

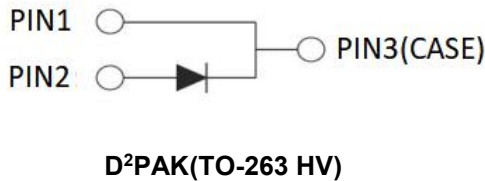
S5D25170G0 1700V SIC POWER SCHOTTKY RECTIFIER



Description

The S5D25170G0 is high voltage Schottky rectifier that has very low total conduction losses and very stable switching characteristics over temperature extremes. The S5D25170G0 is 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
- 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	V _{RRM}	-	1700	V
Working Peak Reverse Voltage	V _{RWM}			
DC Blocking Voltage	V _R			
Average Rectified Forward Current	I _{F(AV)1}	T _c =25°C	74	A
	I _{F(AV)2}	T _c =154°C	25	A
Peak One Cycle Non-Repetitive Surge Current	I _{FSM1}	10ms, Half Sine pulse, T _c =25°C	280	A
	I _{FSM2}	10ms, Half Sine pulse, T _c =110°C	210	A
Repetitive Peak Forward Surge Current	I _{FRM1}	10 ms, Half Sine pulse , T _c =25°C	168	A
	I _{FRM2}	10 ms, Half Sine pulse , T _c =110°C	122	A
Power Dissipation	P _{tot1}	T _c =25°C	468.8	W
	P _{tot2}	T _c =110°C	203.1	W

Electrical Characteristics:

Characteristics	Symbol	Condition	Typ.	Max.	Units
Forward Voltage Drop*	V _{F1}	@ 25A, Pulse, T _J = 25 °C	1.55	1.8	V
	V _{F2}	@ 25A, Pulse, T _J = 175 °C	2.5	3.0	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	20	200	uA
Junction Capacitance	C _{T1}	V _R =0V, f=1MHz, T _J =25°C,	2400	-	pF
	C _{T2}	V _R =1700V, f=1MHz, T _J =25°C,	126	-	pF
Reverse Recovery Charge	Q _c	I _F = 25A, di/dt = 200A/μs V _R = 1700 V, T _J =25°C	296.59	-	nC

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

Thermal-Mechanical Specifications:

Characteristics	Symbol	Condition	S5D25170G0	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, T _J =25°C	0.38	°C/W
Weight	W	-	2.2	g

Ordering Information

Device	Package	Shipping
S5D25170G0	D2PAK(TO-263-2)	800pcs / Reel
S5D25170G0TR	D2PAK(TO-263-2)	800pcs / Reel

