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Technical Data
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SICR101200 / SICRB101200 / SICRD101200 / SICRF101200
1200V SIC POWER SCHOTTKY RECTIFIER

Description

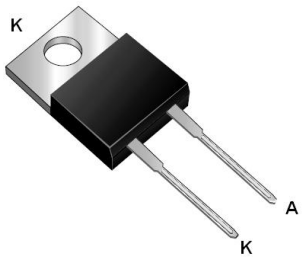
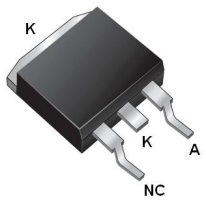
SICR101200/ SICRB101200/ SICRD101200/ SICRF101200 are all single SiC Schottky rectifiers packaged in TO-220AC, D2PAK, DPAK and ITO-220ACcase. The device is a high voltage Schottky rectifier that has very low total conduction losses and very stable switching characteristics over temperature extremes. The SICR101200/ SICRB101200/ SICRD101200/ SICRF101200 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
- Guard ring for enhanced ruggedness and long term reliability
- 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

SICR101200	SICRB101200	SICRD101200	SICRF101200
			
TO-220AC	D²PAK	DPAK	ITO-220AC

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	$I_{F\ (AV)}$	50% duty cycle @Tc=150°C, rectangular wave form	10	A
Peak One Cycle Non-Repetitive Surge Current	I_{FSM}	8.3ms, Half Sine pulse	110	A

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Electrical Characteristics:

Characteristics	Symbol	Condition	Typ.	Max.	Units
Forward Voltage Drop*	V_{F1}	@ 10A, Pulse, T_J = 25 °C	1.5	1.8	V
	V_{F2}	@ 10A, Pulse, T_J = 175 °C	20	2.5	V
Reverse Current at DC condition*	I_{R1}	@V_R = rated V_R T_J = 25 °C	1	100	μA
Reverse Current *	I_{R2}	@V_R = rated V_R T_J = 175 °C	10	200	μA
Junction Capacitance	C_T	VR=0V, Tj=25℃,f=1MHz VR=400V, Tj=25℃,f=1MHz VR=800V, Tj=25℃,f=1MHz	640 61 52	-	pF
Reverse Recovery Charge	Qc	I_F = 10A, diF/dt = -300A/μs V_R = 400V, T_J = 150°C	38	-	nC
Voltage Rate of Change	dv/dt	-	-	10,000	V/μs

Thermal-Mechanical Specifications:

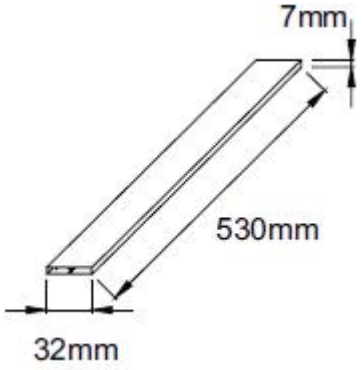
Characteristics	Symbol	SICR101200	SICRB101200	SICRD101200	SICRF101200	Units
Junction Temperature	T_J	-55 to +175				°C
Storage Temperature	T_{stg}	-55 to +175				°C
Maximum Thermal Resistance Junction to Case	$R_{\theta JC}$	2.4	2.4	2.4	4.2	°C/W

Ordering Information

Device	Package	Weight	Shipping
SICR101200	TO-220AC	1.8g	50pcs / tube
SICRB101200	D^2 PAK	1.85g	800pcs / reel
SICRD101200	DPAK	0.39g	2500pcs / reel
SICRF101200	ITO-220AC	1.8g	50pcs / tube

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

Tube Specification(TO-220AC/ITO-220AC)



