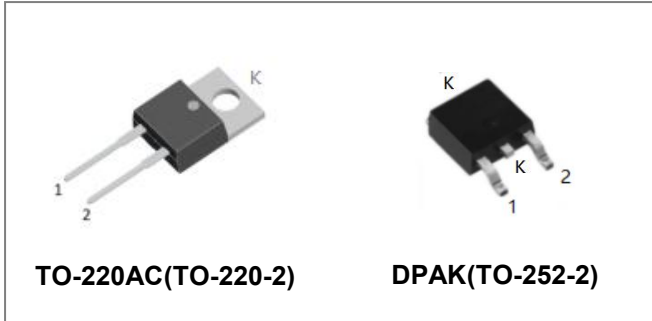


S4D08120A S4D08120E 1200V SiC POWER SCHOTTKY RECTIFIERS



Description

S4D08120A/S4D08120E are SiC Schottky rectifiers packaged in TO-220AC(TO-220-2)/DPAK(TO-252-2) 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/S4D08120E are ideal for energy sensitive, high frequency applications in challenging environments.

Circuit Diagram



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

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)}	T _c =150°C	8	A
Peak One Cycle Non-Repetitive Surge Current	I _{FSM}	10ms, Half Sine pulse, T _c =25°C	64	A
Repetitive Peak Forward Surge Current	I _{FRM}	10 ms, Half Sine pulse, T _c =25°C	38	A

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, T _J =25°C, f=1MHz	560	-	pF

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

Thermal-Mechanical Specifications:

Characteristics	Symbol	S4D08120A	S4D08120E	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}	1.7	1.5	°C/W

Ordering Information

Device	Package	Shipping
S4D08120A	TO-220AC(TO-220-2)	50pcs / tube
S4D08120E	DPAK(TO-252-2)	2500pcs / reel
S4D08120ETR	DPAK(TO-252-2)	2500pcs / 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

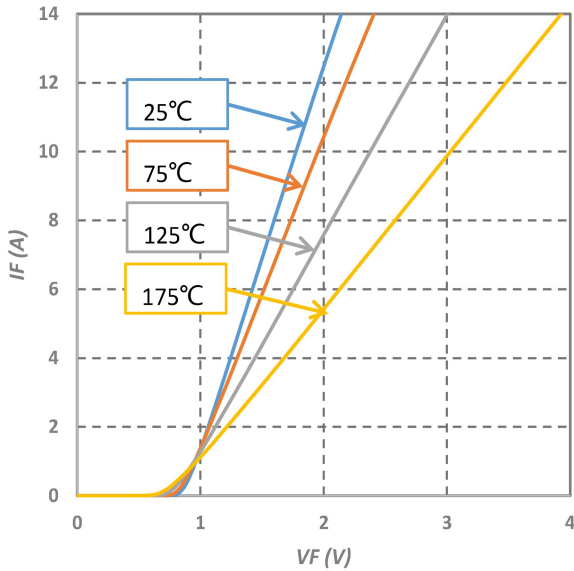


Fig.1-Typical Forward Voltage Characteristics

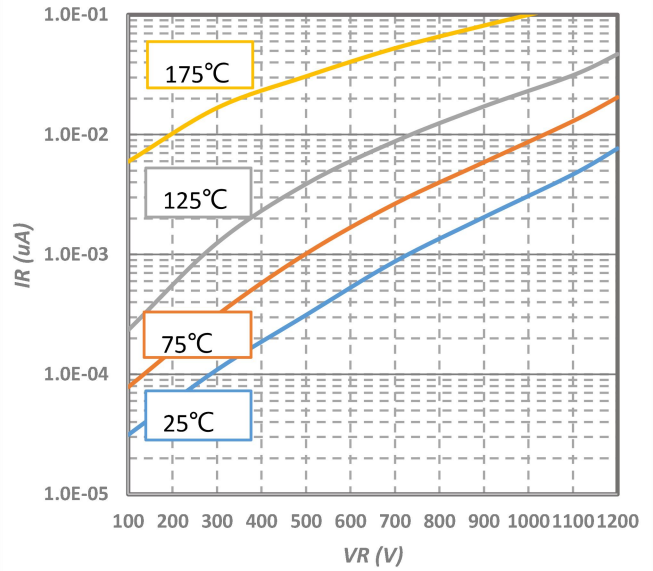


Fig.2-Typical Reverse Characteristics

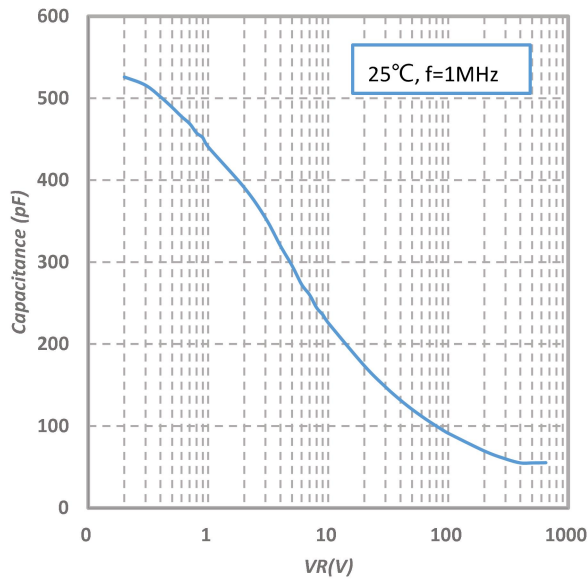
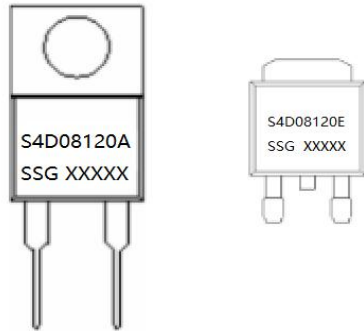