Ratings and Characteristics Curves

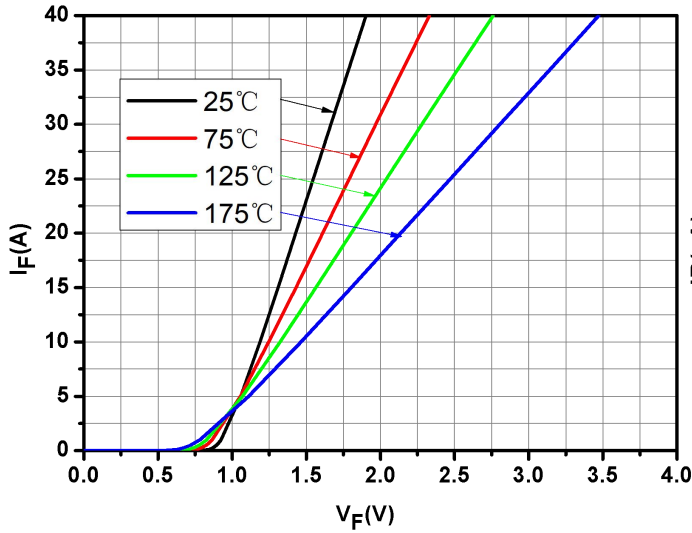


Fig.1-Typical Forward Voltage Characteristics

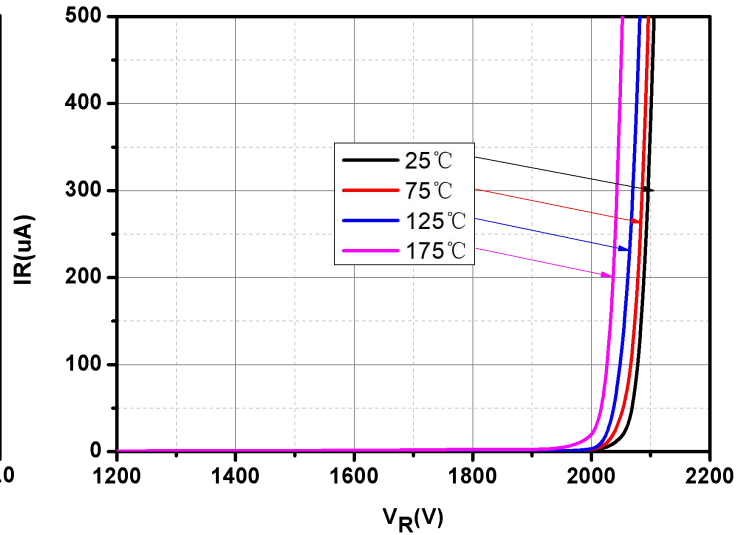


Fig.2-Typical Reverse Characteristics

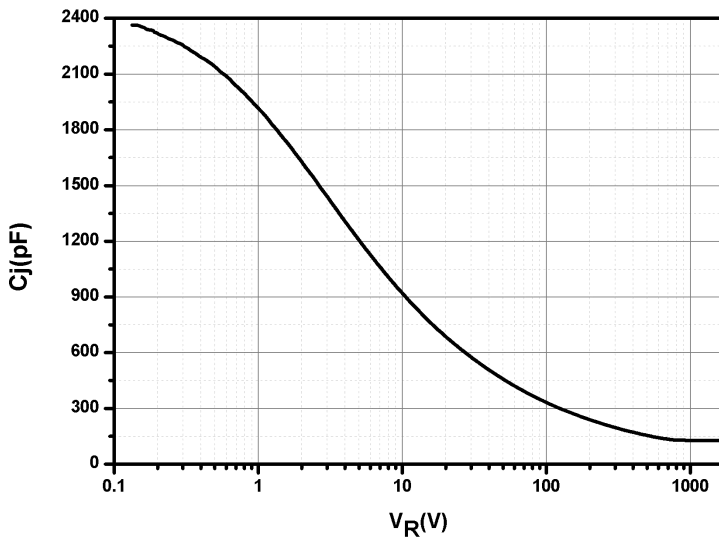


Fig.3-Capacitance vs. Reverse Voltage

