Technical Data
Data Sheet N2377, REV. B

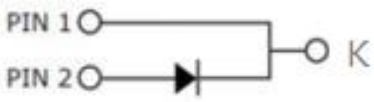
S4D08120A
1200V SIC POWER SCHOTTKY RECTIFIERS

TO-220AC(TO-220-2)

Description

S4D08120A is SiC Schottky rectifiers packaged in TO-220AC(TO-220-2) case. The devices are high voltage Schottky rectifiers that have very low total conduction losses and very stable switching characteristics over temperature extremes. The S4D08120A is ideal for energy sensitive, high frequency applications in challenging environments.

Circuit Diagram



Features

- 175˚C TJ 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

Applications

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

Maximum Ratings

Characteristics	Symbol	Condition	Max.	Units
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	-	1200	V
Average Rectified Forward Current	$I_{F(AV)}$	Tc =150˚C	8	A
Peak One Cycle Non-Repetitive Surge Current	I_{FSM}	10ms, Half Sine pulse, Tc =25˚C	64	A
Repetitive Peak Forward Surge Current	I_{FRM}	10 ms, Half Sine pulse , Tc =25˚C	38	A

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Electrical Characteristics:

Characteristics	Symbol	Condition	Typ.	Max.	Units
Forward Voltage Drop*	V_{F1}	@ 8A, Pulse, T_J = 25˚C	1.6	1.8	V
	V_{F2}	@ 8A, Pulse, T_J = 175˚C	2.2	3.0	V
Reverse Current*	I_{R1}	@V_R = rated V_R T_J = 25˚C	35	200	uA
	I_{R2}	@V_R = rated V_R T_J = 175˚C	100	350	uA
Junction Capacitance	C_T	VR=0V, Tj=25˚C,f=1MHz	560	-	pF

