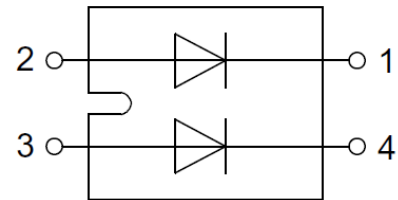


# 3<sup>rd</sup> Generation 1200V/100A SiC Schottky Barrier Diode

## Features

- Zero Reverse Recovery Current
- Ceramic Package Provides 2.5kV Isolation
- Positive temperature coefficient
- Temperature-independent performance
- High-speed switching
- Low switching loss
- Low heat dissipation requirements
- RoHS compliant



Package Type: SOT-227

## Potential Applications

- Solar inverter
- Uninterruptible Power Supply (UPS)
- Switched-mode power supplies
- Welding equipment
- High speed rectifier



## Description

The SLS120J100A SiC Schottky Barrier Diode (SBD) Module has been developed using Sanan’s advanced 3<sup>rd</sup> generation SiC SBD technology with the highest performance and reliability. It registers higher efficiency, higher operation temperature and lower loss and can be operated at higher frequency than Si-based solutions. As to the Schottky structure, it shows no recovery at turn-off and allows a low leakage current with reverse voltage up to 1200V. It can contribute to system miniaturization and achieve lightweight system design. Using RoHS compliant components, it is qualified for use in industrial application.

## Product Specifications

Device	V <sub>RRM</sub>	I <sub>F</sub> (110°C)	V <sub>F</sub> (25°C)	Q <sub>C</sub>	Marking
SLS120J100A	1200V	117A	1.40V	539nC	SLS120J100A

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**Table 1. Maximum Ratings**

(Tc = 25°C, unless otherwise specified)

Parameter	Symbol	Value	Unit	Test conditions
Repetitive peak reverse voltage	$V_{RRM}$	1200	V	$T_C = 25^\circ C$
Surge peak reverse voltage	$V_{RSM}$	1200		$T_C = 25^\circ C$
DC reverse voltage	$V_{DC}$	1200		$T_C = 25^\circ C$
Continuous forward current	$I_F$	195	A	$T_C = 25^\circ C$
		117		$T_C = 110^\circ C$
		100		$T_C = 128^\circ C$
Surge non-repetitive forward current	$I_{FSM}$	800	A	$T_C = 25^\circ C, t_p = 10ms,$ half sine pulse
Power dissipation	$P_{tot}$	535	W	$T_C = 25^\circ C$
$i^2t$ value	$\int i^2 dt$	3200	$A^2s$	$T_C = 25^\circ C, t_p = 10ms$
Virtual junction temperature	$T_{VJ}$	-40~175	$^\circ C$	
Operation temperature	$T_{OP}$	-40~150	$^\circ C$	
Storage temperature	$T_{stg}$	-40~150	$^\circ C$	
Mounting torque	M	1.1	Nm	M4 screw

**Table 2. Thermal Resistance**

Parameter	Symbol	Values			Unit	Test condition
		Min.	Typ.	Max.		
Thermal resistance from junction to case	$R_{th(j-c)}$	/	0.28	/	$^\circ C/W$	

**Table 3. Static Electrical Characteristics**

(T<sub>j</sub> = 25°C, unless otherwise specified)

Parameter	Symbol	Values			Unit	Test conditions
		Min.	Typ.	Max.		
DC blocking voltage	V <sub>DC</sub>	1200	/	/	V	I <sub>R</sub> = 200 μA
Forward voltage	V <sub>F</sub>	/	1.40	1.60	V	I <sub>F</sub> = 100A, T <sub>j</sub> = 25°C
		/	1.90	2.30		I <sub>F</sub> = 100A, T <sub>j</sub> = 175°C
Reverse current	I <sub>R</sub>	/	20	300	μA	V <sub>R</sub> = 1200V, T <sub>j</sub> = 25°C
		/	100	1600		V <sub>R</sub> = 1200V, T <sub>j</sub> = 175°C

**Table 4. Dynamic Electrical Characteristics**

(T<sub>j</sub> = 25°C, unless otherwise specified)

Parameter	Symbol	Values			Unit	Test conditions
		Min.	Typ.	Max.		
Total capacitance	C	/	7821	/	pF	V <sub>R</sub> = 0V, f = 1MHz
		/	503	/		V <sub>R</sub> = 400V, f = 1MHz
		/	375	/		V <sub>R</sub> = 800V, f = 1MHz
Total capacitive charge	Q <sub>C</sub>	/	539	/	nC	V <sub>R</sub> = 800V
Capacitance stored energy	E <sub>C</sub>	/	154	/	μJ	V <sub>R</sub> = 800V

