



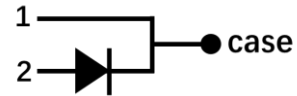
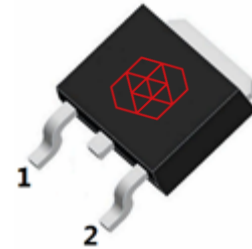
XD6506D

650V 4A SiC Schottky Barrier Diode

Features

V_{CE}	I_F 135°C	I_F 155°C
650V	6A	4A

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



Applications

- Switching Power Supplies
- Adapters, Quick Chargers
- Power Factor Corrections
- Motor Drives

Description

- These devices are 650 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 compact TO-252 package.

Type	Package	Qty
XD6506D	TO-252	300

XD6506D

1200V SiC SBD

Device Characteristics

Static Parameters				Test data			
	Sym.	Parameters	Conditions	Min	Typical	Max	Unit
1	V _{DC}	DC Blocking Voltage	I _R =100 μA	650			V
2	V _F	Forward Voltage	I _F =4A, T _j =25°C		1.4	1.7	V
			I _F =4A, T _j =175°C		1.8	2.5	
3	I _R	Reverse Current	V _R =650V, T _j =25°C		3	20	μA
			V _R =650V, T _j =175°C		20	120	
4	C	Total Capacitance	V _R =0V, f=1MHz		310		pF
			V _R =200V, f=1MHz		33		
			V _R =400V, f=1MHz		28.1		
5	Q _C	Total capacitive charge	V _R =400V		17		nC
6	E _C	Capacitance Stored Energy	V _R =400V		2.6		μJ
Thermal Parameters				Test data			
	Sym.	Parameters	Conditions	Min	Typical	Max	Unit
1	R _{th(j-c)}	Thermal resistance			2.5		°C/W

XD6506D

1200V SiC SBD

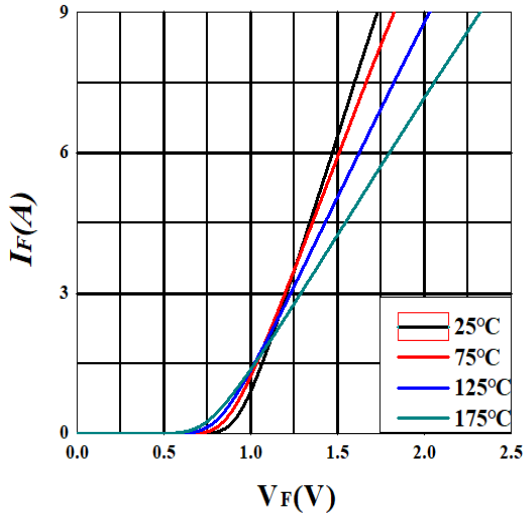
Absolute Max. Ratings

	Symbols	Parameters	Test Conditions	Value	Unit
1	V_{RR-max}	Reverse Voltage (Repetitive Peak)	$T_C = 25^\circ C$	650	V
2	V_{RS-max}	Reverse Voltage (Surge Peak)	$T_C = 25^\circ C$	650	V
3	V_{dc-max}	Reverse Voltage (DC)	$T_C = 25^\circ C$	650	A
4	I_{F-max}	Continuous Forward Current	$T_C = 25^\circ C$	18	A
			$T_C = 135^\circ C$	9	
			$T_C = 155^\circ C$	6	
5	I_{FS-max}	Non-repetitive Forward Current (Surge)	$T_C = 25^\circ C$ $t_p = 10ms$ Half Sine Pulse	55	A
6	$P_{total-max}$	Total Power Dissipation	$T_C = 25^\circ C$	79	W
7	$\int i^2 dt_{-max}$	i^2t value	$T_C = 25^\circ C$ $t_p = 10ms$	14.5	A ² s
8	T_{o-max}	Operation Temperature		-55 to 175	°C
9	$T_{S-storage}$	Storage temperature		-55 to 175	°C

