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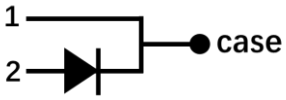
XD6510

650V 10A SiC Schottky Barrier Diode in TO-220F Insulated Package

Datasheet version: 1.0 Preliminary

Features

BV_{dss}	$I_{f\ (135^oC)}$	$I_{f\ (110^oC)}$	Q_c
650 V	8A	10 A	28 nC



- 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 TO-220F internally insulated package.

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℃		1.45	1.7	V
			I_F=4A, T_j =175℃		1.8	2.5	
3	I_R	Reverse Current	V_R=650V, T_j =25℃		1	40	μA
			V_R=650V, T_j =175℃		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		℃/w

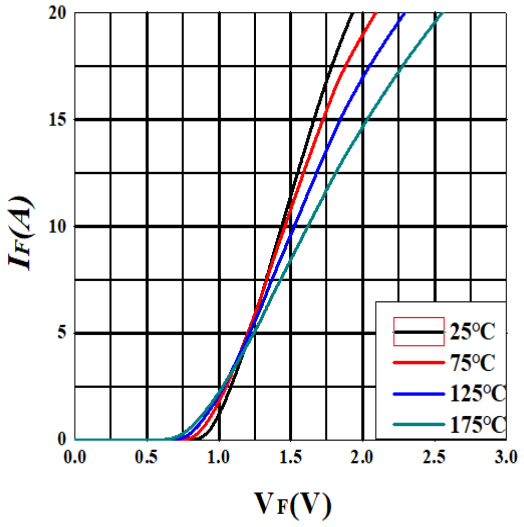
Absolute Max. Ratings

	Symbols	Parameters	Test Conditions	Value	Unit
1	$V_{RR\text{-}max}$	Reverse Voltage (Repetitive Peak)	T_C =25℃	650	V
2	$V_{RS\text{-}max}$	Reverse Voltage (Surge Peak)	T_C =25℃	650	V
3	$V_{dc\text{-}max}$	Reverse Voltage (DC)	T_C =25℃	650	A
4	$I_{F\text{-}max}$	Continuous Forward Current	T_C =25℃	16	A
			T_C =135℃	8	
			T_C =110℃	10	
5	$I_{FS\text{-}max}$	Non-repetitive Forward Current (Surge)	T_C =25℃ t_p =10ms Half Sine Pulse	80	A
6	$P_{total\text{-}max}$	Total Power Dissipation	T_C =25℃	38	W
7	$\int i^2dt_{\text{-}max}$	i^2t value	T_C =25℃ t_p =10ms	32	A^2s
8	$T_{o\text{-}max}$	Operation Temperature		-55 to 175	℃
9	$T_{S\text{-}storage}$	Storage temperature		-55 to 175	℃
10	M	Mounting Torque	M3 Screw	1	Nm

