



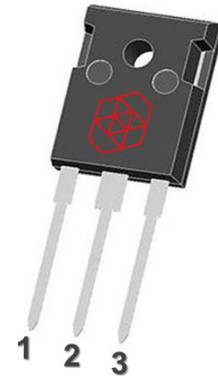
# XD1220T4

## 1200V 20A SiC Schottky Barrier Diode

### Features

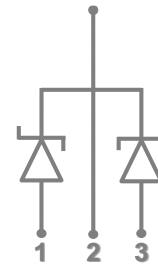
$V_{CE}$	$I_F$ 135°C	$I_F$ 155°C
1200V	26A	20A

- No reverse recovery
- High speed switching
- Low switching losses
- Low heatsink requirement
- Positive temperature coefficient



### Applications

- Switching Power Supplies
- Power Factor Corrections
- Motor Drives
- Charging pile



### Description

- These devices are 1200 SiC Schottky Barrier Diodes (SBD) with zero reverse recovery that allows systems to operate at higher switching frequencies. Lower heat dissipation requirements and higher system efficiency can be achieved in this TO-247-3L package. Two pins are in parallel to deliver 20A continuous current at 155°C.

Type	Package	Qty
XD1220T4	TO-247-3L	300

# XD1220T4

## 1200V SiC SBD

### Device Characteristics

Static Parameters				Test data			
	Sym.	Parameters	Conditions	Min	Typical	Max	Unit
1	V <sub>DC</sub>	DC Blocking Voltage	I <sub>R</sub> =100 μA	1200	/	/	V
2	V <sub>F</sub>	Forward Voltage	I <sub>F</sub> =10A, T <sub>j</sub> =25°C	/	1.5	1.8	V
			I <sub>F</sub> =10A, T <sub>j</sub> =175°C	/	2.2	2.7	
3	I <sub>R</sub>	Reverse Current	V <sub>R</sub> =1200V, T <sub>j</sub> =25°C	/	5	30	μA
			V <sub>R</sub> =1200V, T <sub>j</sub> =175°C	/	30	200	
4	C	Total Capacitance	V <sub>R</sub> =0V, f=1MHz	/	700	/	pF
			V <sub>R</sub> =400V, f=1MHz	/	48.7	/	
			V <sub>R</sub> =800V, f=1MHz	/	36.7	/	
5	Q <sub>C</sub>	Total capacitive charge	V <sub>R</sub> =800V	/	51.4.	/	nC
6	E <sub>C</sub>	Capacitance Stored Energy	V <sub>R</sub> =800V	/	15	/	μJ
Thermal Parameters				Test data			
	Sym.	Parameters	Conditions	Min	Typical	Max	Unit
1	R <sub>th(j-c)</sub>	Thermal resistance	Per device or per leg	/	1.2*/0.6**	/	°C/w

\*\* Per device \* Per leg

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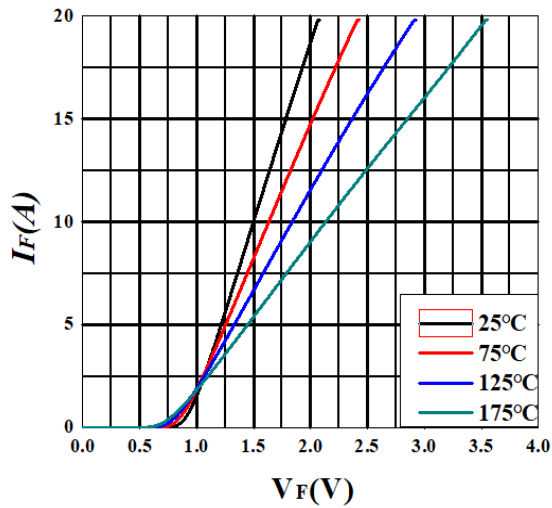
## Absolute Max. Ratings

	Symbols	Parameters	Test Conditions	Value	Unit
1	$V_{RR-max}$	Reverse Voltage (Repetitive Peak)	$T_C = 25^\circ C$	1200	V
2	$V_{RS-max}$	Reverse Voltage (Surge Peak)	$T_C = 25^\circ C$	1200	V
3	$V_{dc-max}$	Reverse Voltage (DC)	$T_C = 25^\circ C$	1200	A
4	$I_{F-max}$	Continuous Forward Current (per device)	$T_C = 25^\circ C$	29/58	A
			$T_C = 135^\circ C$	13/26	
			$T_C = 155^\circ C$	10/20	
5	$I_{FS-max}$	Non-repetitive Forward Current (Surge)	$T_C = 25^\circ C$ $t_p = 10ms$ Half Sine Pulse	95*	A
6	$P_{total-max}$	Total Power Dissipation	$T_C = 25^\circ C$	125*	W
7	$\int i^2 dt-max$	$i^2t$ value	$T_C = 25^\circ C$ $t_p = 10ms$	45*	A <sup>2</sup> s
8	$T_o-max$	Operation Temperature	/	-55 to 175	°C
9	$T_s-storage$	Storage temperature	/	-55 to 175	°C
10	M	Mounting Torque	M3 Screw	1	Nm

