

# NC1D120C10AT

## NovuSiC® 1200V 10A SiC EJBST™

### SiC Schottky Diode

$V_{RRM}$	= 1200V
$I_F(T_C=160^{\circ}\text{C})$	= 10A
$T_{j,max}$	= 175°C

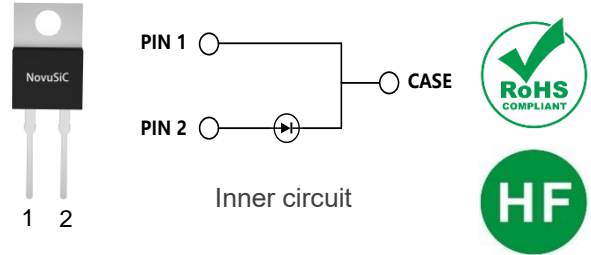
#### Features

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

#### Applications

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

#### Package



#### Marking

C1D120C10A	C1D120C10A	=	Specific device
T	T	=	Year
YYWW	YY	=	Work week
XXXB	WW	=	Wafer code
	XXX	=	Assembly location
	B	=	

#### 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	$I_F$	$T_C=25^{\circ}\text{C}$	39	A
		$T_C=135^{\circ}\text{C}$	19	
		$T_C=160^{\circ}\text{C}$	10	
Repetitive Peak Forward Surge Current	$I_{FRM}$	$T_C=25^{\circ}\text{C}$ , $t_p=10\text{ms}$ , half sine wave, 0.1Hz	100	A
Non-Repetitive Forward Surge Current	$I_{FSM}$	$T_C=25^{\circ}\text{C}$ , $t_p=10\text{ms}$ , half sine wave	118	A
Power Dissipation	$P_{tot}$	$T_C=25^{\circ}\text{C}$	208	W
		$T_C=110^{\circ}\text{C}$	90	
$i^2t$ Value	$\int i^2 dt$	$T_C=25^{\circ}\text{C}$ , $t_p=10\text{ms}$	70	A <sup>2</sup> s
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	$V_F$	$I_F=10A, T_j=25^{\circ}C$	-	1.39	1.6	V
		$I_F=10A, T_j=175^{\circ}C$	-	1.97	2.5	
Reverse Current	$I_R$	$V_R=1200V, T_j=25^{\circ}C$	-	3	35	$\mu A$
		$V_R=1200V, T_j=175^{\circ}C$	-	20	200	
Total Capacitance	C	$V_R=0.1V, f=1MHz$	-	670	-	pF
		$V_R=400V, f=1MHz$	-	53	-	
		$V_R=800V, f=1MHz$	-	43	-	
Total Capacitive Charge	$Q_c$	$V_R=800V, T_j=25^{\circ}C$	-	55	-	nC
Capacitance Stored Energy	$E_c$	$V_R=800V$	-	14	-	$\mu J$

## Thermal Characteristics

Parameter	Symbol	Typ.	Unit
Thermal Resistance from Junction to Case	$R_{\theta JC}$	0.72	$^{\circ}C/W$