Fig.3-Capacitance vs. Reverse Voltage

Marking Diagram

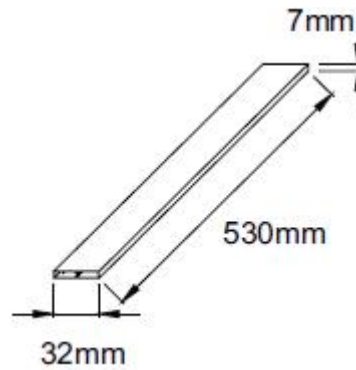


Where XXXXX is YYWWL

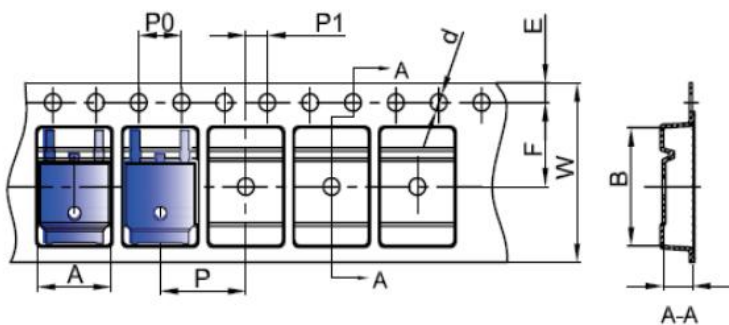
S4D = Device Type
A/E = Package type
08 = Forward Current (8A)
120 = Reverse Voltage (1200V)
SSG = SSG
YY = Year
WW = Week
L = Lot Number

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

Tube Specification(TO-220-2)

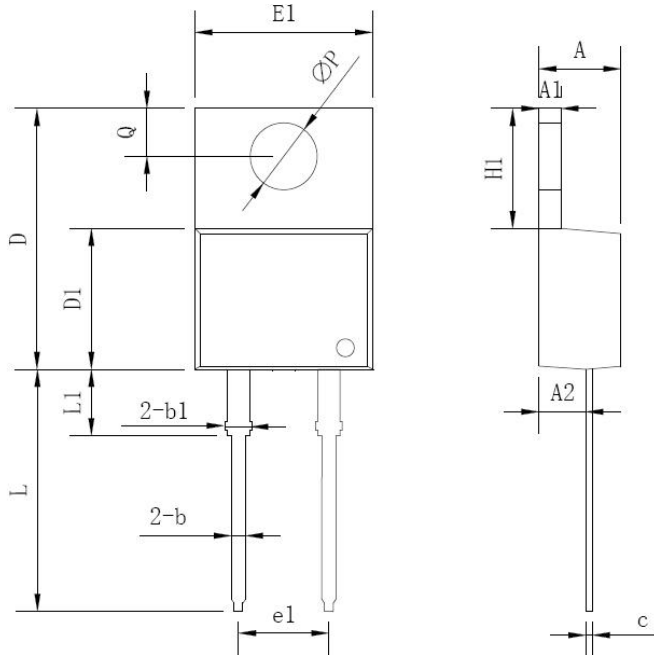


Carrier Tape & Reel Specification DPAK(TO-252-2)



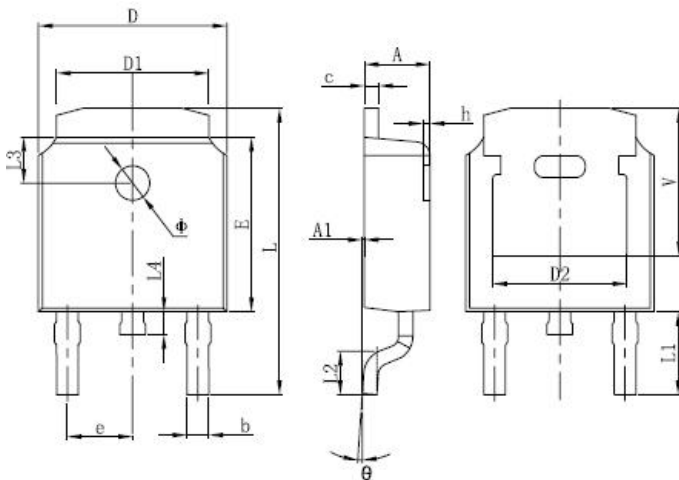
SYMBOL	Millimeters	
	Min.	Max.
A	6.80	7.00
B	10.40	10.60
C	2.60	2.80
d	Φ1.45	Φ1.65
E	1.65	1.85
F	7.40	7.60
P0	3.90	4.10
P	7.90	8.10
P1	1.90	2.10
W	15.90	16.30

Mechanical Dimensions TO-220AC(TO-220-2)



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

Mechanical Dimensions DPAK(TO-252-2)



SYMBOL	Dimensions in millimeters		
	Min.	Typ.	Max.
A	2.18	-	2.39
A1	-	-	0.13
b	0.64	-	0.89
c	0.46	-	0.89
D	6.35	-	6.73
D1	4.95	-	5.46
D2	4.32	-	-
E	5.97	6.1	6.22
e	2.29BSC		
L	9.4	-	10.41
L1	2.90 REF.		
L2	1.4	1.52	1.78
L3	1.60 REF.		
L4	-	-	1.02
Φ	1.1	-	1.3
θ	0°	-	10°
V	5.21	-	-



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