### Electrical Characteristic Diagrams

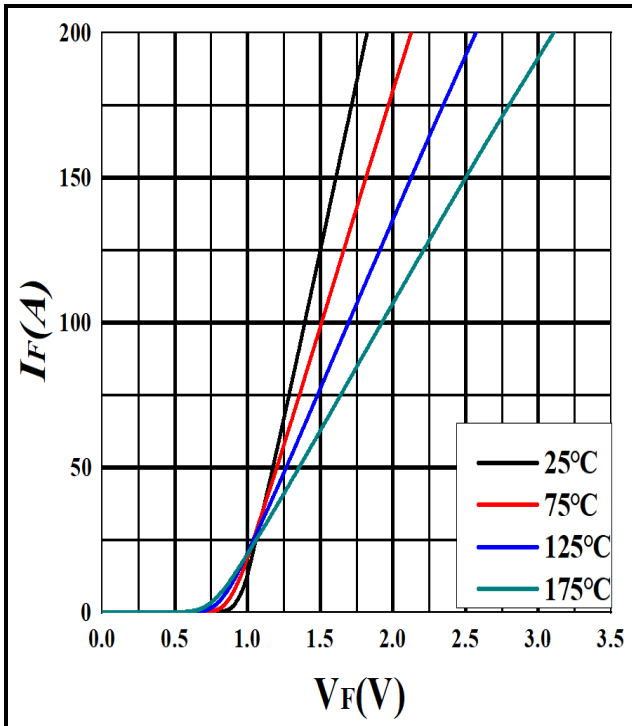


Figure 1. Forward characteristics

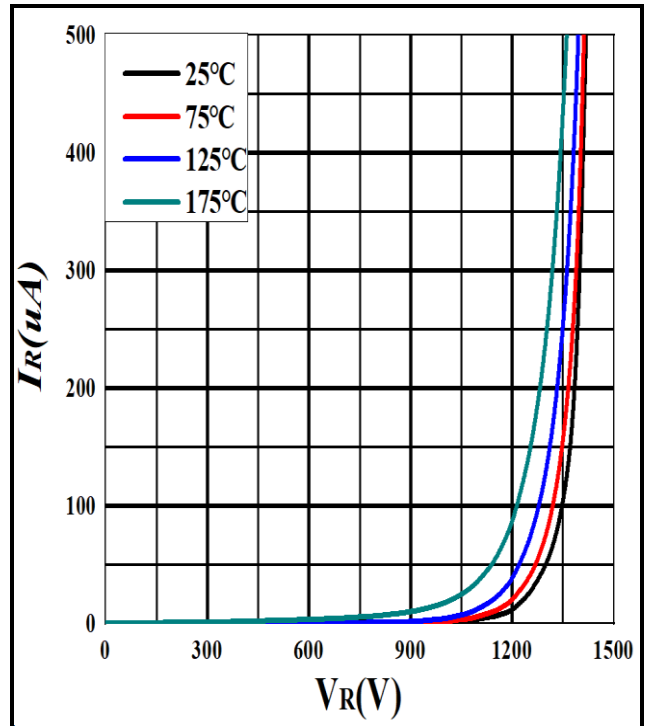


Figure 2. Reverse characteristics

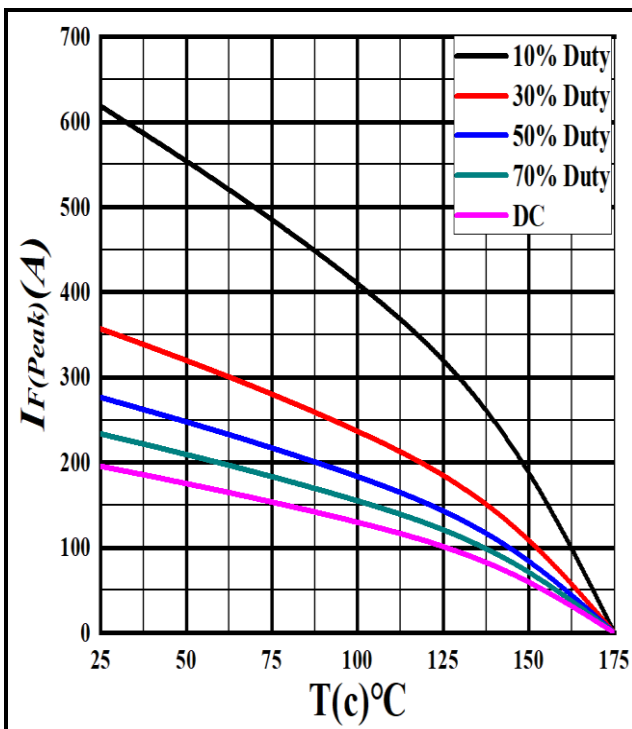


Figure 3. Current derating

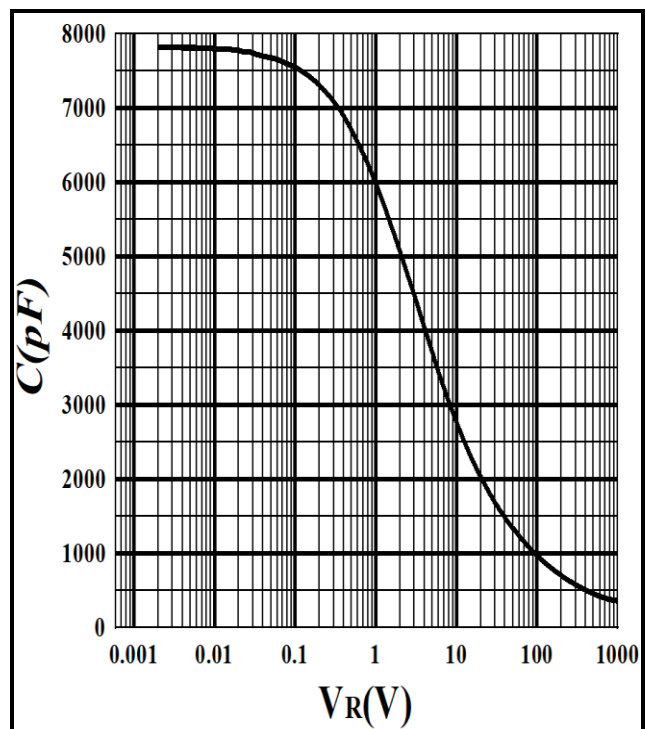


Figure 4. Capacitance vs. reverse voltage

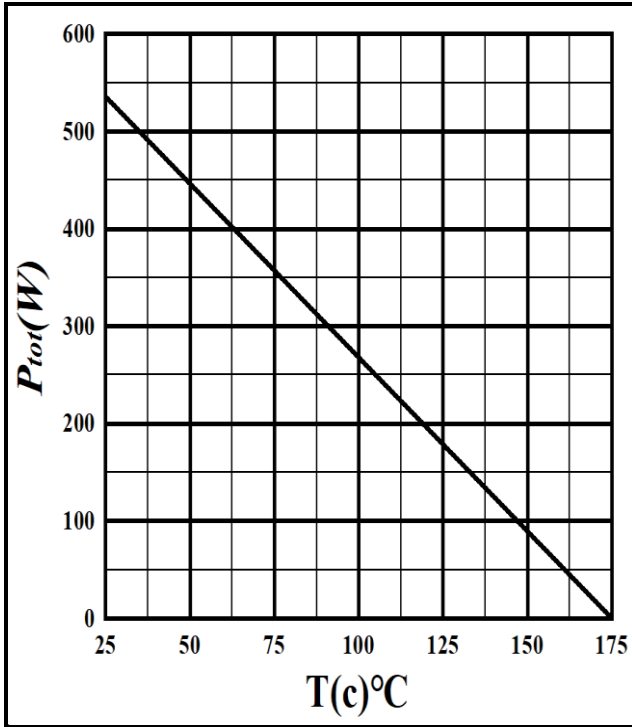


Figure 5. Power derating

