





S4D05120A S4D05120E S4D05120G 1200V SIC POWER SCHOTTKY RECTIFIERS

Description

S4D05120A/S4D05120E/S4D05120G are SiC Schottky rectifiers packaged in TO-220AC(TO-220-2)/DPAK(TO-252-2)/D2PAK(TO-263-2) case. The devices are high voltage Schottky rectifiers that have very low total conduction losses and very stable switching characteristics over temperature extremes. The S4D05120A/S4D05120E/S4D05120G are ideal for energy sensitive, high frequency applications in challenging environments.

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
- 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

S4D05120A	S4D05120E	S4D05120G		
ı z	K 2	K 2		
TO-220AC	DPAK	D ² PAK		
(TO-220-2)	(TO-252-2)	(TO-263-2)		
PIN 10 K				

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	>
Average Rectified Forward Current	I _{F (AV)}	Tc=150°C	5	Α
Peak One Cycle Non-Repetitive Surge Current	I _{FSM}	10ms, Half Sine pulse, T _J =25°C	46	Α
Repetitive Peak Forward Surge Current	I_{FRM}	10 ms, Half Sine pulse , T _J =25°C	26	Α

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Electrical Characteristics:

Characteristics	Symbol	Condition	Тур.	Max.	Units
Forward Voltage Drop*	V_{F1}	@ 5A, Pulse, T _J = 25 °C	1.65	1.8	V
	V_{F2}	@ 5A, Pulse, T _J = 175 °C	2.2	3.0	V
Reverse Current*	I _{R1}	$@V_R = \text{rated } V_R$ $T_J = 25 ^{\circ}C$	20	200	uA
	I _{R2}	$@V_R = \text{rated } V_R$ $T_J = 175 ^{\circ}\text{C}$	40	300	uA
Junction Capacitance	Ст	VR=0V, Tj=25℃,f=1MHz	302	-	pF

^{*} Pulse width < 300 µs, duty cycle < 2%

Thermal-Mechanical Specifications:

Characteristics	Symbol	S4D05120A	S4D05120E	S4D05120G	Units
Junction Temperature	TJ		-55 to +175		°C
Storage Temperature	T _{stg}	-55 to +175		°C	
Maximum Thermal Resistance Junction to Case	R _{qJC}	1.7	1.5	1.65	°C/W

Ordering Information

Device	Package	Shipping
S4D05120A	TO-220AC(TO-220-2)	50pcs / tube
S4D05120E	DPAK(TO-252-2)	2500pcs / reel
S4D05120G	D2PAK(TO-263-2)	800 pcs / reel

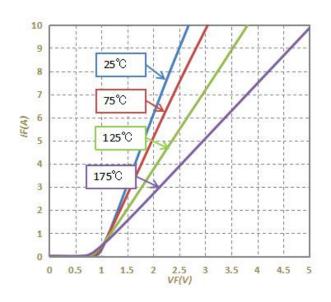
For information on tape and reel specifications, including part orientation and tape sizes, please refer to our tape and reel packaging specification.







Ratings and Characteristics Curves



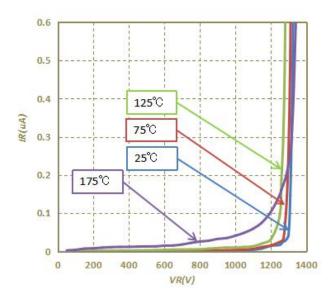


Fig.1-Typical Forward Voltage Characteristics



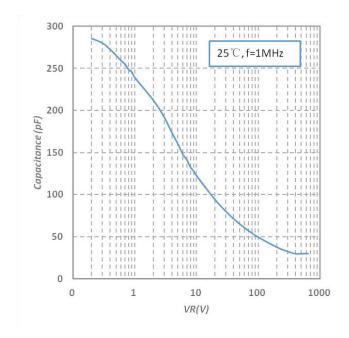


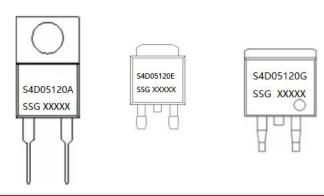
Fig.3-Capacitance vs. Reverse Voltage







Marking Diagram



Where XXXXX is YYWWL

S4D = Device Type
A/E/G = Package type
05 = Forward Current (5A)
120 = Reverse Voltage (1200V)
SSG = SSG

 SSG
 = SSG

 YY
 = Year

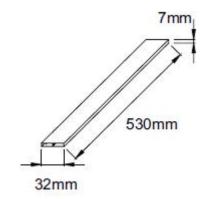
 WW
 = Week

 L
 = Lot Number

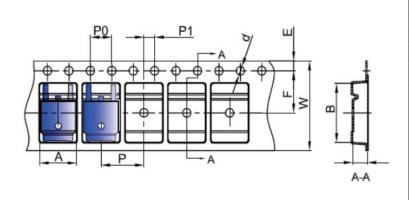
Cautions: Molding resin

Epoxy resin UL:94V-0

Tube Specification(TO-220-2)