Ratings and Characteristics Curves

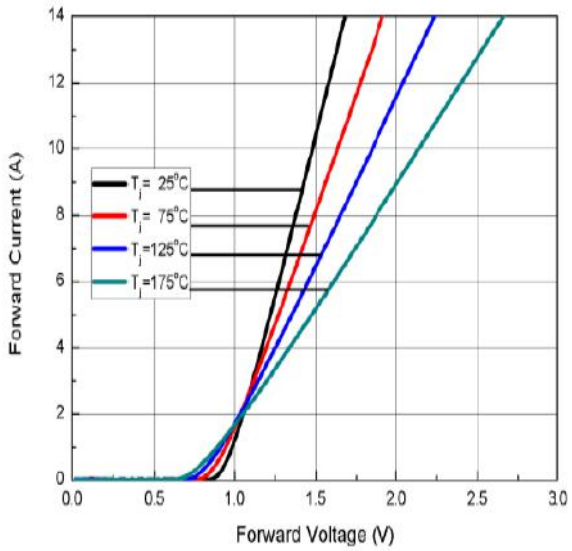


Fig.1-Typical Forward Voltage Characteristics

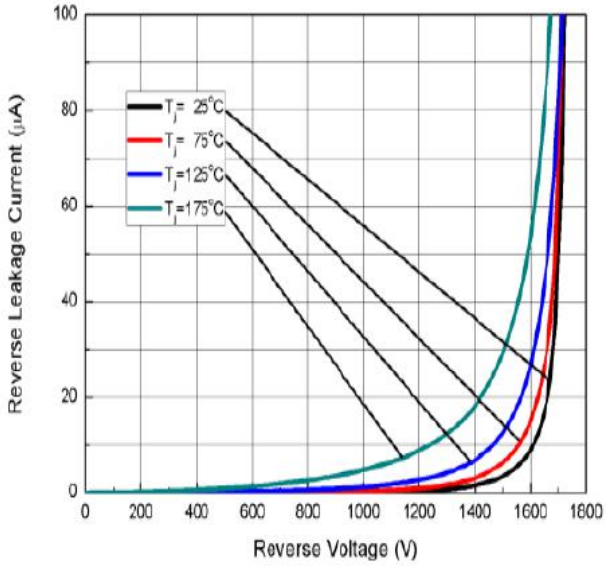


Fig.2-Typical Reverse Characteristics

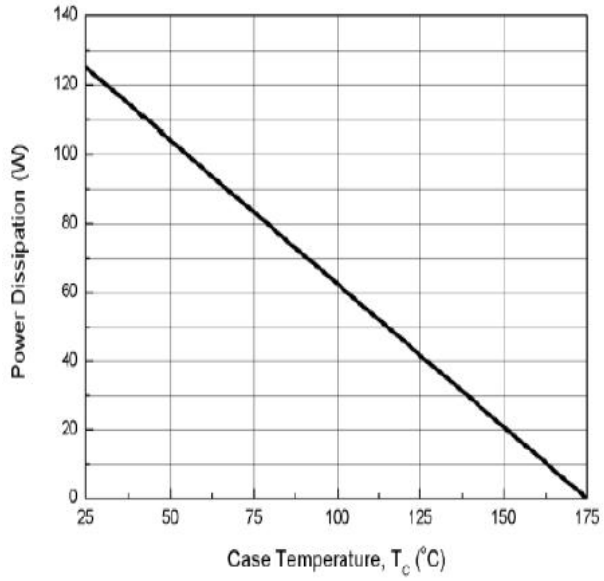


Fig.3-Forward Current Derating Curve

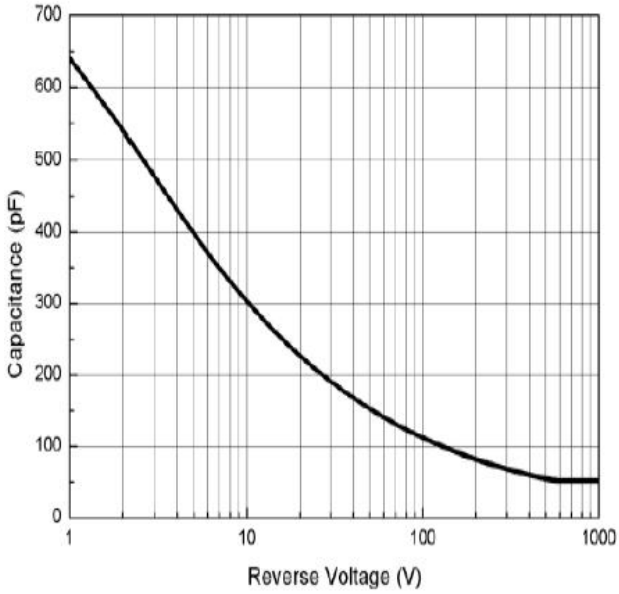


Fig.4-Typical Junction Capacitance

