



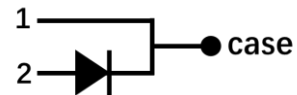
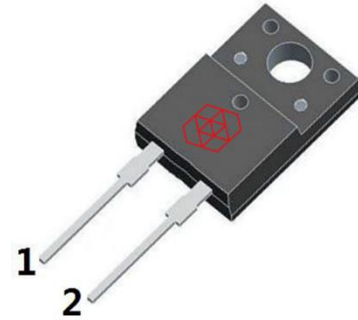
XD6510TF

650V 10A SiC Schottky Barrier Diode

Features

BV_{dss}	I_F 135°C	I_F 110°C
650V	8A	10A

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



Application

- 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 TO-220F internally insulated package.

Type	Package	Qty
XD6510TF	TO-220F	1000

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650V 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		1.45	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		1	40	μA
			V _R =650V, T _j =175°C		5	200	
4	C	Total Capacitance	V _R =0V, f=1MHz		535		pF
			V _R =200V, f=1MHz		53		
			V _R =400V, f=1MHz		45		
5	Q _C	Total capacitive charge	V _R =400V		28		nC
6	E _C	Capacitance Stored Energy	V _R =400V		4.3		μJ
Thermal Parameters				Test data			
	Sym.	Parameters	Conditions	Min	Typical	Max	Unit
1	R _{th(j-c)}	Thermal resistance			4		°C/w

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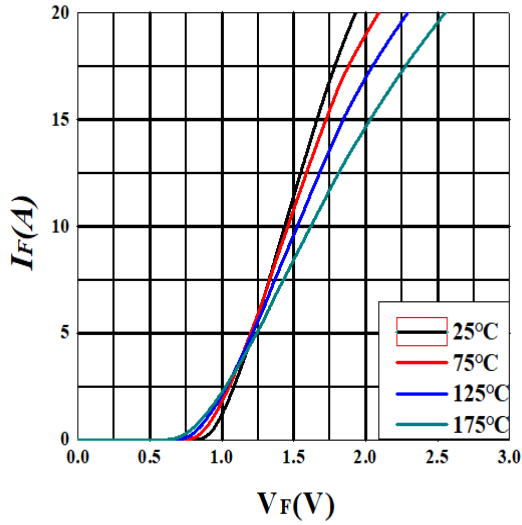
Absolute **Max.** Ratings

	Symbols	Parameters	Test Conditions	Value	Unit
1	V_{RR-max}	Reverse Voltage (Repetitive Peak)	$T_C = 25^{\circ}C$	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	$T_C = 25^{\circ}C$	16	A
			$T_C = 135^{\circ}C$	8	
			$T_C = 110^{\circ}C$	10	
5	I_{FS-max}	Non-repetitive Forward Current (Surge)	$T_C = 25^{\circ}C$ $t_p = 10ms$ Half Sine Pulse	80	A
6	$P_{total-max}$	Total Power Dissipation	$T_C = 25^{\circ}C$	38	W
7	$\int i^2 dt_{-max}$	i^2t value	$T_C = 25^{\circ}C$ $t_p = 10ms$	32	A ² 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

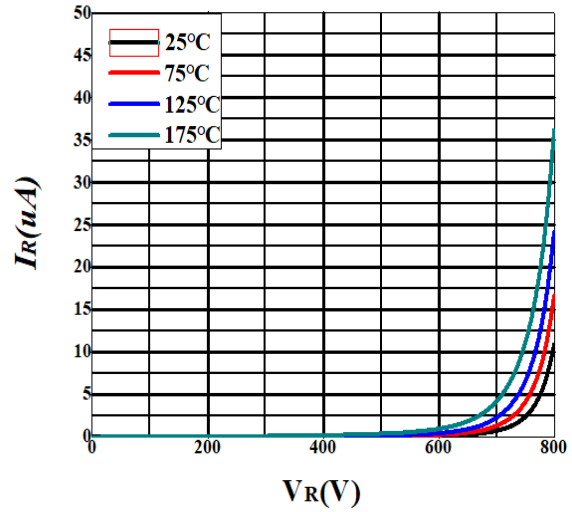
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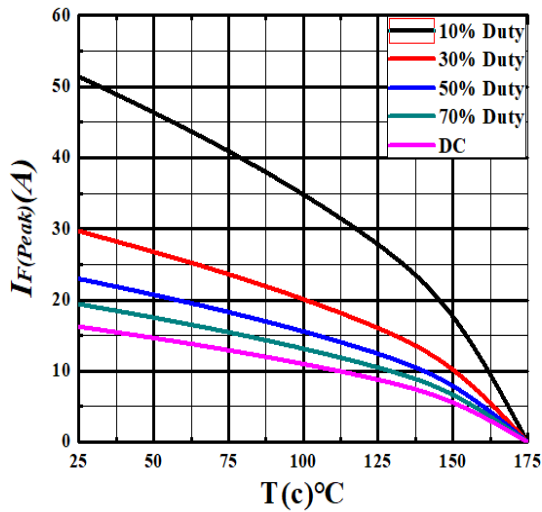
Electrical Performance



