NC1D120C20KT

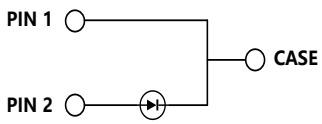
NovuSiC® 1200V 20A SiC EJBS™ SiC Schottky Diode

V_{RRM}	=	1200V
$I_F(T_c=152°C)$	=	20A
$T_{j,max}$	=	175°C

Features

- Zero reverse recovery current / forward recovery voltage
- Low forward voltage (V_F) drop with positive temperature coefficient
- Temperature-Independent switching Behavior

Package



Inner circuit

Applications

- PV Inverters
- Charging Piles
- Energy storage systems
- Industrial power supply
- Industrial Motors
- Automotive electronics

Marking

C1D120C20K	C1D120C20K	=	Specific device
T	T	=	Year
	YY	=	Work week
YYWW	WW	=	Wafer code
	XXX	=	Assembly
XXXB	B		location

Maximum Ratings @Tc=25°C (unless otherwise specified)

Parameter	Symbol	Test Conditions	Values	Unit
Repetitive Peak Reverse Voltage	V_{RRM}		1200	V
DC Peak Reverse Voltage	V_R		1200	V
Continuous Forward Current	I_F	T_C=25°C	60	A
		T_C=135°C	28	
		T_C=152°C	20	
Repetitive Peak Forward Surge Current	I_{FRM}	T_C=25°C, t_p=10ms, half sine wave, 0.1Hz	200	A
Non-Repetitive Forward Surge Current	I_{FSM}	T_C=25°C, t_p=10ms, half sine wave	220	A
Power Dissipation	P_{tot}	T_C=25°C	242	W
		T_C=110°C	105	
i^2t Value	$\int i^2dt$	T_C=25°C, t_p=10ms	242	A^2s
Operating Junction Range	T_j		-55 to +175	°C
Storage Temperature Range	T_{stg}		-55 to +175	°C

Electrical Characteristics @Tc=25°C (unless otherwise specified)

Parameter	Symbol	Conditions	Values			Unit
			min.	typ.	max.	
Forward Voltage	V_F	I_F=20A, T_j=25°C	-	1.37	1.6	V
		I_F=20A, T_j=175°C	-	1.90	2.5	
Reverse Current	I_R	V_R=1200V, T_j=25°C	-	5	50	μA
		V_R=1200V, T_j=175°C	-	30	200	
Total Capacitance	C	V_R=0V, f=1MHz	-	1371	-	pF
		V_R=400V, f=1MHz	-	104	-	
		V_R=800V, f=1MHz	-	79	-	
Total Capacitive Charge	Q_c	V_R=800V, T_j=25°C	-	110	-	nC
Capacitance Stored Energy	E_c	V_R=800V	-	28	-	μJ

Thermal Characteristics

Parameter	Symbol	Typ.	Unit
Thermal Resistance from Junction to Case	$R_{\theta JC}$	0.62	°C/W