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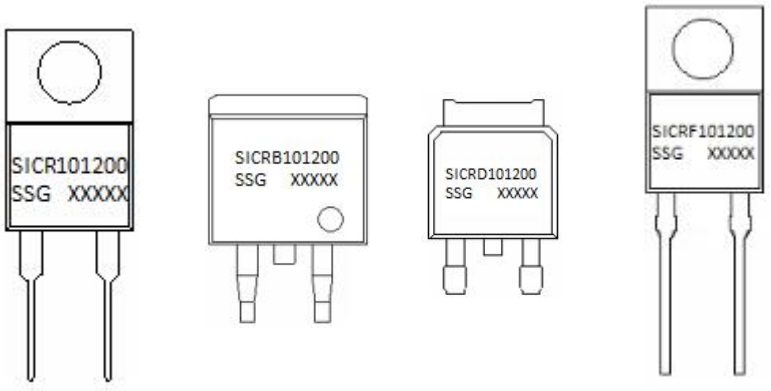
Marking Diagram

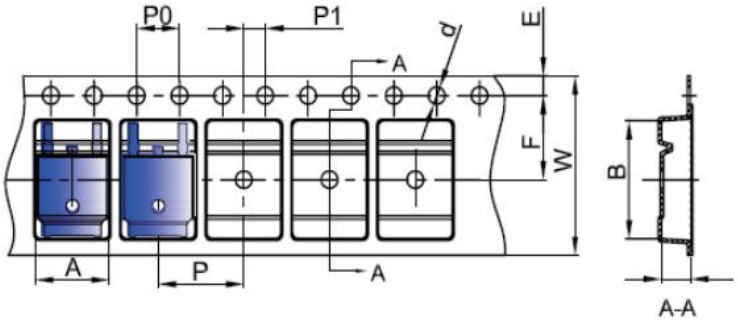


Where XXXXX is YYWWL

SICR	= Device Type
B/D/F	= Package type
10	= Forward Current (10A)
1200	= Reverse Voltage (1200V)
SSG	= SSG
YY	= Year
WW	= Week
L	= Lot Number

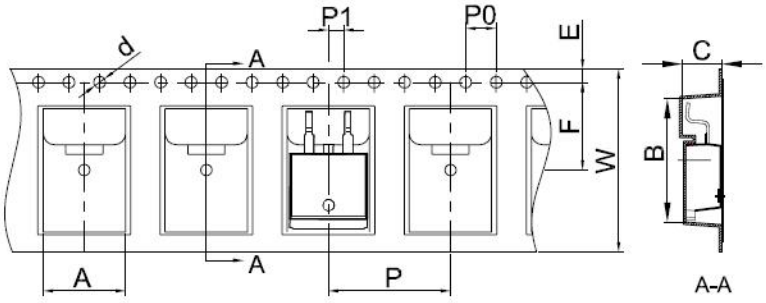
Cautions: Molding resin
Epoxy resin UL:94V-0

