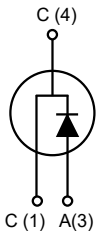
ESIC05120SD

Silicon carbide power schottky diode

D-PAK



Features

- Rated to 1200V at 5 Amps
- Zero reverse recovery current
- Zero forward recovery voltage
- Temperature independent switching behaviour
- High temperature operation
- High frequency operation
- Marking code : ESIC05120SD

Application

- SMPS, e.g., CCM PFC;
- Motor drives, Solar application, UPS,
- Wind turbine, Rail traction, EV/HEV

Benefits

- Unipolar rectifier
- Substantially reduced switching losses
- No thermal run-away with parallel devices
- Reduced heat sink requirements

Ordering Information

Part No.	Remark	Package	Packing
ESIC05120SD	RoHS Compliant	D-PAK	2500 / Tape & Reel
ESIC05120SD-H	Halogen Free		

Absolute Maximum Ratings (T_A=25°C unless otherwise specified)

Parameter	Conditions	Symbol	Limits	Unit
Repetitive Peak Reverse Voltage	T_j=25°C	V_{RRM}	1200	V
Surge Peak Reverse Voltage	T_j=25°C	V_{RSM}	1200	V
DC Blocking Voltage	T_j=25°C	V_{DC}	1200	V
Continuous Forward Current	T_j=25°C Tj=135°C Tj=158°C	I_F	18 8.5 5	A
Repetitive Peak Forward Surge Current	T_C=25°C , tp=10ms, Half Sine Wave, D=0.3	I_{FRM}	25	A
Non-Repetitive Peak Forward Surge Current	T_C=25°C , tp=10ms, Half Sine Wave	I_{FSM}	50	A
Power Dissipation	T_C=25°C	P_{TOT}	109.5	W
	T_C=110°C		47	W
Operating Junction and Storage Temperature		Tj、Tstg	-55~+175	°C
Typical Thermal Resistance form Junction to Case		$R_{\Theta JC}$	1.37	°C/ W

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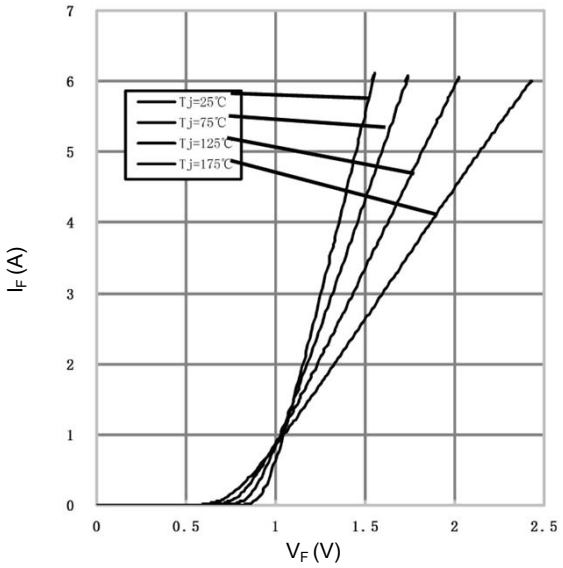
Electrical Characteristics (T_A = 25 °C unless otherwise specified)

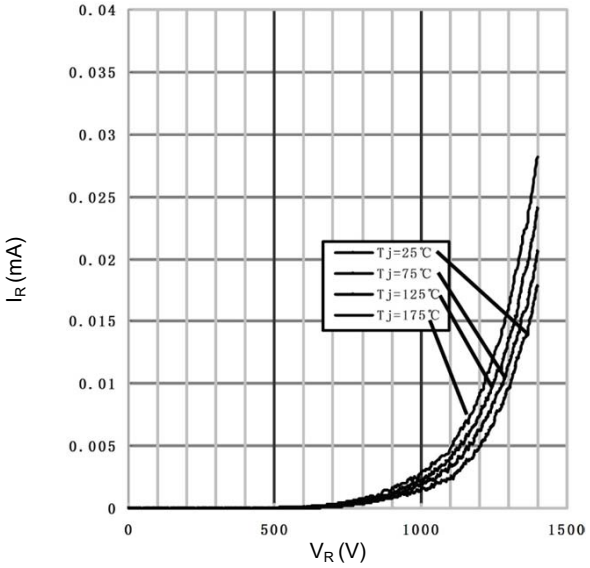
Parameter	Conditions	Symbol	Min.	Typ.	Max.	Unit
Forward Voltage	I_F=5A, T_j=25°C	V_F	-	1.45	1.7	V
	I_F=5A, T_j=175°C		-	2.05	2.5	
Reverse Current	V_R=1200V, T_j=25°C	I_R	-	20	100	μA
	V_R=1200V, T_j=175°C		-	50	200	
Total Capacitive Charge	V_R=800V, T_j=150°C $Qc = \int_0^{VR} C(V)\,dV$	Q_C	-	36	-	nC
Total Capacitance	V_R=0V, T_j=25°C, f=1MHZ	C	-	475	510	pF
	V_R=400V, T_j=25°C, f=1MHZ		-	34	44	
	V_R=800V, T_j=25°C, f=1MHZ		-	33	40	