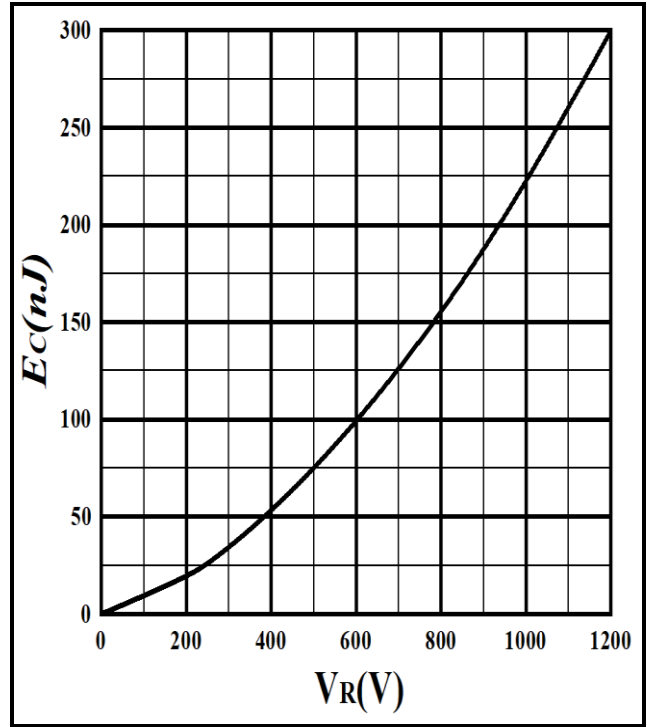


Figure 6. Capacitance stored energy

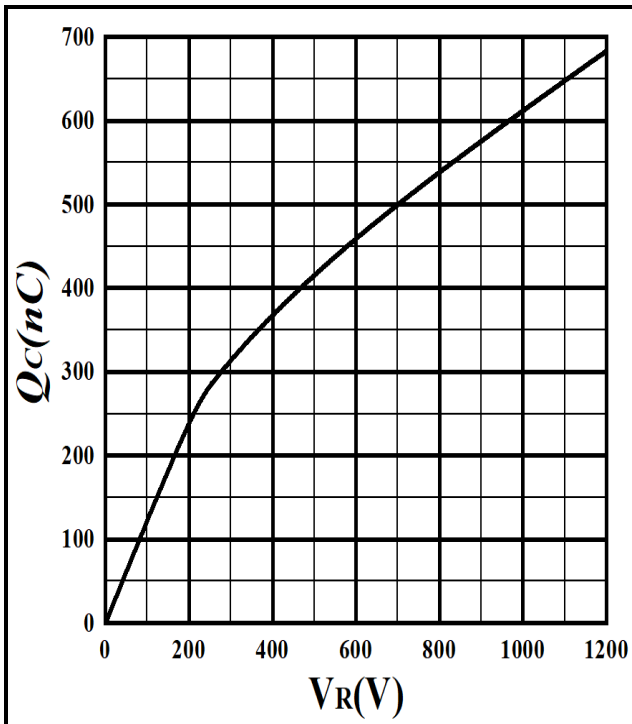
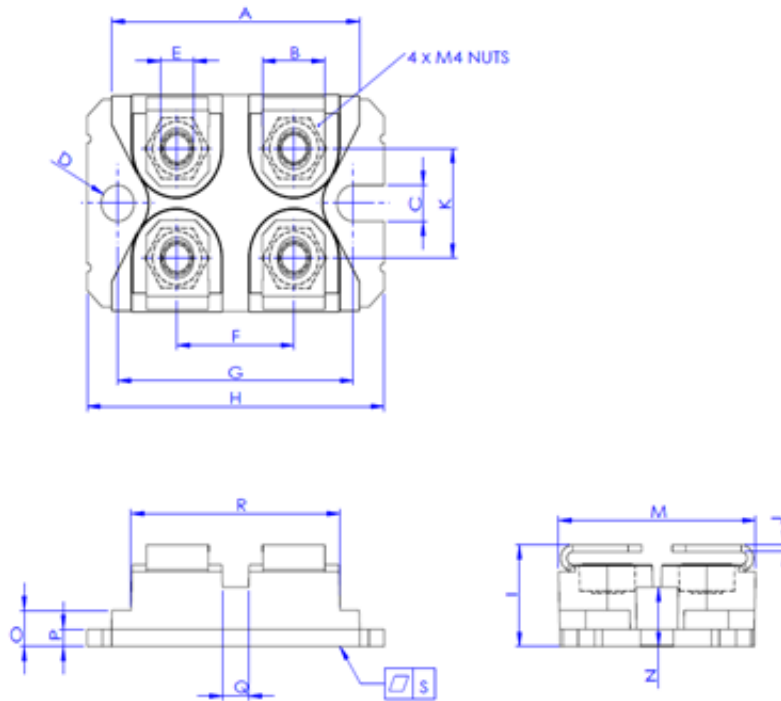


Figure 7. Total capacitance charge vs. reverse voltage

## Package Information



Dimension unit: [mm]			
Symbol	Min	Nom	Max
A	31.50	31.80	32.10
B	7.70	8.00	8.30
C	4.10	4.20	4.30
D	4.10	4.20	4.30
E	4.10	4.24	4.30
F	14.90	15.00	15.15
G	29.80	30.20	30.50
H	37.80	38.00	38.30
I	11.70	11.82	12.20
J	0.75	0.80	0.85
K	12.50	12.75	13.00
M	25.00	25.75	25.50
N	6.70	6.90	7.05
O	4.10	4.20	4.50
P	1.90	2.00	2.10
Q	3.20	3.36	3.60
R	26.60	26.78	27.00
S	-0.03	0.05	0.10

## Ordering Information

Part number	SLS120J100A-ISBTH
Package	SOT-227
Unit quantity	100EA
Packing type	Tube



## Important Notices – Read Carefully

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