Carrier Tape Specification DPAK



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

Carrier Tape & Reel Specification D²PAK



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

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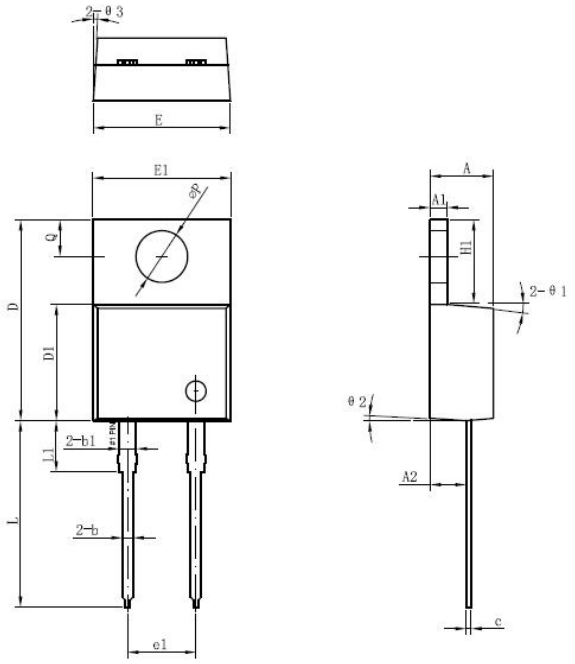
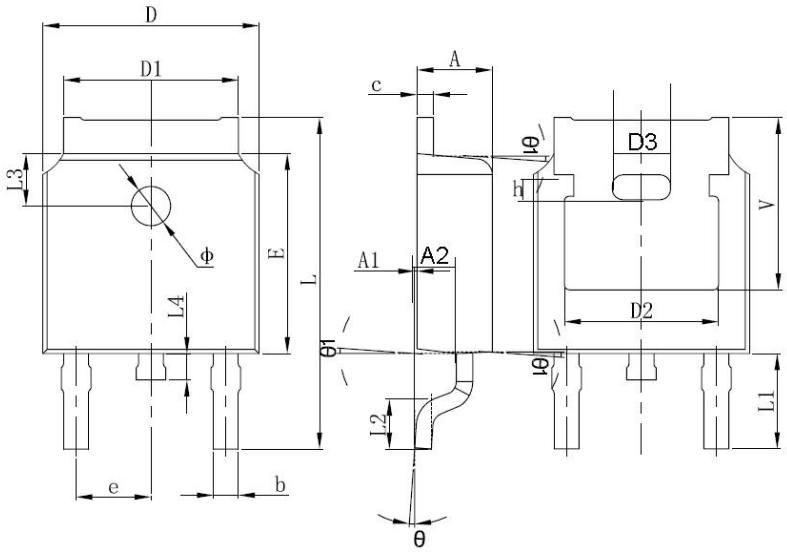
Mechanical Dimensions TO-220AC



Symbol	Dimensions in millimeters		
	Min.	Typical	Max.
A	4.47	4.70	4.85
A1	1.17	1.27	1.37
A2	2.52	2.69	2.89
b	0.71	0.81	0.96
b1	1.17	1.27	1.37
c	0.31	0.38	0.61
D	14.64	14.94	15.24
D1	8.50	8.07	8.90
E	10.01	10.16	10.31
E1	9.98	10.18	10.38
e1	4.98	5.08	5.18
H1	6.04	6.24	6.44
L	13.00	13.86	14.08
L1	3.56	3.80	3.96
ΦP	3.74	3.84	4.04
Q	2.54	2.74	2.94
Θ1		5°	
Θ2		4°	
Θ3		4°	

Mechanical Dimensions DPAK



SYMBOL	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	2.20	2.40	0.087	0.094
A1	0.00	0.127	0.000	0.005
b	0.66	0.86	0.026	0.034
c	0.46	0.60	0.018	0.024
D	6.50	6.70	0.256	0.264
D1	5.13	5.46	0.202	0.215
D2	4.83 REF.		0.190 REF.	
E	6.00	6.20	0.236	0.244
e	2.186	2.386	0.086	0.094
L	9.70	10.40	0.381	0.409
L1	2.90 REF.		0.144 REF.	
L2	1.40	1.70	0.055	0.067
L3	1.60 REF.		0.063 REF.	
L4	0.60	1.00	0.024	0.039
Φ	1.10	1.30	0.043	0.051
Θ	0°	8°	0°	8°
h	0.00	0.30	0.000	0.012
V	5.35 REF.		0.211 REF.	