## Typical Performance

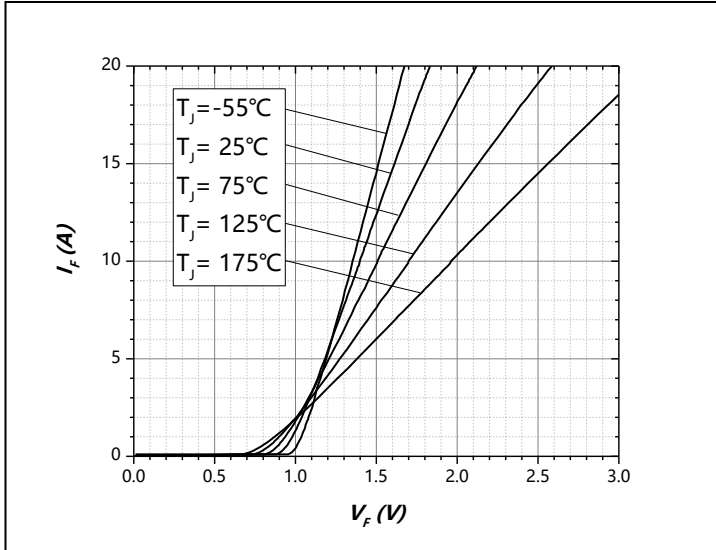


Figure 1. Forward Characteristics

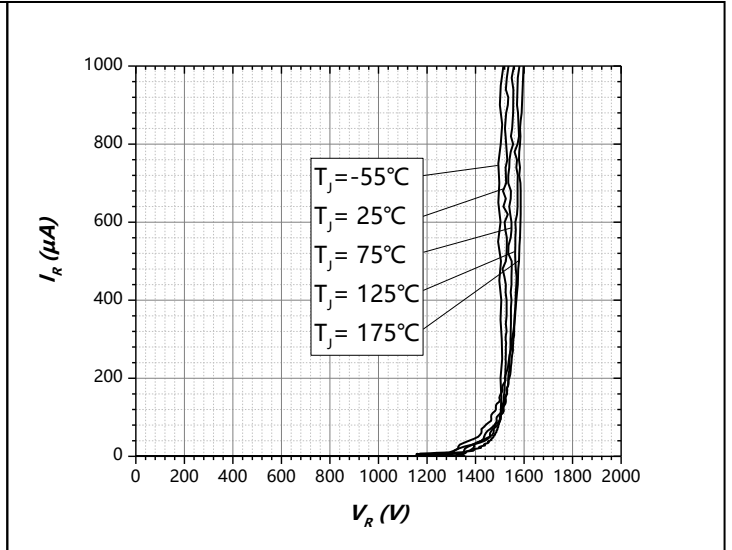


Figure 2. Reverse Characteristics

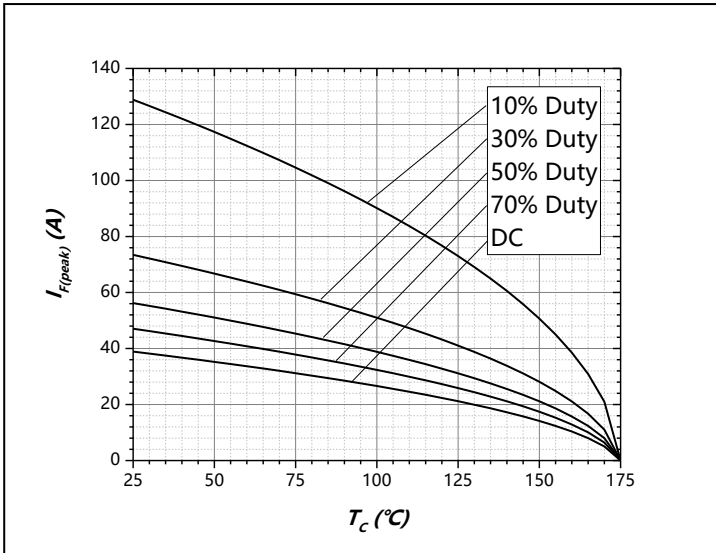


Figure 3. Current Derating

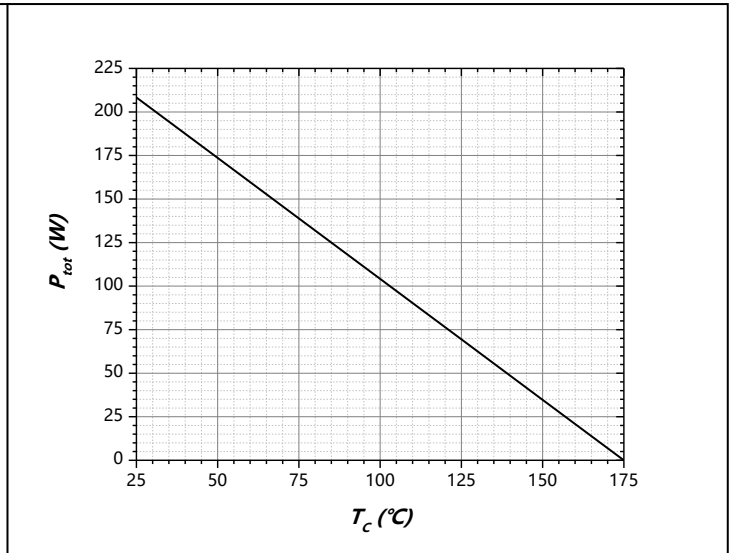


Figure 4. Power Derating



Typical Performance

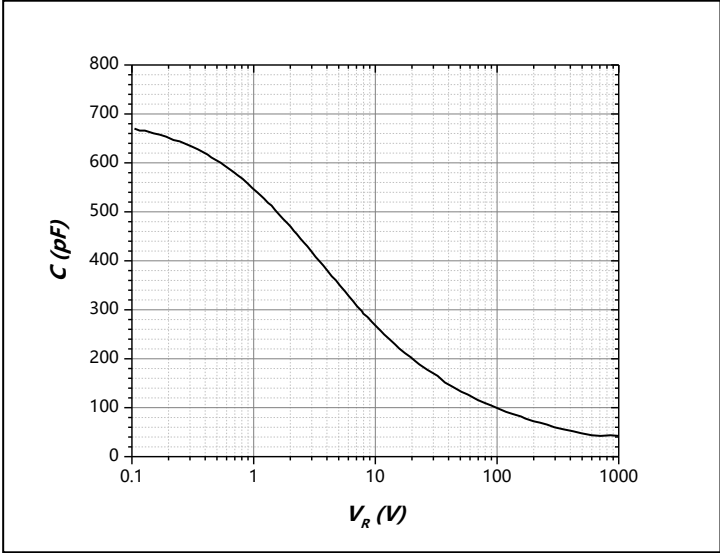


Figure 5. Capacitance vs. Reverse Voltage

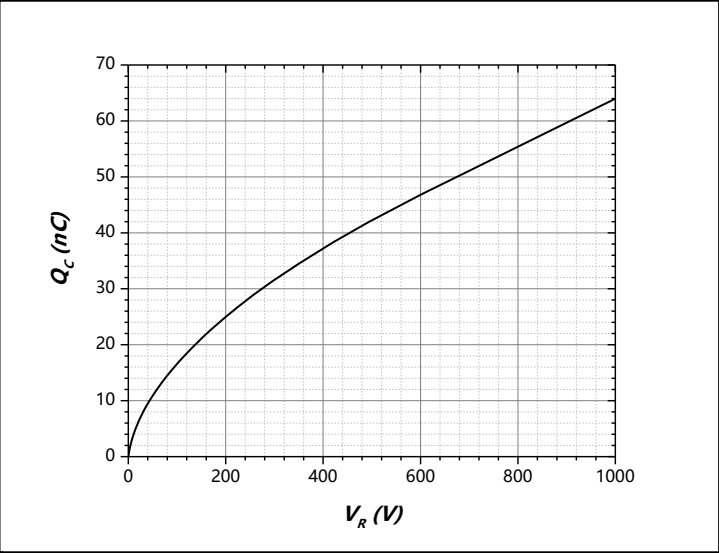


