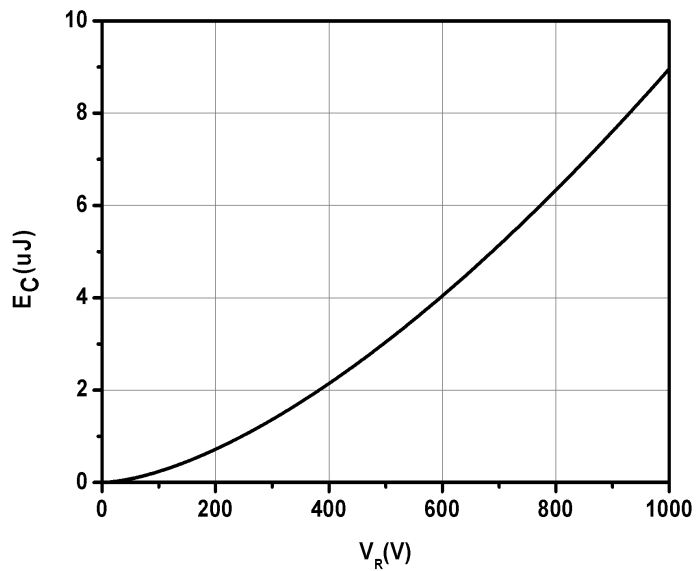


Fig.5-Capacitance Stored Energy

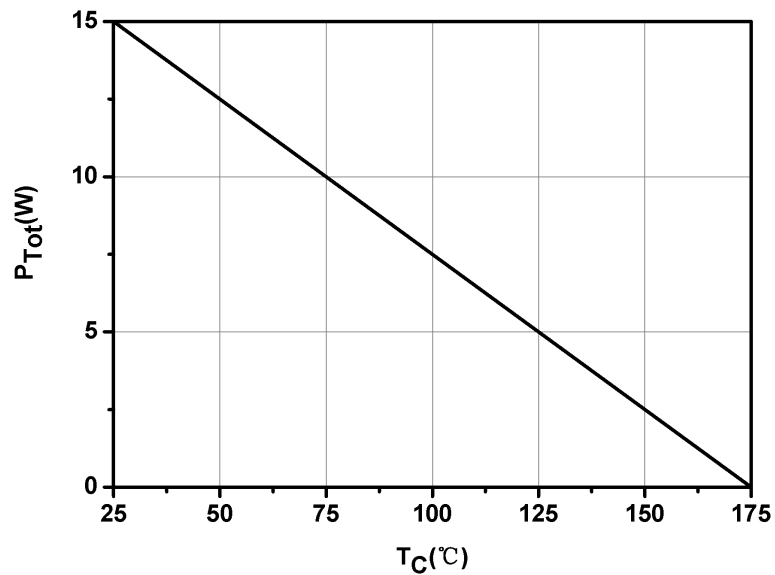


Fig.6-Power Derating

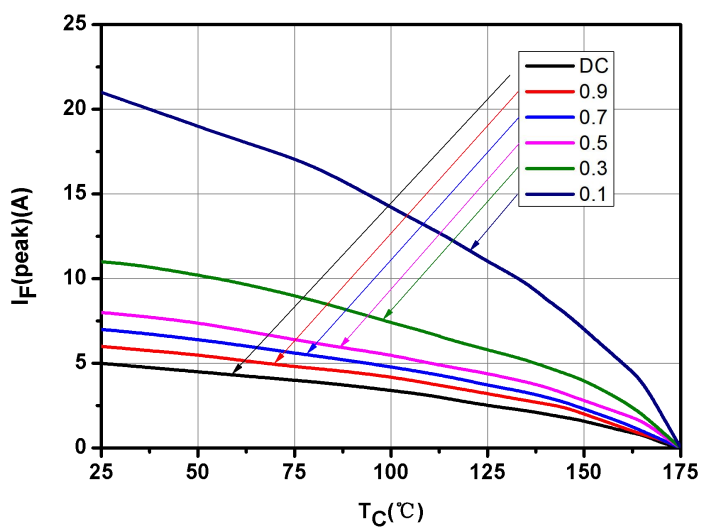
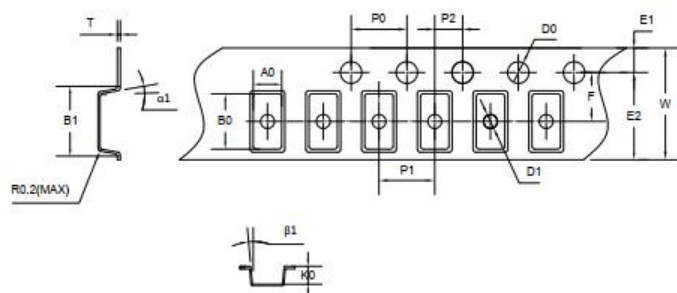


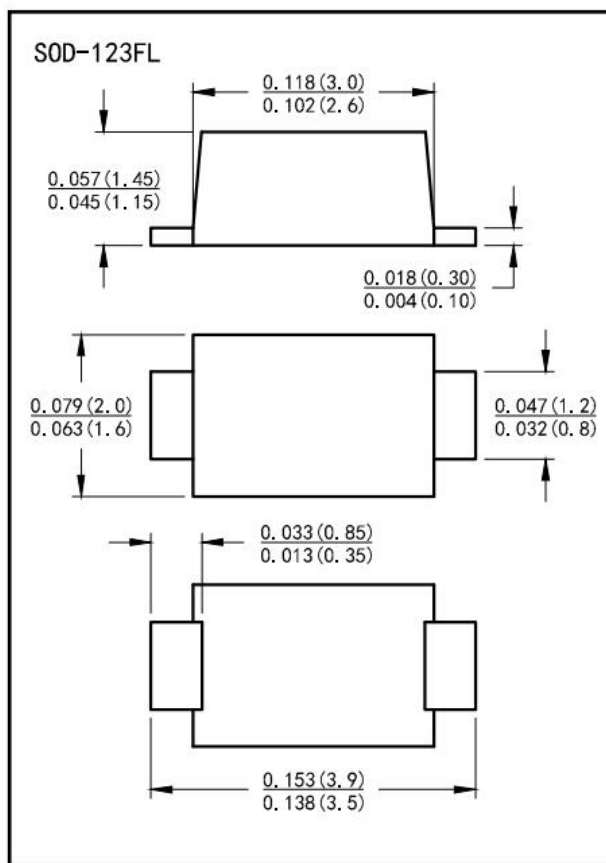
Fig.7-Current Derating

Carrier Tape & Reel Specification SOD-123FL



项目	规格(mm)	允差(mm)	项目	规格(mm)	允差(mm)
W	8.00	+0.30/-0.10	A0	2.05	±0.10
E1	1.75	±0.10	B0	3.95	±0.10
F	3.50	±0.05	K0	1.45	±0.10
D0	1.50	+0.1/-0.0	T	0.23	±0.02
D1	1.00	+0.25/-0.0	10*P0	40.00	±0.20
P0	4.00	±0.10	α1	4°max	
P1	4.00	±0.10	β1	8°max	
P2	2.00	±0.05	B1max	4.35	
			E2min	6.25	

Mechanical Dimensions SOD-123FL



Technical Data
Data Sheet N2749, REV.-



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