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

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	1.4	˚C/W

Ratings and Characteristics Curves

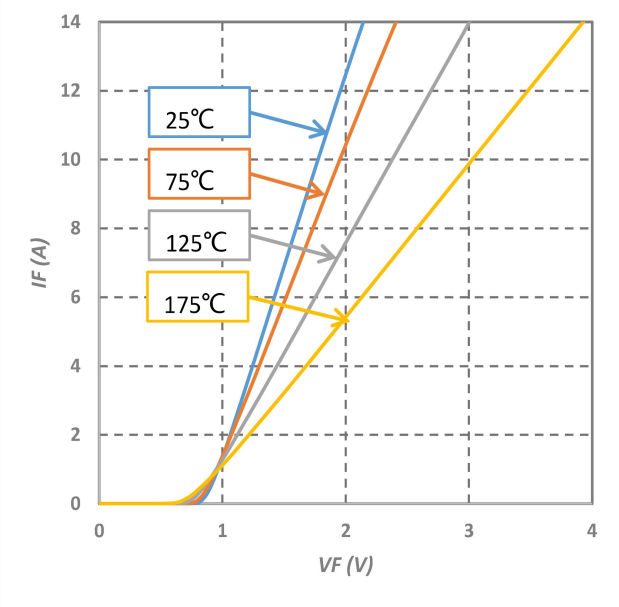

Fig.1-Typical Forward Voltage Characteristics

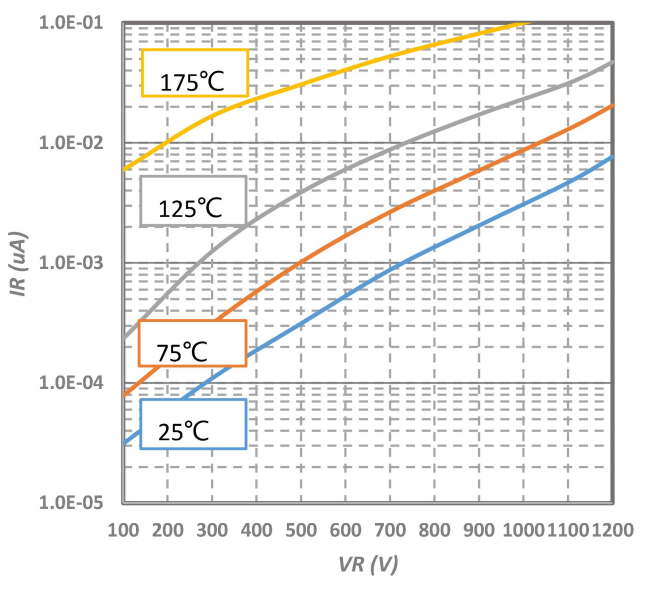

Fig.2-Typical Reverse Characteristics

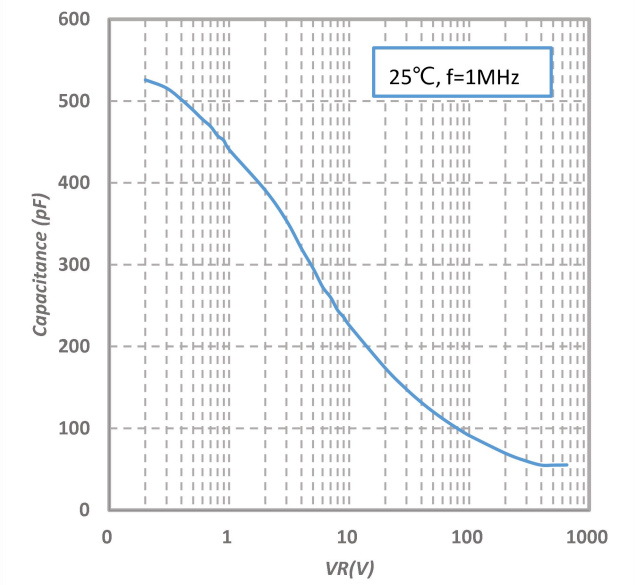

Fig.3-Capacitance vs. Reverse Voltage

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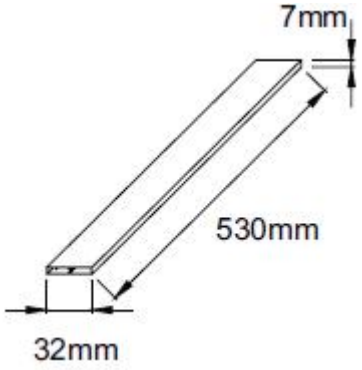
Ordering Information

Device	Package	Shipping
S4D08120A	TO-220AC(TO-220-2)	50pcs / tube

Tube Specification



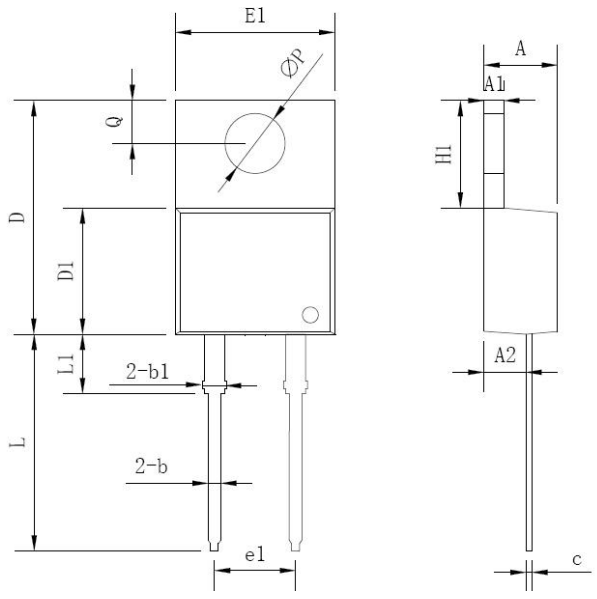
Marking Diagram

Where XXXXX is YYWWL

S4D	= Device Type
A	= Package type
08	= Forward Current (8A)
120	= Reverse Voltage (1200V)
SSG	= SSG
YY	= Year
WW	= Week
L	= Lot Number

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

Mechanical Dimensions



Symbol	Dimensions in millimeters		
	Min.	Typical	Max.
A	3.56	-	4.83
A1	0.51	-	1.40
A2	2.03	-	2.92
b	0.38	-	1.02
b1	1.14	-	1.78
c	0.31	-	0.61
D	14.22	-	16.51
D1	8.38	-	9.42
E1	9.65	10.16	10.67
e1	-	5.08	-
H1	5.84	-	6.86
L	12.70	-	14.73
L1	-	-	6.35
ΦP	-	3.56	-
Q	2.54	-	3.43

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