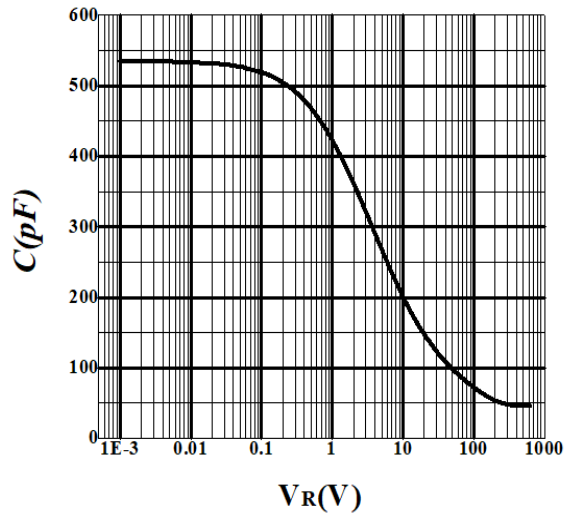
Forward Characteristics



Reverse Characteristics



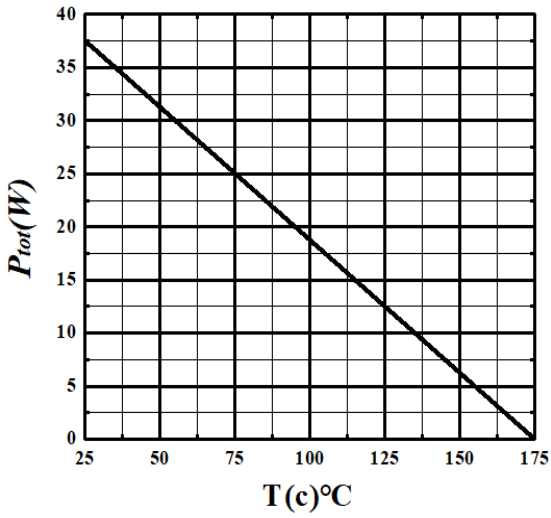
Current Derating



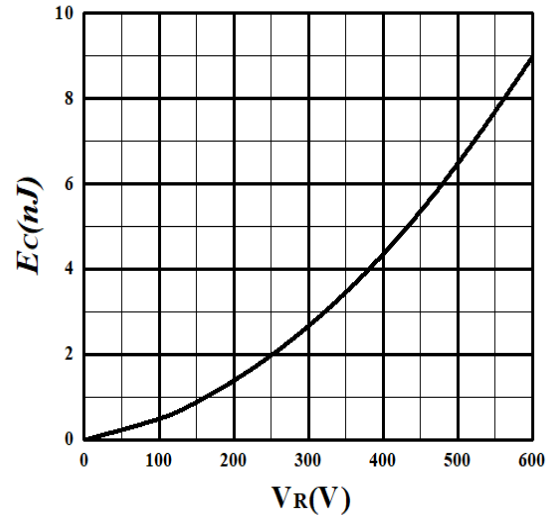
Capacitance vs. V_R

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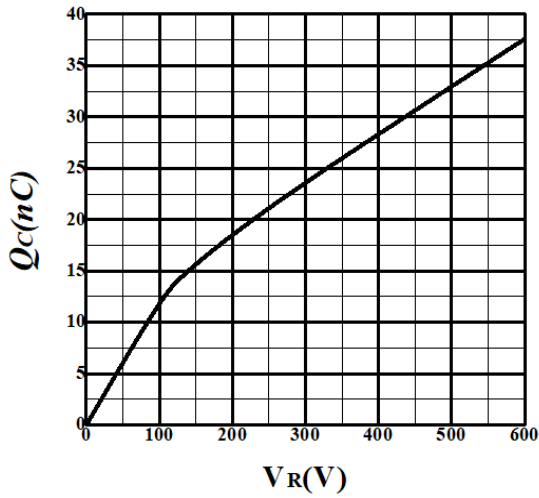
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Power Derating



Capacitance Stored Energy

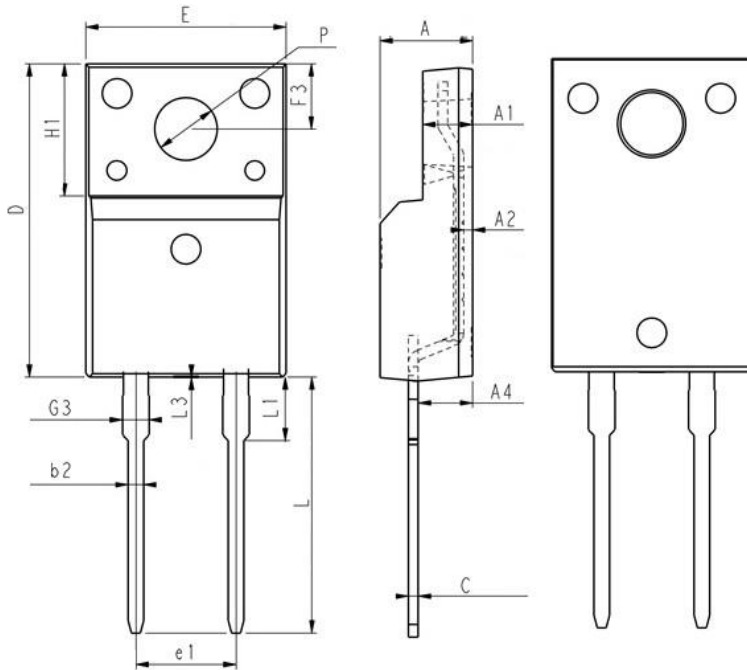


Total Capacitance Charge vs. V_R

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Package Information



SYMBOL	mm		
	MIN	NOM	MAX
A	4.50	4.70	4.90
A1	2.34	2.54	2.74
A2	0.30	0.45	0.60
A4	2.56	2.76	2.96
b2	0.75	0.80	0.90
C	0.45	0.50	0.60
D	15.57	15.87	16.17
E	9.96	10.16	10.36
e1	5.08 BSC		
F3	3.15	3.30	3.45
G3	1.25	1.35	1.50
H1	6.50	6.70	6.90
L	12.68	12.98	13.28
L1	3.08	3.23	3.38
L3	-	-	0.20
P dia.	3.03	3.18	3.38

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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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