

SiC JBS Diode

Datasheet

ATN-CNM-1200D1



Features

The CNM & ALTER Silicon Carbide (SiC) Junction Barrier Schottky diodes exhibit low forward voltage and superb high temperature performance. These diodes are suitable for high-frequency and / or hard switching power space applications. The radiation tolerance, both for protons and gamma, of these diodes has been proved.

Electrical Characteristics

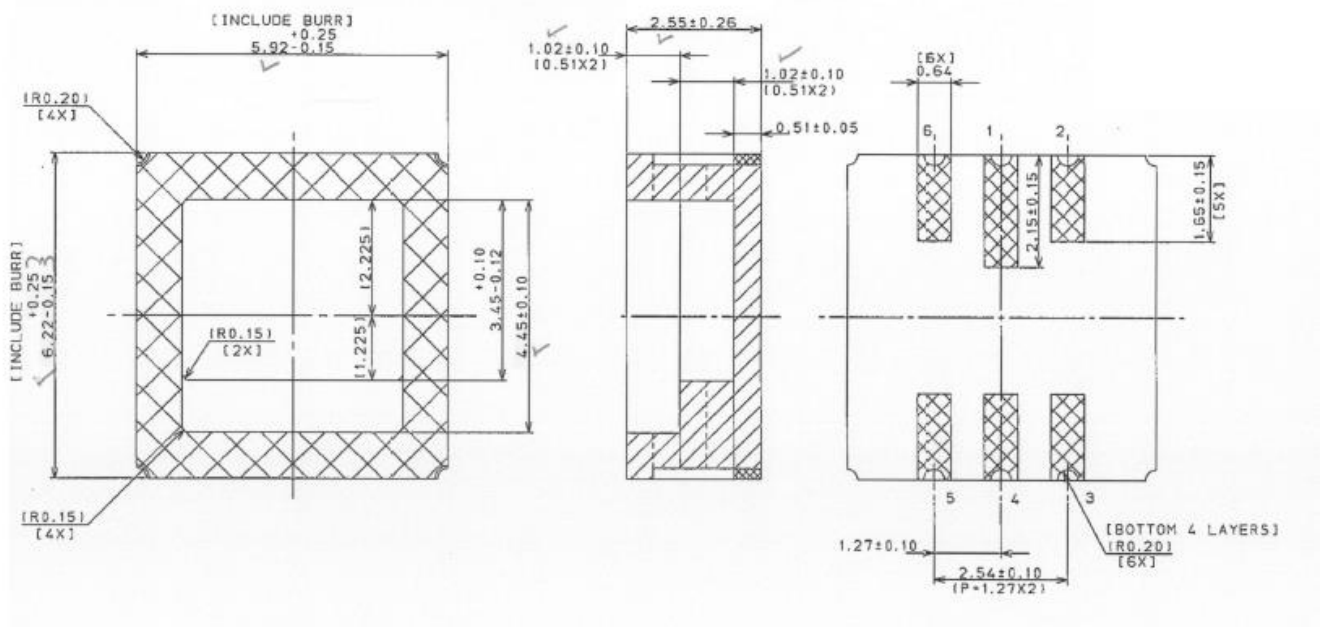
The main characteristics are summarized in the following table:

Characteristics	Symbols	Maximum Ratings	Unit	Remarks
Forward Current	I_F	2.0	A	Note 1
Reverse Voltage	V_R	1300	V	Note 2
Forward Surge Current	I_{FSM}	100	A	Note 3
Repetitive Forward Surge Current	I_{RFSM}	30	A	Note 4
Operating Temperature Range (case temperature)	T_{op}	-55 to +130	°C	
Junction Temperature	$T_{j(max)}$	+200	°C	
Storage Temperature Range	T_{stg}	-55 to +200	°C	
Thermal Resistance, Junction to Air	$R_{th(j-c)}$	85	°C/W	Note 5

NOTES:

1. Continuous constant current over full operating temperature range
2. Continuous constant bias over full operating temperature range. Devices have demonstrated withstanding increased reverse voltage up to 1500V at room temperature.
3. Single square 10us pulse
4. Square pulses, $T_{pulse}=50us$, 0.5% duty cycle, $T_{case}=150°C$
5. Measured with $40 \times 40 \times 40 \text{ cm}^3$ air volume (no convection), copper dissipation pads of 1 cm^2 and 70um thickness. $T_H = 1000s$.