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



SYMBOL	Millimeters			
STWIBOL	Min.	Max.		
Α	6.80	7.00		
В	10.40	10.60		
С	2.60	2.80		
d	Ф1.45	Ф1.65		
E	1.65	1.85		
F	7.40	7.60		
P0	3.90	4.10		
Р	7.90	8.10		
P1	1.90	2.10		
W	15.90	16.30		

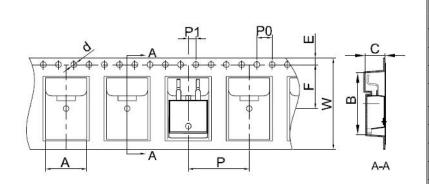
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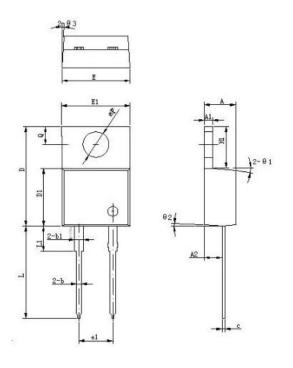


Carrier Tape & Reel Specification D2PAK(TO-263-2)



SYMBOL	Millimeters			
STWIBOL	Min.	Max.		
Α	10.70	10.90		
В	16.03	16.23		
С	5.11	5.31		
d	1.45	1.65		
E	1.65	1.85		
F	11.40	11.60		
P0	3.90	4.10		
Р	15.90	16.10		
P1	1.90	2.10		
W	23.90	24.30		

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



Symbol	Dimensions in millimeters		
Cymbol	Min.	Typical	Max.
Α	4.55	4.70	4.85
A1	1.17	1.27	1.37
A2	2.59	2.69	2.89
b	0.71	0.81	0.96
b1		1.27	
С	0.36	0.38	0.61
D	14.64	14.94	15.24
D1	8.55	8.70	8.90
E	10.01	10.16	10.31
E1	9.98	10.18	10.38
e1		5.08	
H1	6.04	6.24	6.44
L	13.00	13.86	14.08
L1		3.80	
ΦР	3.74	3.84	4.04
Q	2.54	2.74	2.94
Θ1		5°	
Θ2		4°	
Θ3		4°	

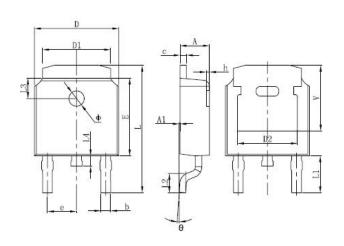
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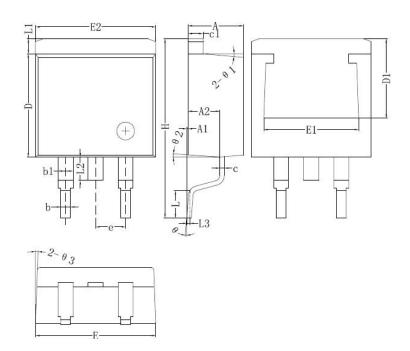


Mechanical Dimensions DPAK(TO-252-2)



CVMDOL	Millimeters		Inches	
SYMBOL	Min.	Max.	Min.	Max.
Α	2.20	2.40	0.086	0.094
A1	0	0.13	0	0.005
b	0.635	0.889	0.025	0.035
С	0.460	0.889	0.018	0.035
D	6.50	6.70	0.250	0.265
D1	4.95	5.46	0.195	0.215
D2	4.32	REF.	0.170 REF.	
E	6.00	6.20	0.235	0.245
е	2.286	BSC	0.090 BSC	
L	9.398	10.414	0.370	0.410
L1	1.778	REF.	0.108	REF.
L2	1.40	1.78	0.055	0.07
L3	1.60	REF.	0.063	REF.
L4	0.60	1.02	0.024	0.040
Ф	1.10	1.30	0.043	0.051
Θ	0°	10°	0°	10°
h	0	0.30	0	0.012
V	5.21 REF.		0.205	REF.

Mechanical Dimensions D²PAK(TO-263-2)



_	Dimensions in millimeters			
Symbol	Min.	Typical	Max.	
Α	4.55	4.70	4.85	
A1	0	0.10	0.25	
A2	2.59	2.69	2.89	
b	0.71	0.81	0.96	
b1		1.27		
С	0.36	0.38	0.61	
c1	1.17	1.27	1.37	
D	8.55	8.70	8.85	
D1	6.40			
E	10.01	10.16	10.31	
E1	7.6			
E2	9.98	10.08	10.18	
е		2.54		
Н	14.6	15.1	15.6	
L	2.00	2.30	2.70	
L1	1.17	1.27	1.40	
L2			2.20	
L3		0.25BSC		
Θ	0	-	8°	
Θ1		5°		
Θ2		4°		
Θ3		4°		

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