Typical Performance

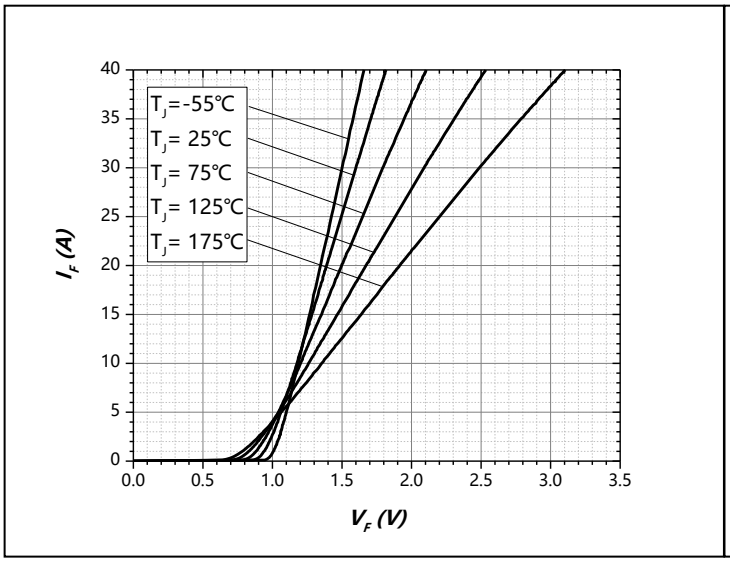


Figure 1. Forward Characteristics

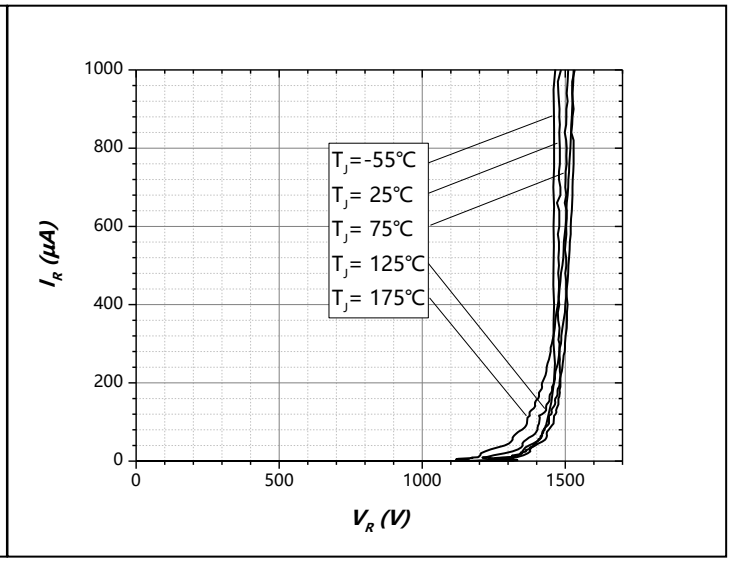


Figure 2. Reverse Characteristics

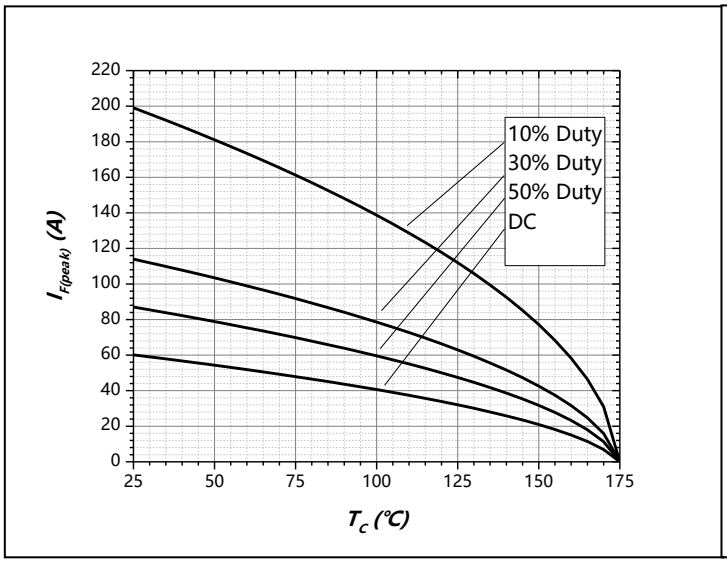


Figure 3. Current Derating

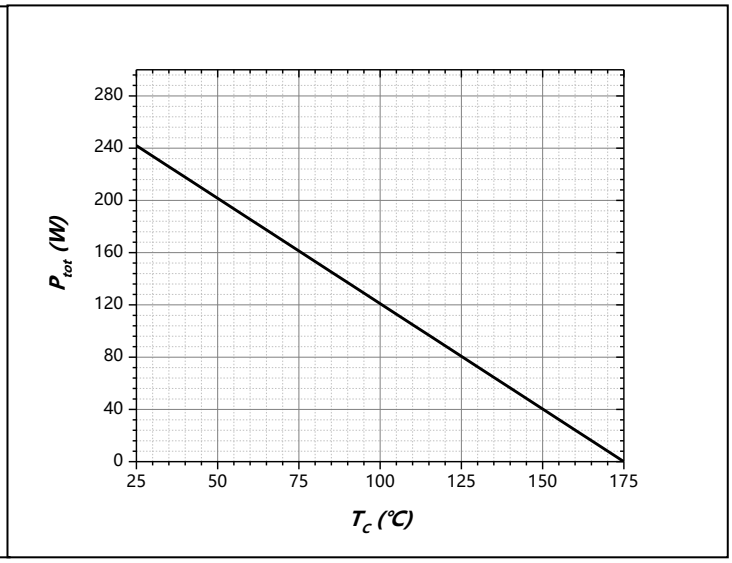


Figure 4. Power Derating

Typical Performance

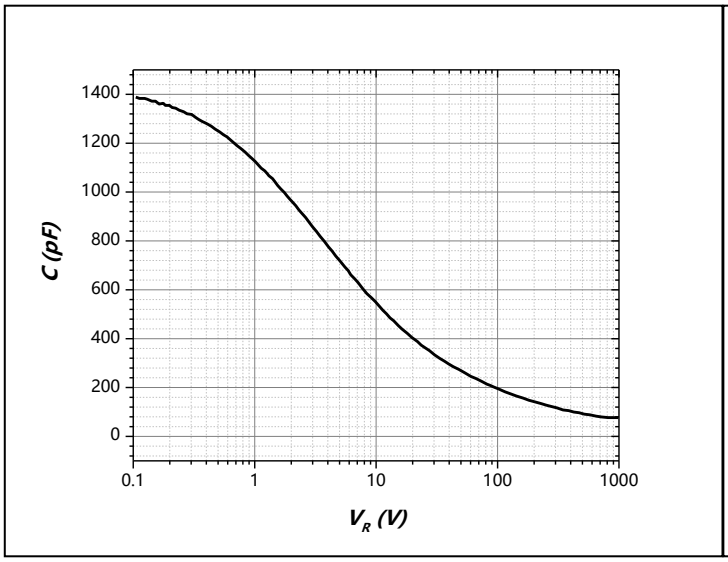