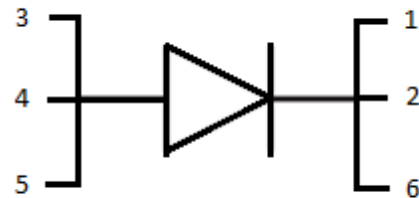
Package: Custom LCC2



All dimensions in mm

Pinout:

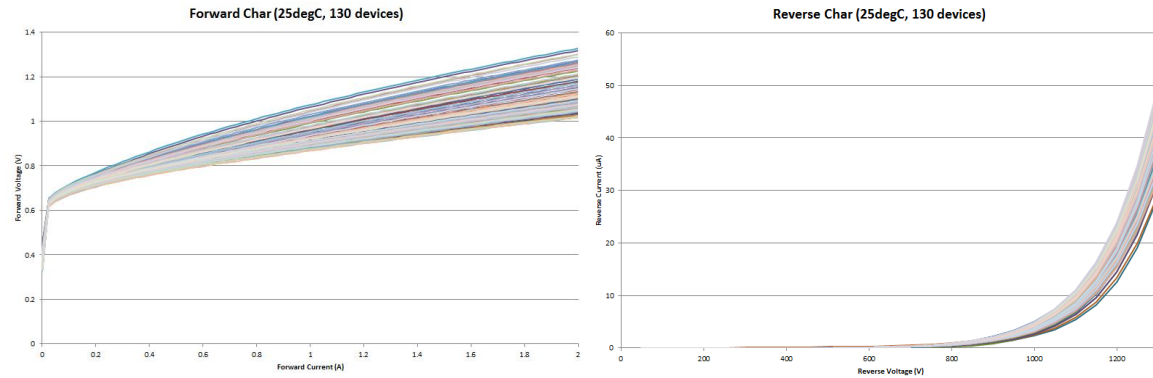
Pin 1	Cathode
Pin 2	Cathode
Pin 3	Anode
Pin 4	Anode
Pin 5	Anode
Pin 6	Cathode



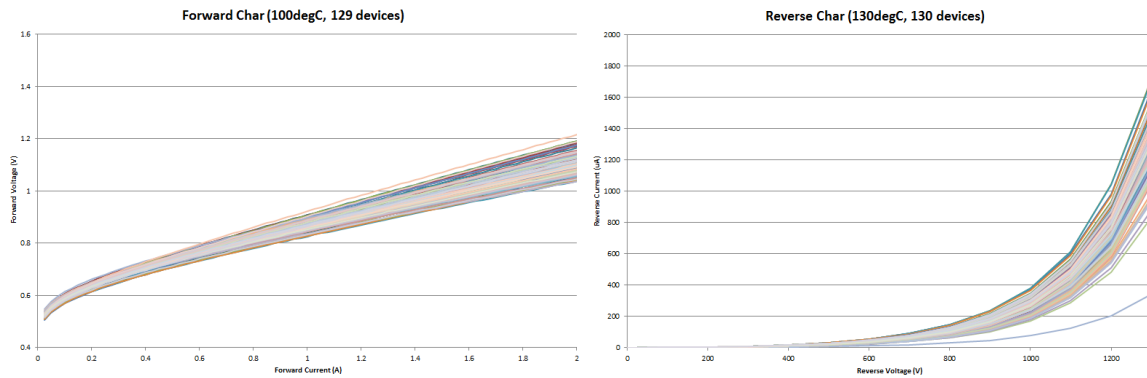
Typical Electrical Characteristics

I-V characteristics at different temperatures (typical):

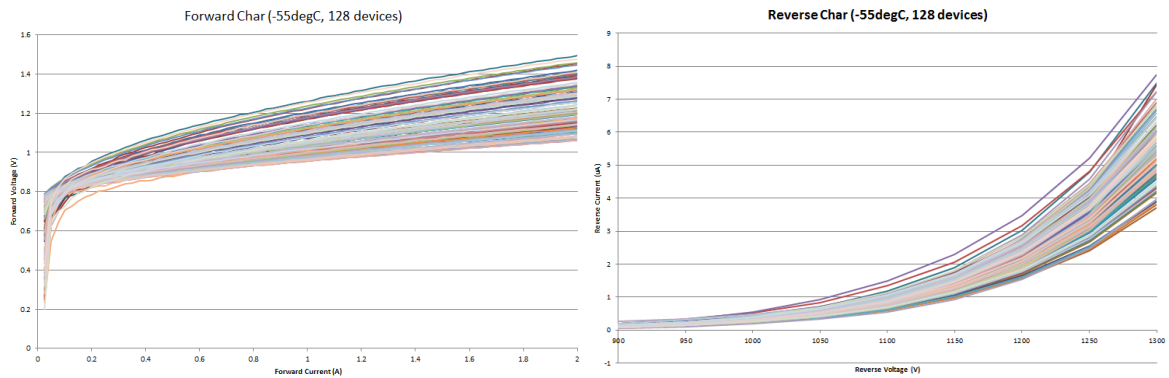
Room Temperature:



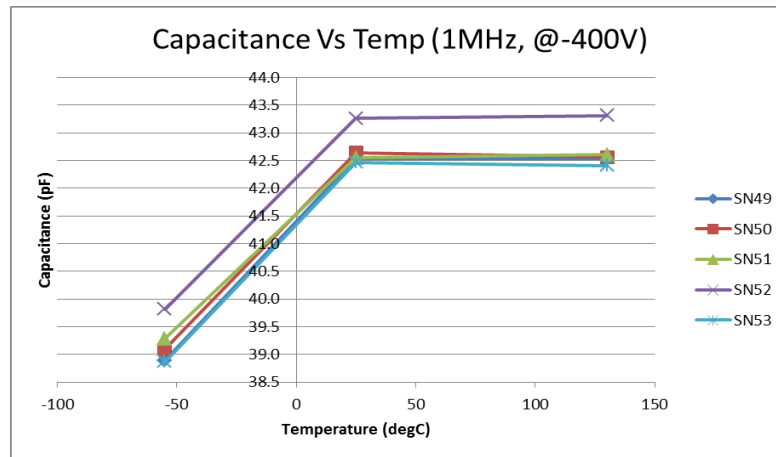
High Temperature:



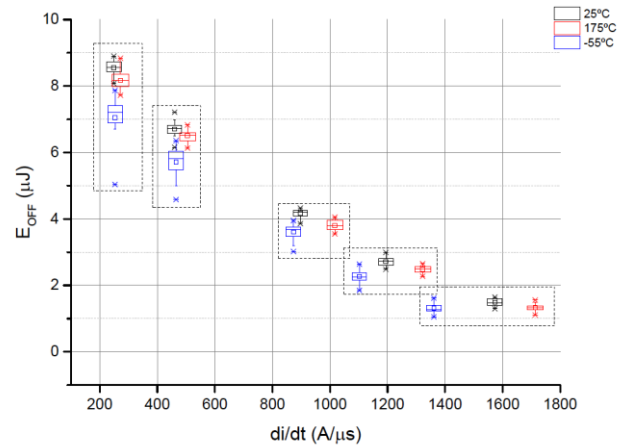
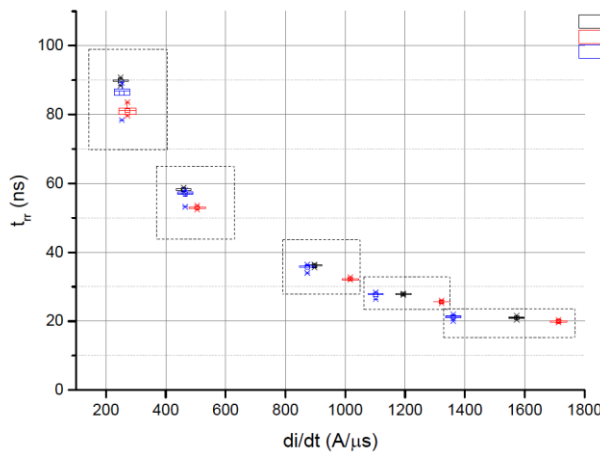
Low Temperature:



Capacitance Vs Temperature:



Switching behaviour:



Reliability Tests

TEST	CONDITIONS	REMARKS
Temperature Step Stress	Up to 200°C for 168 hours	No failures
Endurance	1000 hours, 2.0A, 50°C	No failures
	500 hours, 2.0A, 75°C	No failures
	168 hours, 2.0A, 100°C	No failures
	1080 hours HTRB, 1020VR, 100°C	No failures
The Power Cycle Test	Tc(min)=110°C, ΔTc= 40°C, Ifwd= 4A, ton = 5s , toff = 30s, 2000 cycles	No failures

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