

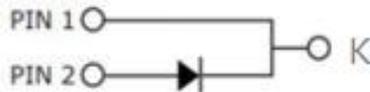
S4D08120E 1200V SiC POWER SCHOTTKY RECTIFIERS



Description

S4D08120E is SiC Schottky rectifiers packaged in 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 4D08120E 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	$I_{F(AV)}$	$T_c = 150^\circ\text{C}$	8	A
Peak One Cycle Non-Repetitive Surge Current	I_{FSM}	10ms, Half Sine pulse, $T_c = 25^\circ\text{C}$	64	A
Repetitive Peak Forward Surge Current	I_{FRM}	10 ms, Half Sine pulse, $T_c = 25^\circ\text{C}$	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, 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 _{θJC}	DC operation	1.35	°C/W

Ratings and Characteristics Curves

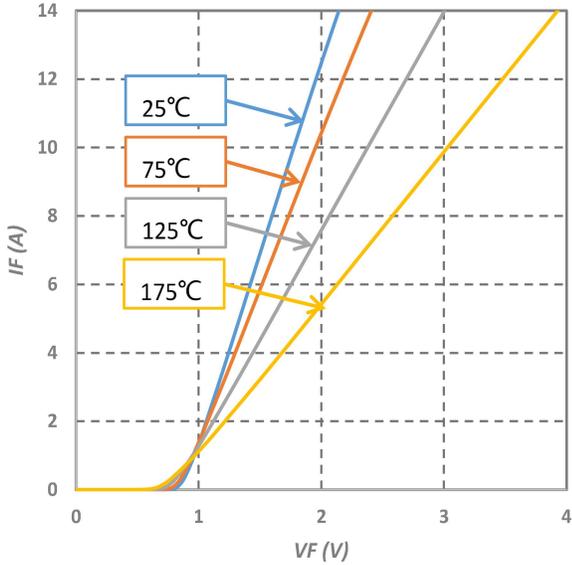


Fig.1-Typical Forward Voltage Characteristics

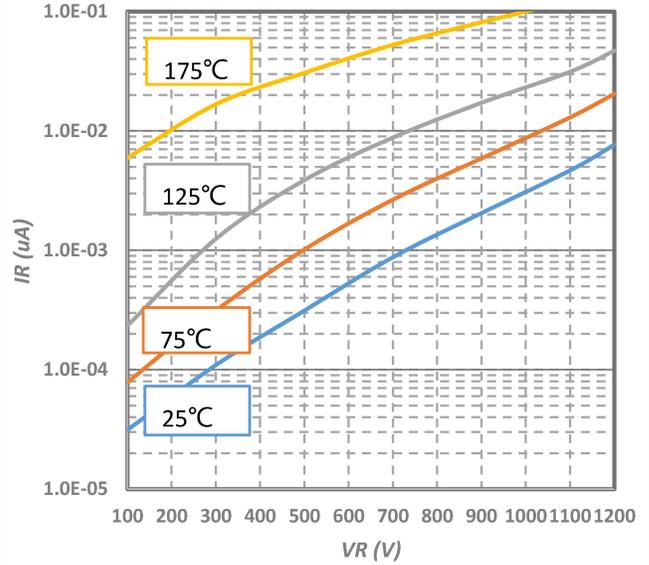


Fig.2-Typical Reverse Characteristics

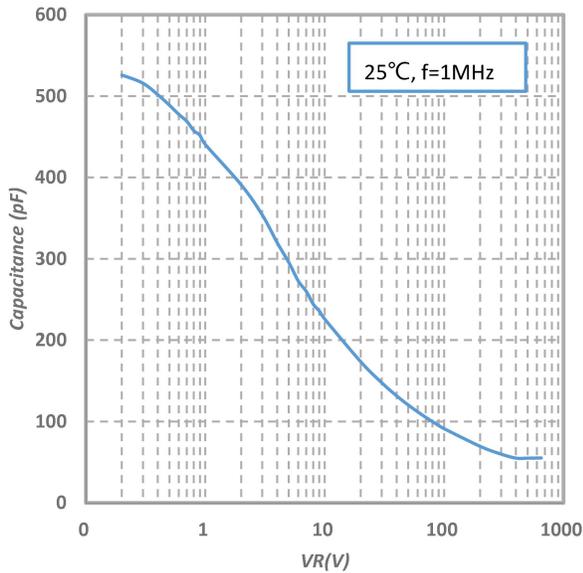


Fig.3-Capacitance vs. Reverse Voltage

Tube Specification

Device	Package	Shipping
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.

Marking Diagram

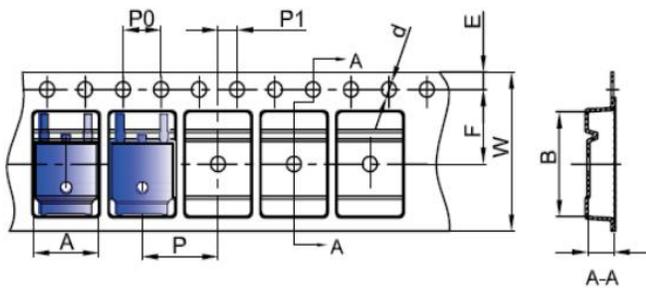


Where XXXXX is YYWWL

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

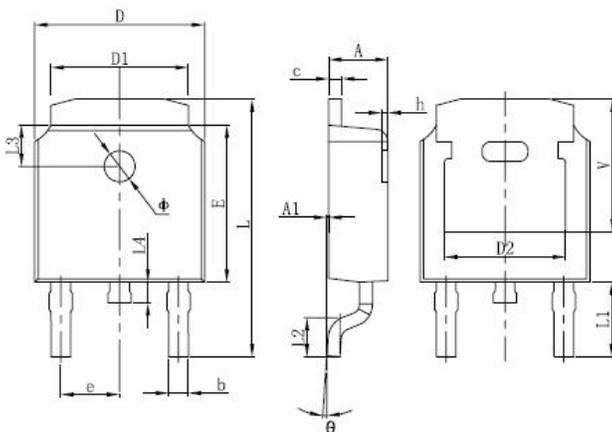
Cautions: Molding resin
Epoxy resin UL : 94V-0

Carrier Tape & Reel Specification



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



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	5.95	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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