Figure 5. Capacitance vs. Reverse Voltage

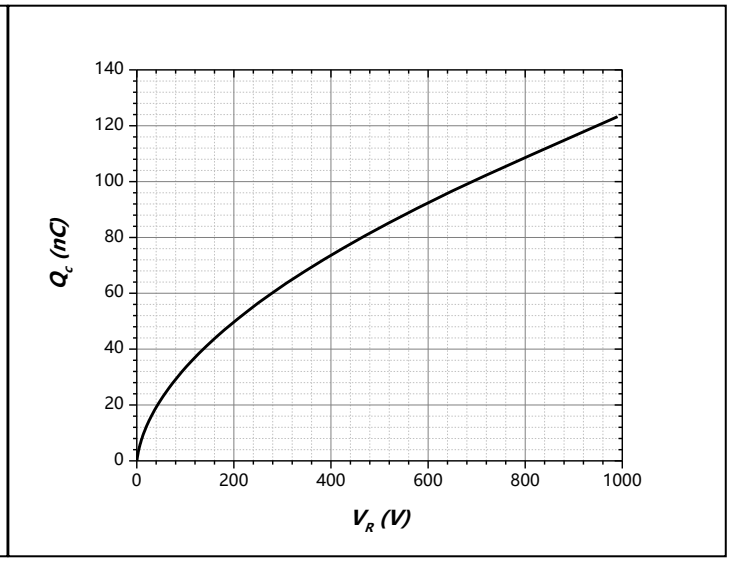


Figure 6. Total Capacitance Charge vs. Reverse Voltage

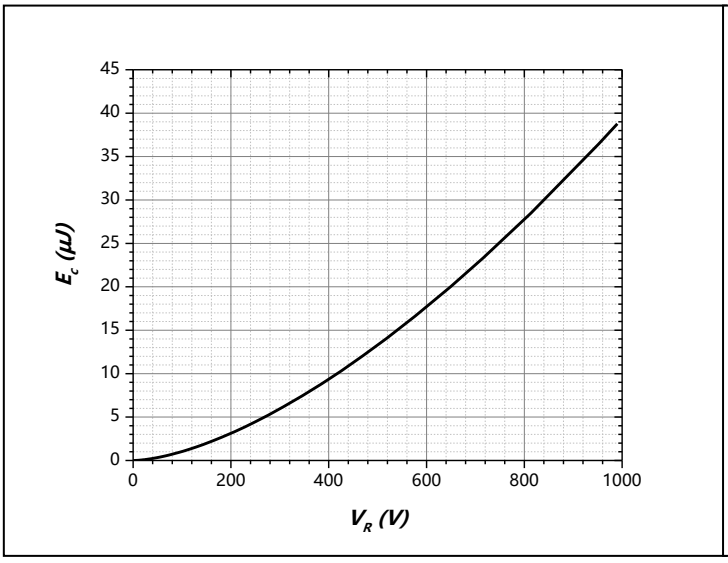


Figure 7. Capacitance Stored Energy

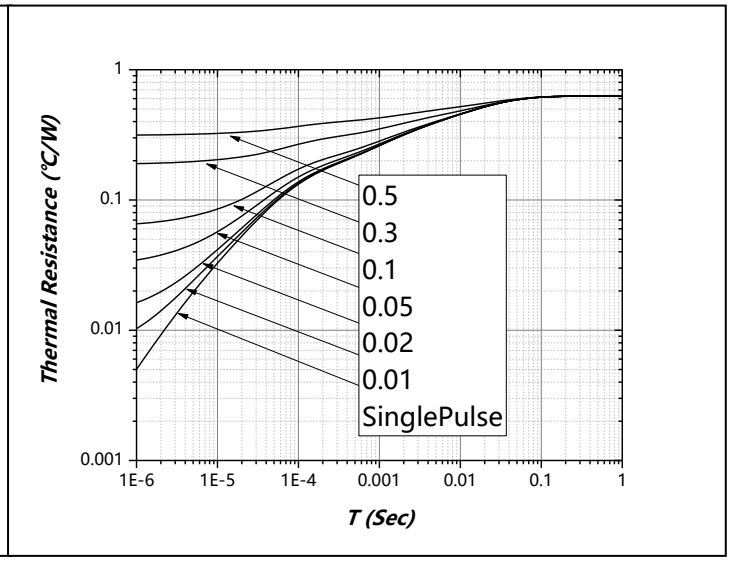
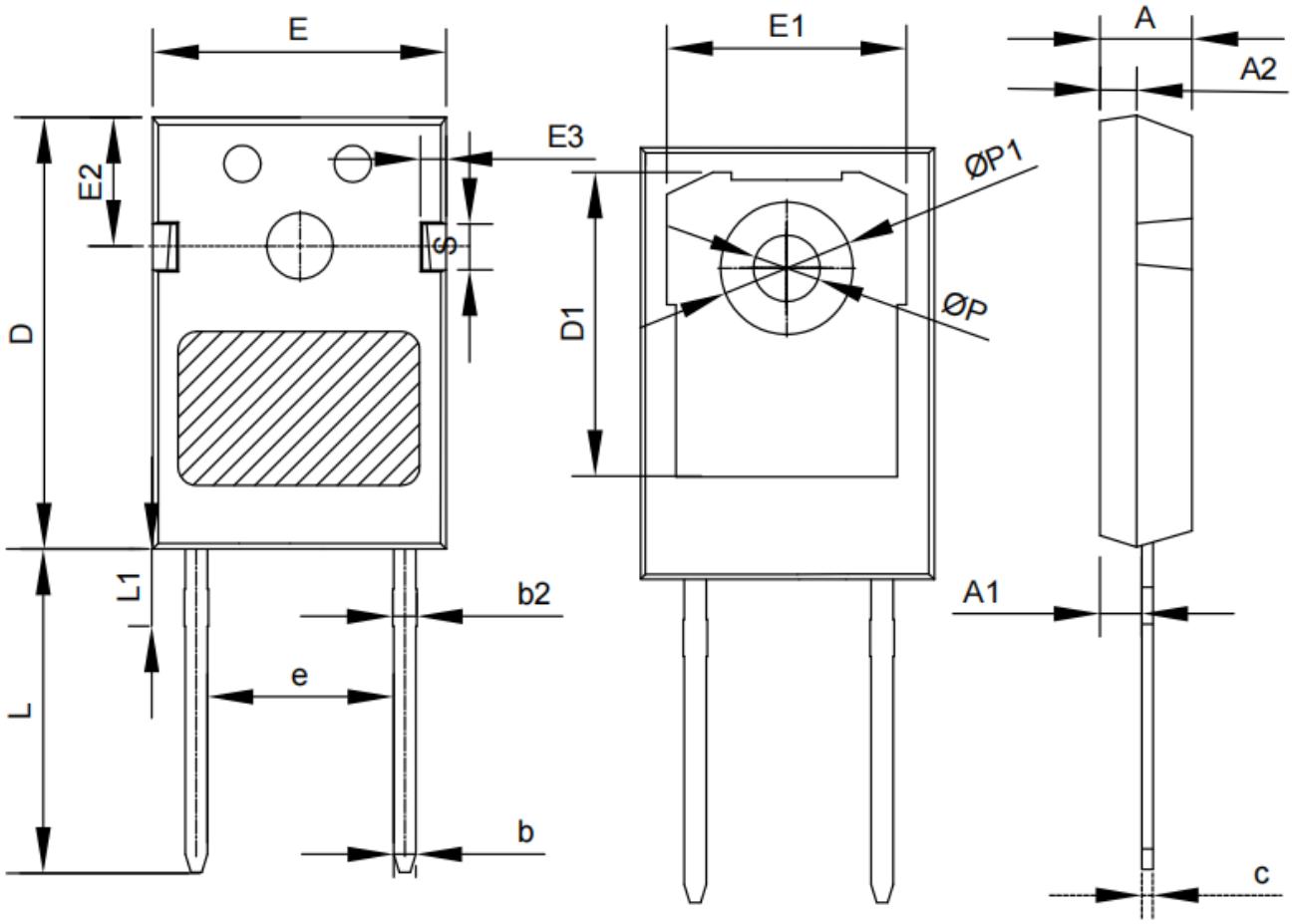


Figure 8. Transient Thermal Impedance

Package Outline: TO-247-2



SYMBOL	MILIMETERS		
	MIN	NOM	MAX
A	4.80	5.00	5.20
A1	2.21	2.41	2.61
A2	1.85	2.00	2.15
b	1.11	1.21	1.36
b2	1.91	2.01	2.21
c	0.51	0.61	0.75
D	20.70	21.00	21.20
D1	16.25	16.55	16.85
E	15.50	15.80	16.10
E1	13.00	13.30	13.60
E2	4.08	5.00	5.20
E3	2.30	2.50	2.70
e	10.88 BSC		
L	19.62	19.92	20.22
L1	-	-	4.30
S	6.15 BSC		
ØP	3.40	3.60	3.80
ØP1	-	-	7.30

NOTE:
1. ALL DIMENSIONS ARE LISTED IN MILLIMETERS, ANGLES ARE IN DEGREES.
2. ALL METAL SURFACES ARE TIN PLATED (MATTE), EXCEPT AREA OF CUT.

Product Ordering Information

Order Number	Packing Type
NC1D120C20KT	Tube

Revision History

Revision	Date	Subjects (major changes since last revision)
1.0	06 Mar. 2023	Official first release

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