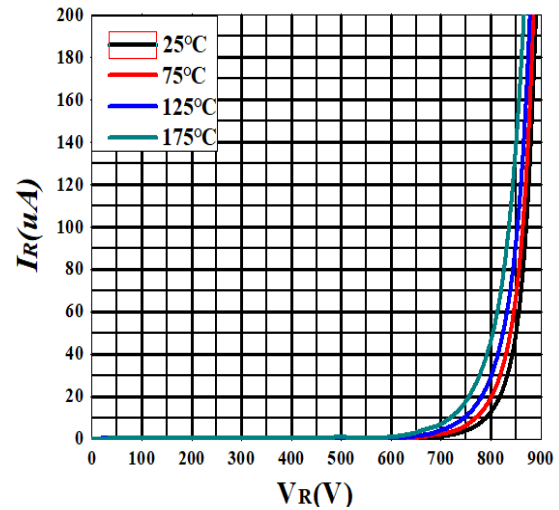
XD6506D

1200V SiC SBD

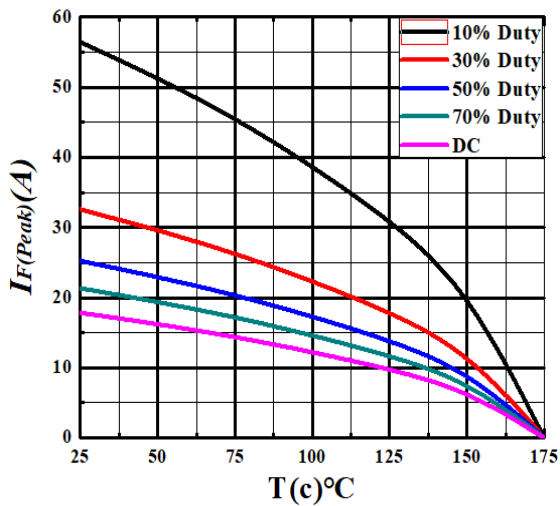
Electrical Performance



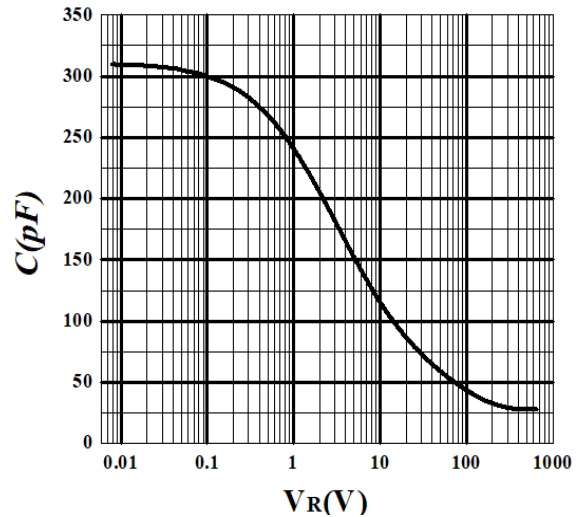
Forward Characteristics



Reverse Characteristics



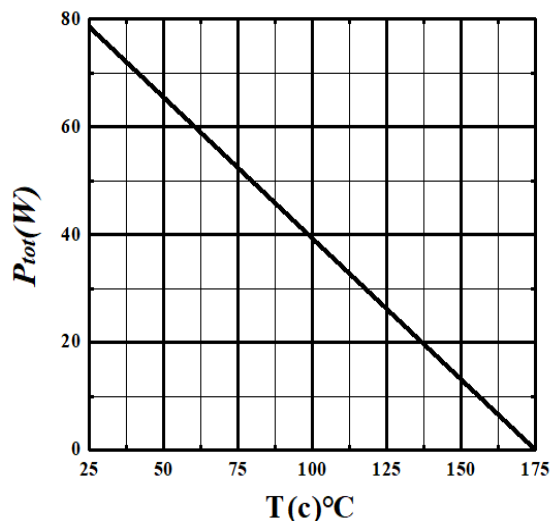
Current Derating



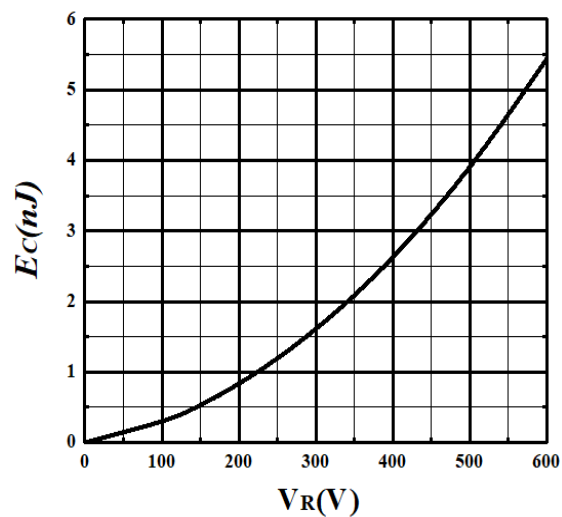
Capacitance vs. V_R

XD6506D

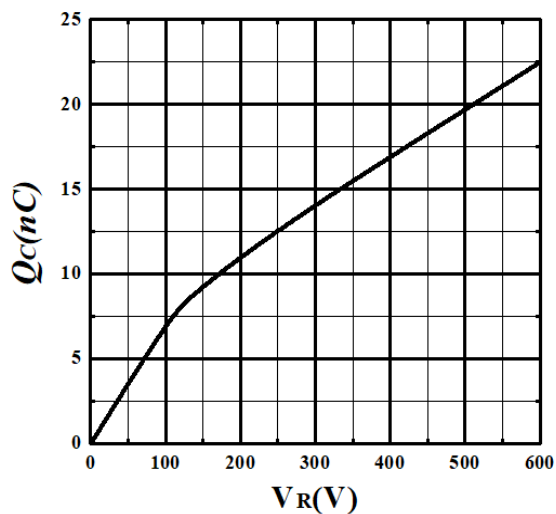
1200V SiC SBD



Power Derating



Capacitance Stored Energy

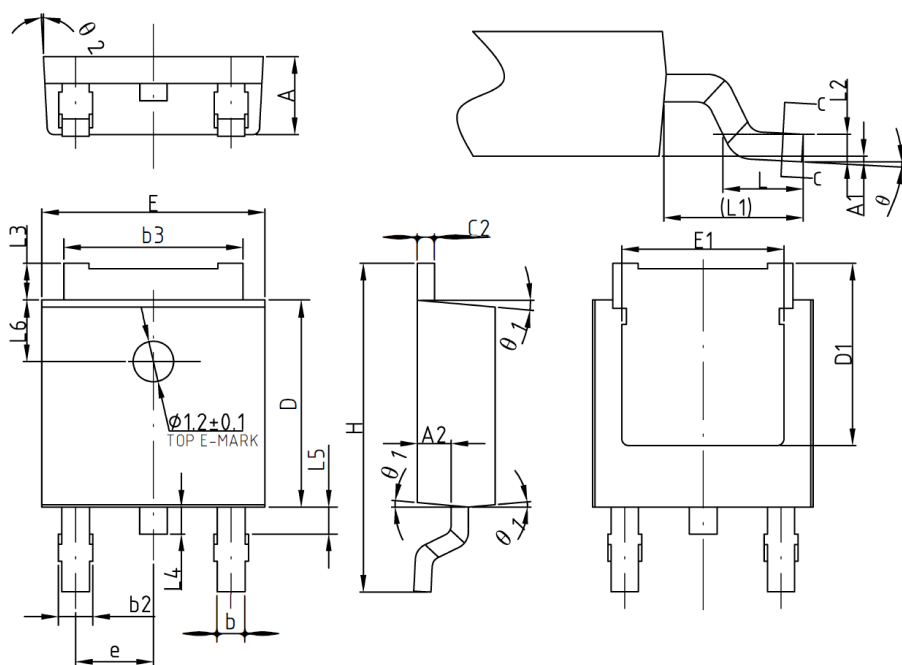


Total Capacitance Charge vs. V_R

XD6506D

1200V SiC SBD

Package Information



COMMON DIMENSIONS
(UNITS OF MEASURE=MILLIMETER)

SYMBOL	MIN	NOM	MAX
A	2.20	2.30	2.38
A1	0	-	0.10
A2	0.90	1.00	1.10
b	0.77	-	0.89
b1	0.76	0.81	0.86
b2	0.77	-	1.10
b3	5.23	5.33	5.43
c	0.47	-	0.60
c1	0.46	0.51	0.56
c2	0.47	-	0.60
D	6.00	6.10	6.20
D1	5.25	-	-
E	6.50	6.60	6.70
E1	4.70	-	-
e	2.28BSC		
H	9.80	10.10	10.40
L	1.40	1.50	1.70
L1	2.90REF		
L2	0.51BSC		
L3	0.90	-	1.25
L4	0.60	0.80	1.00
L5	0.90	-	1.50
L6	1.80REF		
θ	0°	-	8°
θ_1	3°	5°	7°
θ_2	1°	3°	5°

XD6506D

1200V SiC SBD



Revision History

Revision History

Document revision	Date	Description of changes
2.0	2023.10.11	Target datasheet

Nanjing X-IPM Technologies Co., Ltd.

TEL: 025-51180705

Address: Room 1403, 34th Headquarter Base Park,
70th Phoenix Road, Jiangning Development Zone, Nanjing