Rating and Characteristics Curves

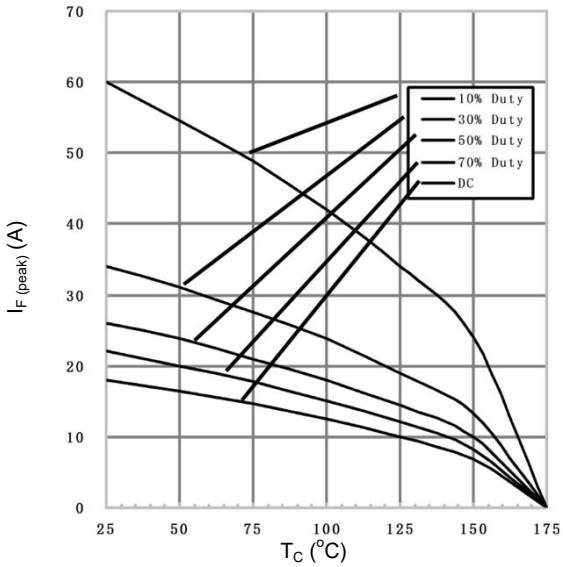
1) Forward IV characteristics as a function of Tj :



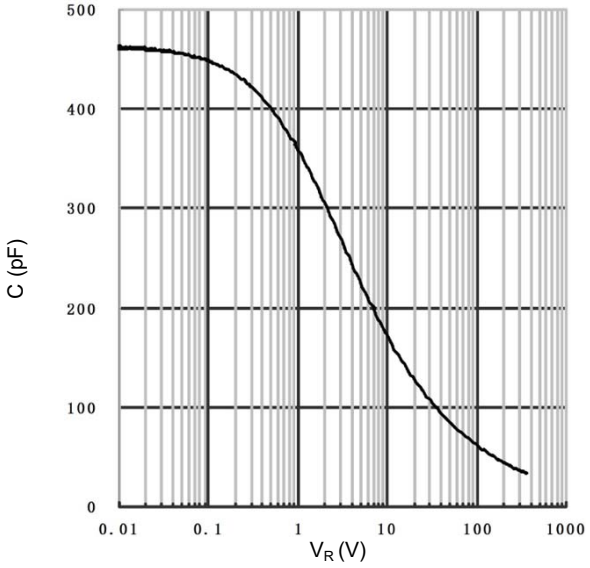
2) Reverse IV characteristics as a function of Tj :