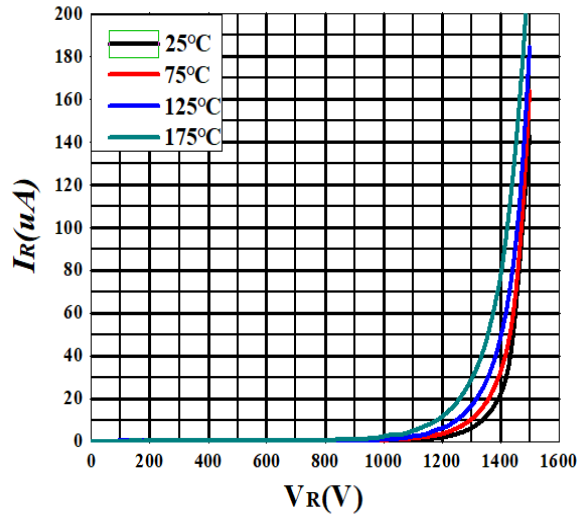
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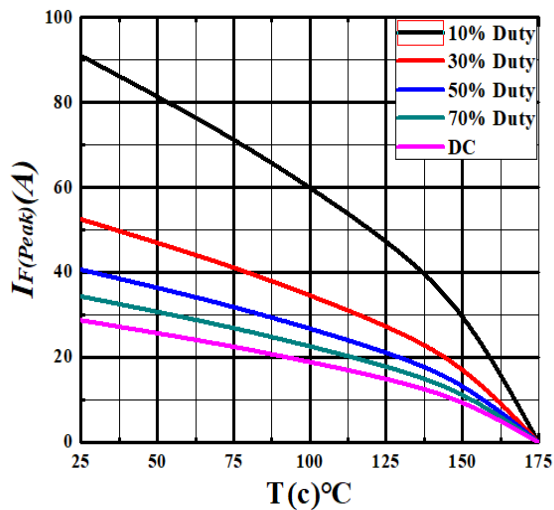
### Electrical Performance