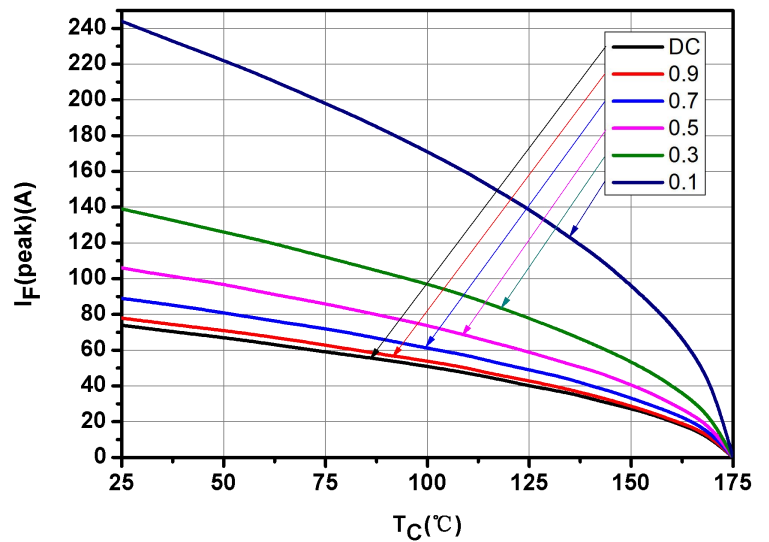


Fig.4-Current Derating

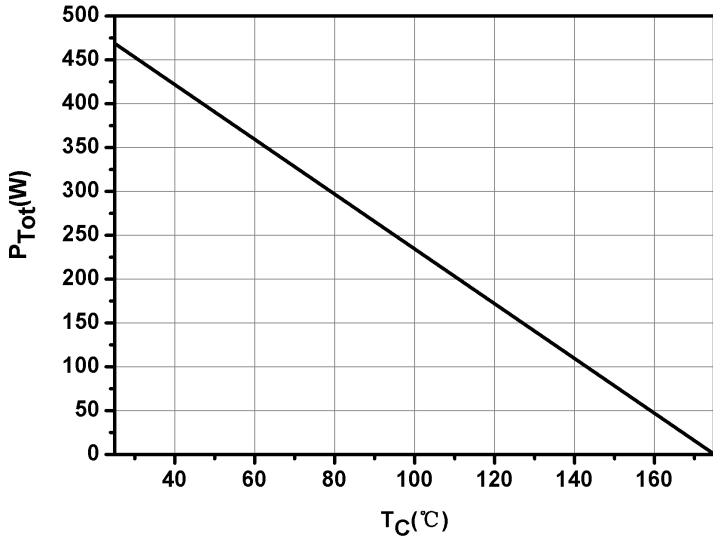


Fig.5-Power Derating

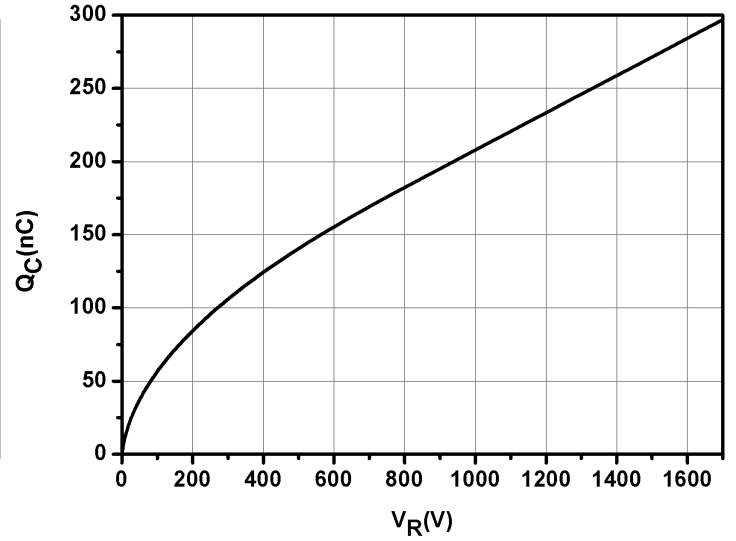


Fig.6-Total Capacitance Charge vs. Reverse Voltage

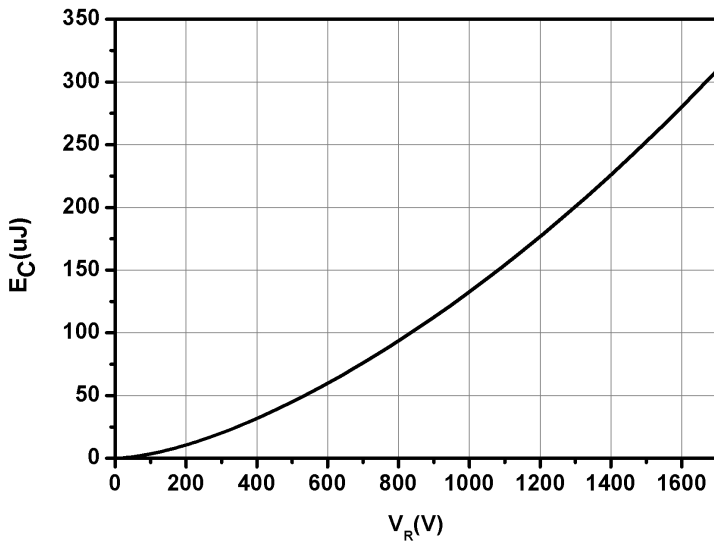
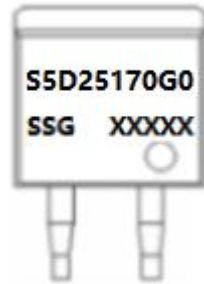