Figure 6. Total Capacitance Charge vs. Reverse Voltage

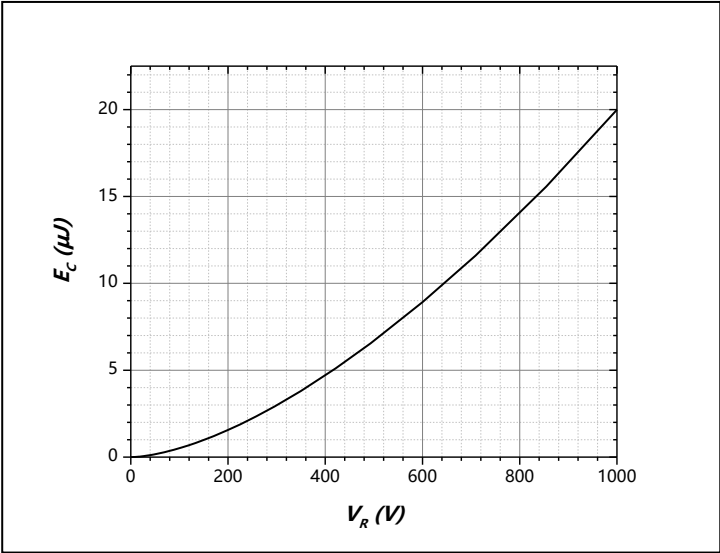


Figure 7. Capacitance Stored Energy

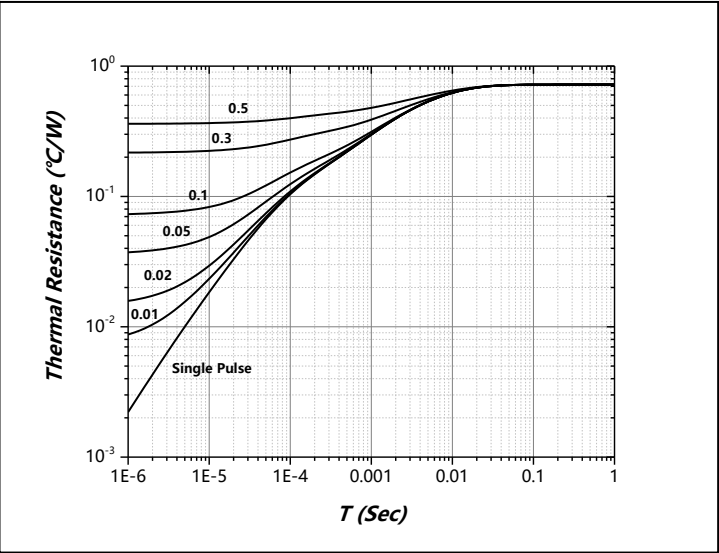
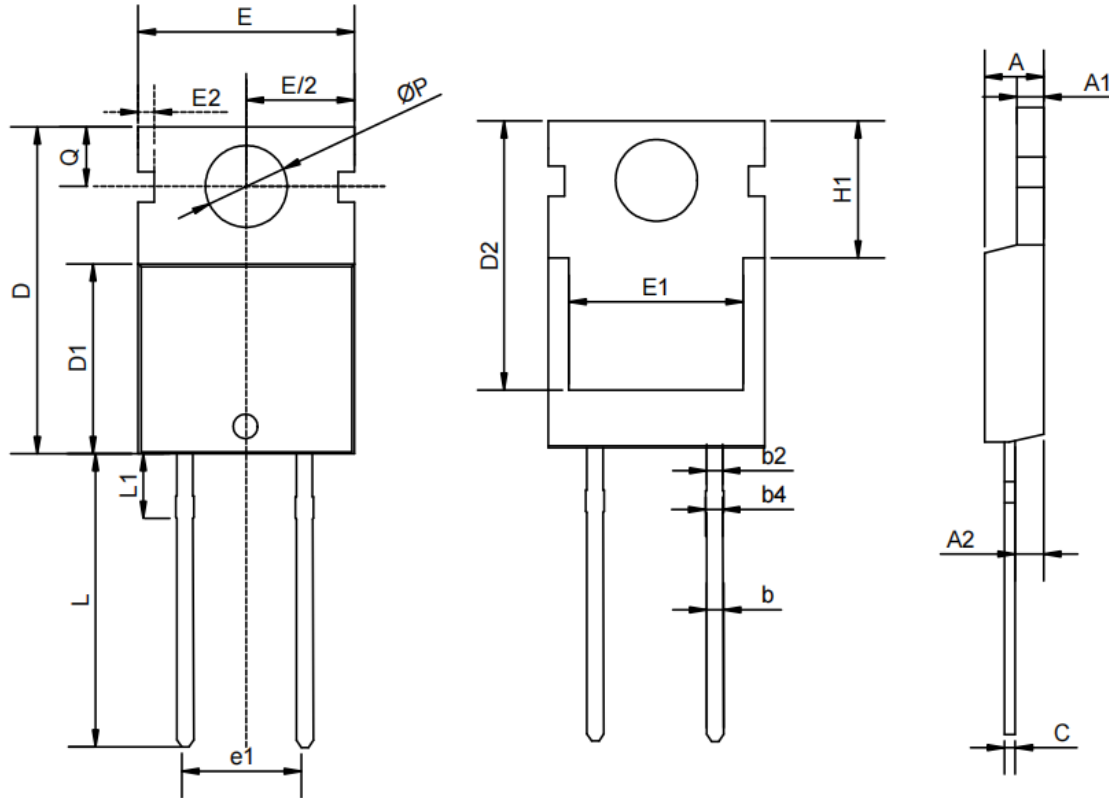


Figure 8. Transient Thermal Impedance



## Package Outline: TO-220-2L



SYMBOL	MILIMETERS		
	MIN	NOM	MAX
A	4.24	4.44	4.64
A1	1.17	1.27	1.37
A2	2.30	2.48	2.70
b	0.70	0.80	0.90
b2	1.25	1.45	1.65
b4	1.25	1.55	1.75
c	0.40	0.50	0.60
D	14.87	15.37	15.87
D1	8.82	8.92	9.02
D2	12.43	12.73	12.83
E	9.96	10.16	10.36
E1	6.86	7.77	8.89
E2	-	-	0.76
e1	5.08 BSC		
H1	6.30	6.45	6.60
L	13.47	13.72	13.97
L1	3.60	3.80	4.00
ØP	3.75	3.84	3.93
Q	2.6	2.8	3.00

### 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
NC1D120C10AT	Tube

## Revision History

Revision	Date	Subjects (major changes since last revision)
1.0	29 Mar. 2023	Official first release

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