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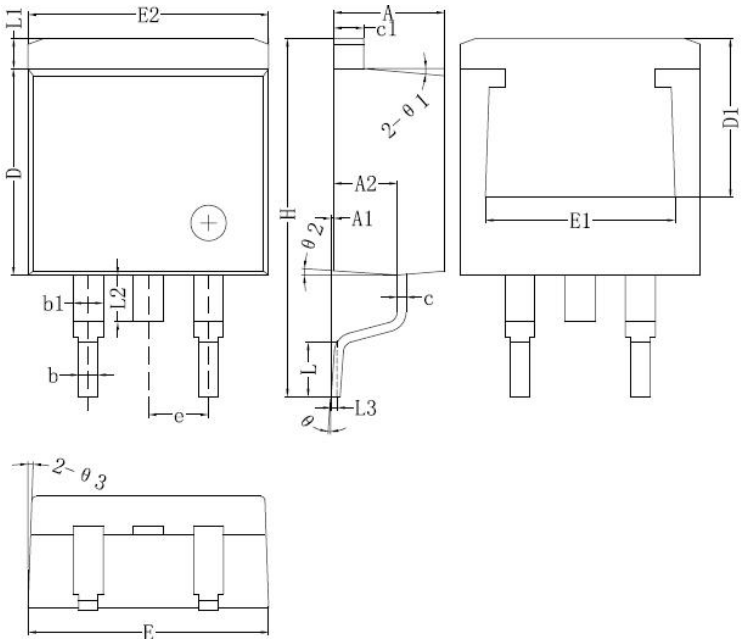
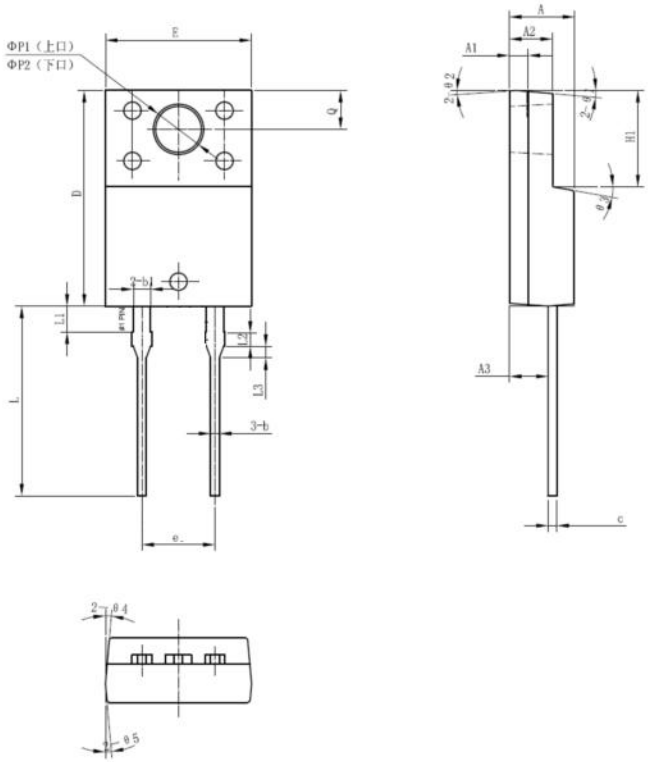
Mechanical Dimensions D²PAK



Symbol	Dimensions in millimeters		
	Min.	Typical	Max.
A	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	
c	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
e		2.54	
H	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	
e	0	-	8°
e1		5°	
e2		4°	
e3		4°	

Mechanical Dimensions ITO-220AC



SYMBOL	Millimeters		
	MIN.	TYP.	MAX.
A	4.30	4.50	4.70
A1	1.10	1.30	1.50
A2	2.50	3.00	3.20
A3	2.50	2.70	2.90
b	0.50	0.60	0.85
b1	1.10	1.20	1.35
c	0.50	0.60	0.85
D	14.80	15.00	15.20
E	9.96	10.16	10.36
e	-	5.10	-
H1	6.50	6.70	6.90
L	12.70	13.20	13.70
L1	1.60	1.80	2.00
L2	0.80	1.00	1.20
L3	0.60	0.80	1.00
ΦP1(上口)	3.30	3.50	3.70
ΦP2(下口)	2.99	3.19	3.39
Q	2.50	2.70	2.90
Θ1		5°	
Θ2		4°	
Θ3		10°	
Θ4		5°	
Θ5		5°	

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