Fig.7-Capacitance Stored Energy

Marking Diagram

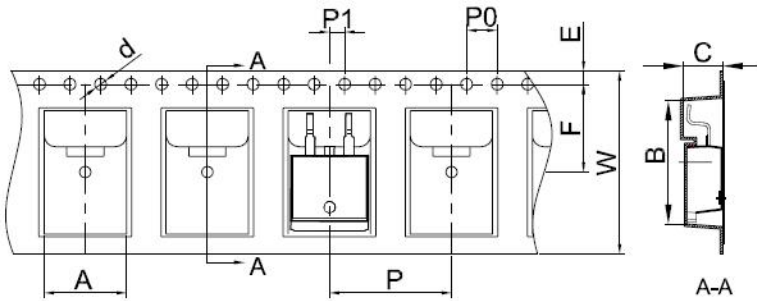


Where XXXXX is YYWWL

S5D = Device Type
G0 = Package type
25 = Forward Current (25A)
170 = Reverse Voltage (1700V)
SSG = SSG
YY = Year
WW = Week
L = Lot Number

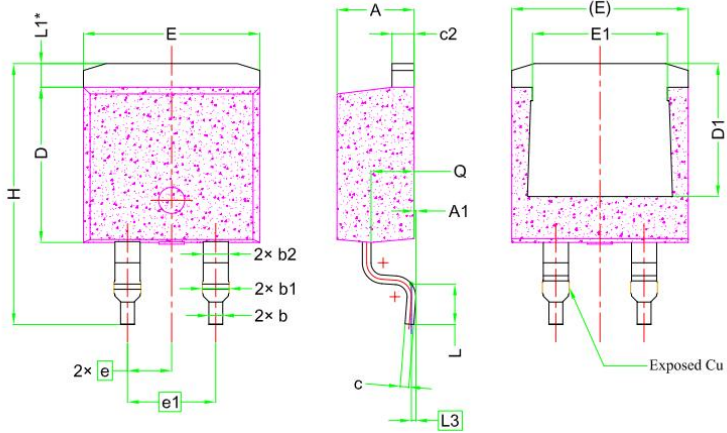
Cautions: Molding resin
Epoxy resin UL:94V-0

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



SYMBOL	Millimeters	
	Min.	Max.
A	10.70	10.90
B	16.03	16.23
C	5.11	5.31
d	1.45	1.65
E	1.65	1.85
F	11.40	11.60
P0	3.90	4.10
P	15.90	16.10
P1	1.90	2.10
W	23.90	24.30

Mechanical Dimensions D²PAK(TO-263 HV)



Symbol	Dimensions in millimeters		
	Min.	Typical	Max.
A	4.24	4.44	4.64
A1	0.00	0.10	0.25
b	0.70	0.80	0.90
b1	1.20	1.55	1.75
b2	1.20	1.45	1.70
c	0.40	0.50	0.60
c2	1.15	1.27	1.40
D	8.82	8.92	9.02
D1	6.86	7.65	-
E	9.96	10.16	10.36
E1	6.89	7.77	7.89
e	2.54 BSC		
e1	5.08 BSC		
H	14.61	15.00	15.88
L	1.78	2.32	2.79
L1	1.39 REF		
L3	0.25 BSC		
Q	2.30	2.48	2.70

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