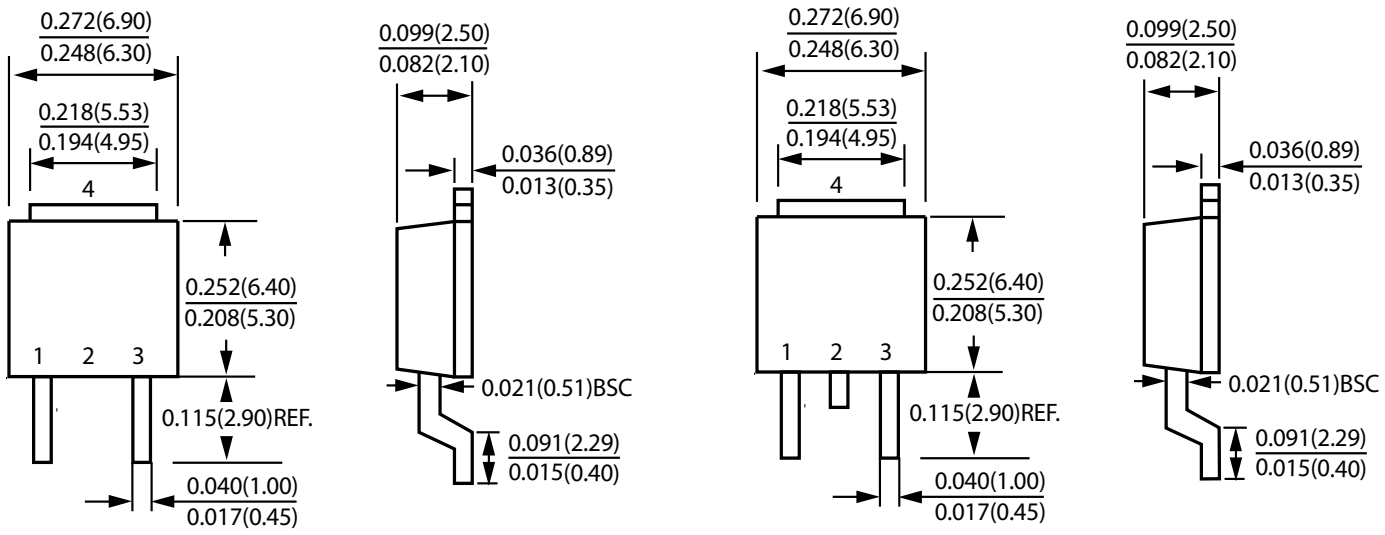
3) Current Derating



4)Capacitance vs. reverse voltage :



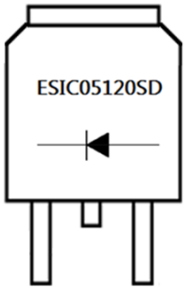
Package Outline Dimensions



D-PAK

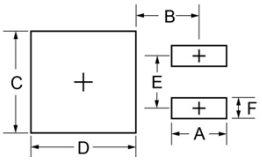
Dimensions in inches and (millimeters)

Marking Information



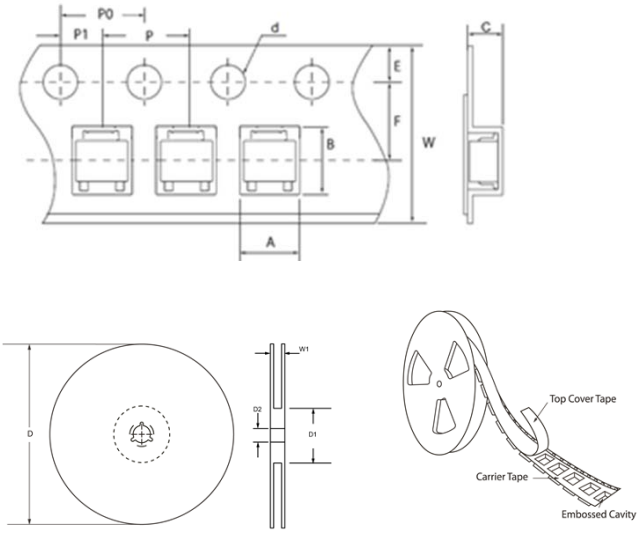
Suggested Pad Layout

Symbol \ Outline	D-PAK (mm)
A	3.00
B	3.70
C	6.00
D	6.50
E	4.60
F	1.40



Tape & Reel Specification

Item	Symbol	D-PAK (mm)
Carrier width	A	6.93 ± 0.13
Carrier length	B	10.5±0.10
Carrier depth	C	2.72 ± 0.17
Sprocket hole	d	1.55 ± 0.10
Reel outside diameter	D	330 ± 2.0
Feed hole diameter	D0	13 (min)
Reel inner diameter	D1	90 (min)
Sprocket hole position	E	1.75 ± 0.10
Punch hole position	F	7.50 ± 0.10
Sprocket hole pitch	P	8.00 ± 0.10
Sprocket hole pitch	P0	4.00 ± 0.2
Embossment center	P1	2.00 ± 0.10
Tape width	W	16.00 ± 0.3
Reel width	W1	16.30 ± 0.9



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