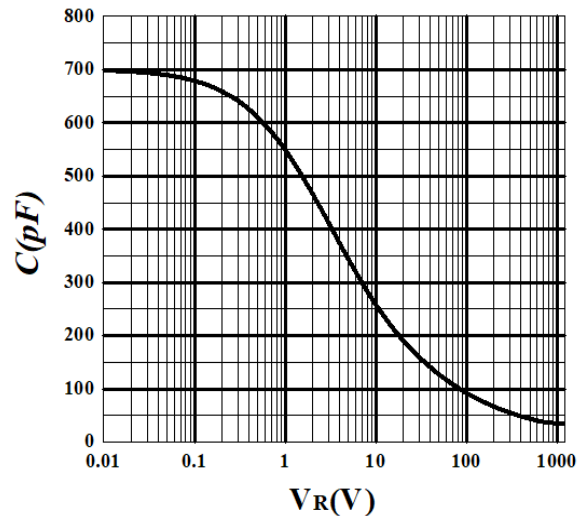
Forward Characteristics



Reverse Characteristics



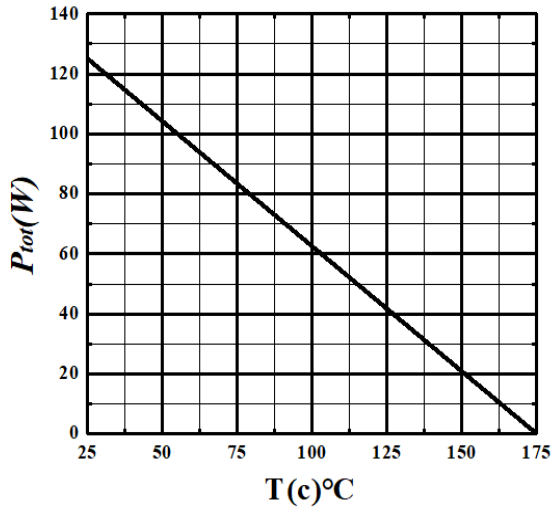
Current Derating



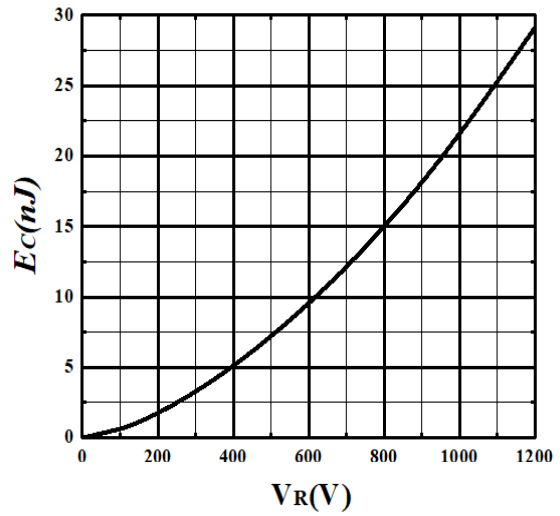
Capacitance vs.  $V_R$

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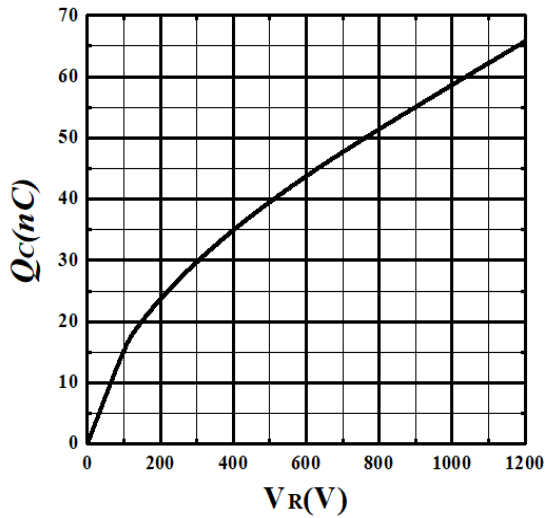
## 1200V SiC SBD



Power Derating



Capacitance Stored Energy

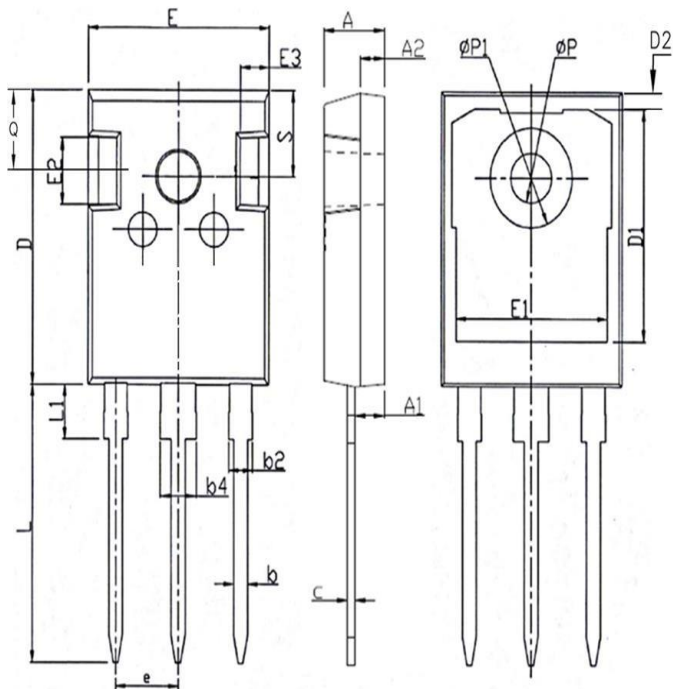


Total Capacitance Charge vs. V<sub>R</sub>

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### Package Information



SYMBOL	mm		
	MIN	NOM	MAX
A	4.8	5	5.2
A1	2.21	2.41	2.61
A2	1.85	2	2.15
b	1.11	1.21	1.36
b2	1.91	2.01	2.21
b4	2.91	3.01	3.21
c	0.51	0.6	0.75
D	20.7	21	21.3
D1	16.25	16.55	16.85
D2	1	1.2	1.35
E	15.5	15.8	16.1
E1	13	13.3	13.6
E2	4.8	5	5.2
E3	2.3	2.5	2.7
e	5.44 BSC		
L	19.62	19.92	20.22
L1	-	-	4.3
$\varnothing P$	3.4	3.6	3.8
$\varnothing P1$	-	-	7.3
Q	5.4	5.8	6.2
S	6.20 BSC		

**XD1220T4**  
1200V SiC SBD

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Revision History

## Revision History

Document revision	Date	Description of changes
2.0	2023.10.11	Target datasheet

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