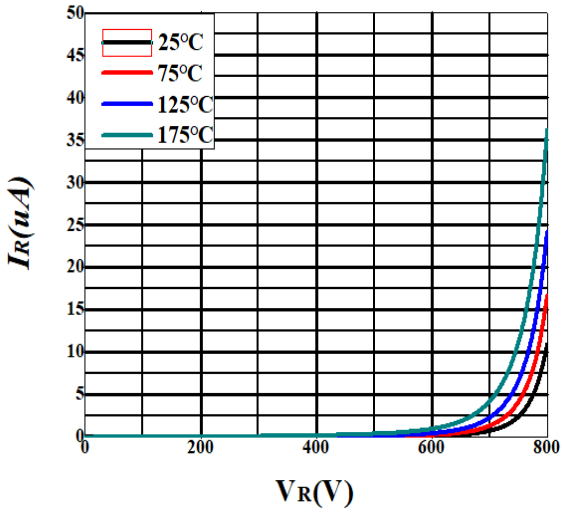
Ordering

Order Code	Package Type	Packaging Method	Qty
XD6510	TO-220F-2L	Tube	1000

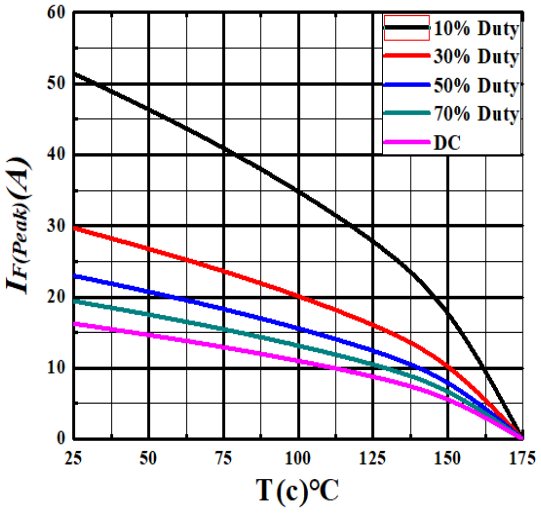
Electrical Performance



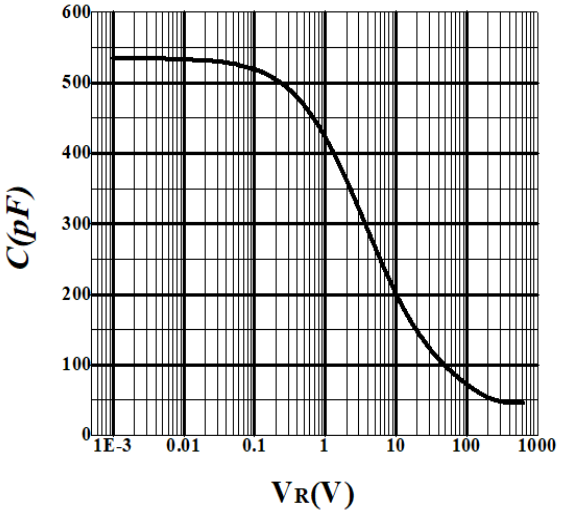
Forward Characteristics



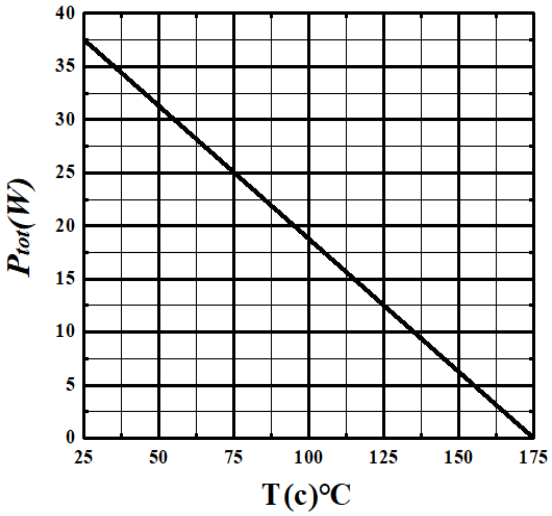
Reverse Characteristics



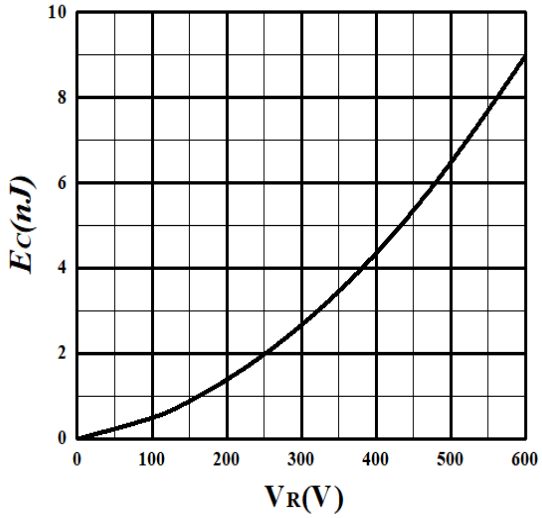
Current Derating



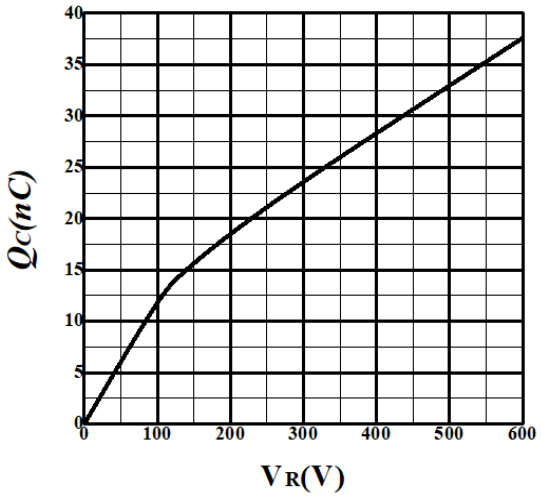
Capacitance vs. V_R



Power Derating

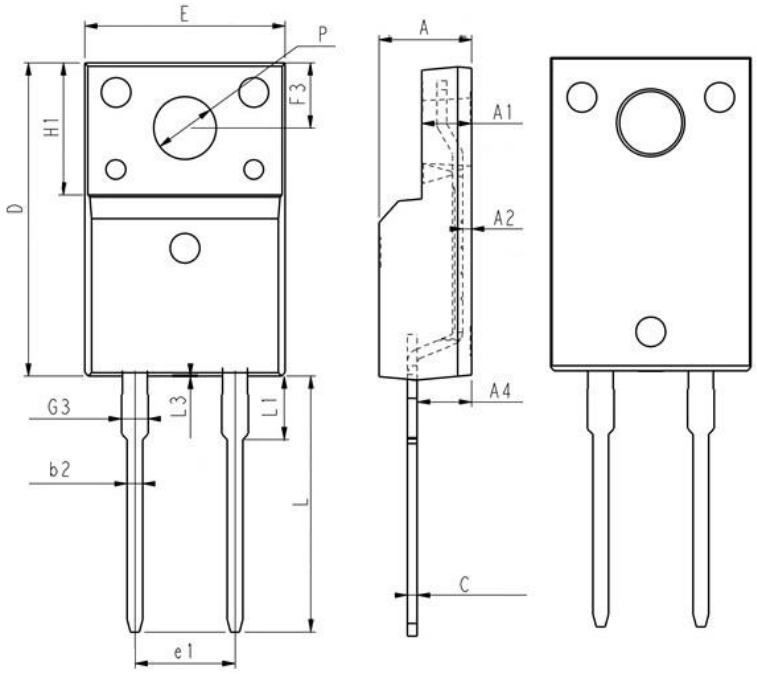


Capacitance Stored Energy



Total Capacitance Charge vs. V_R

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