

XD6504D

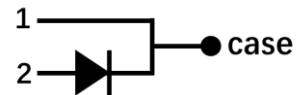
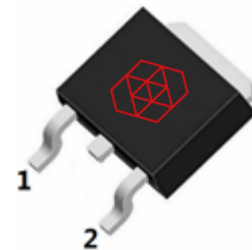
650V 4A SiC Schottky Barrier Diode in TO-252 Package

Datasheet version: 2.0 Preliminary

Features

BV_{dss}	I_f (135°C)	I_f (155°C)	Q_c
650 V	6 A	4 A	12 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 compact TO-252 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°C		1.5	1.7	V
			I _F =4A, T _j =175°C		1.9	2.5	
3	I _R	Reverse Current	V _R =650V, T _j =25°C		2	15	μA
			V _R =650V, T _j =175°C		15	100	
4	C	Total Capacitance	V _R =0V, f=1MHz		200		pF
			V _R =200V, f=1MHz		24		
			V _R =400V, f=1MHz		21		
5	Q _C	Total capacitive charge	V _R =400V		12		nC
6	E _C	Capacitance Stored Energy	V _R =400V		2		μJ
Thermal Parameters				Test data			
	Sym.	Parameters	Conditions	Min	Typical	Max	Unit
1	R _{th(j-c)}	Thermal resistance			2.5		°C/w

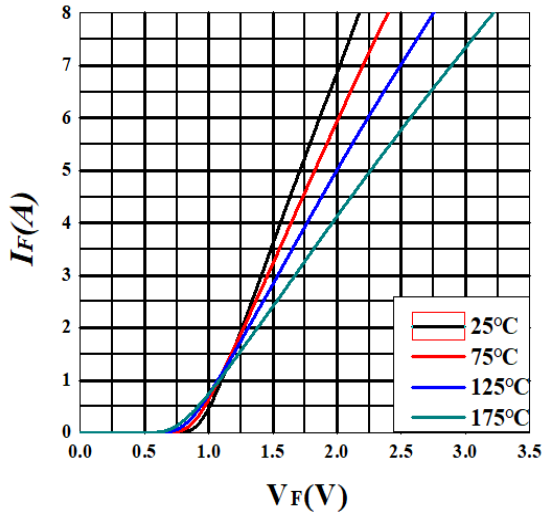
Absolute Max. Ratings

	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	$T_C = 25^\circ C$	12	A
			$T_C = 135^\circ C$	6	
			$T_C = 155^\circ C$	4	
5	I_{FS-max}	Non-repetitive Forward Current (Surge)	$T_C = 25^\circ C$ $t_p = 10ms$ Half Sine Pulse	35	A
6	$P_{total-max}$	Total Power Dissipation	$T_C = 25^\circ C$	60	W
7	$\int i^2 dt_{max}$	i^2t value	$T_C = 25^\circ C$ $t_p = 10ms$	5.8	A^2s
8	T_{O-max}	Operation Temperature		-55 to 175	$^\circ C$
9	$T_{S-storage}$	Storage temperature		-55 to 175	$^\circ C$

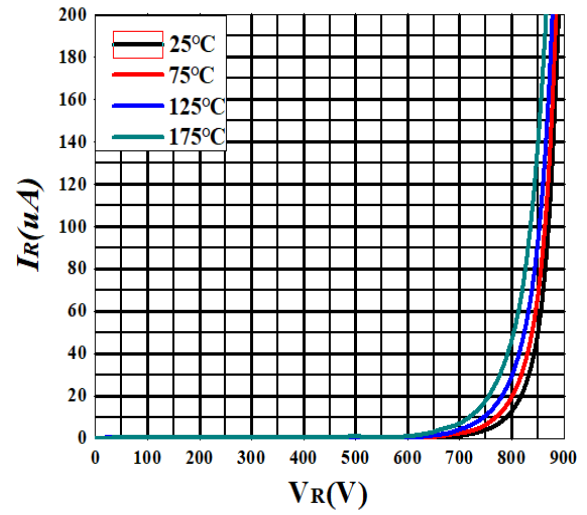
Ordering

Order Code	Package Type	Packaging Method	Qty
XD6504D	TO-252-2L	Tape and Reel	3000

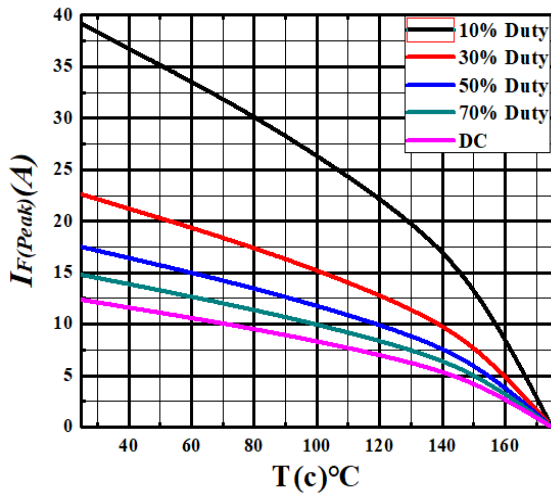
Electrical Performance



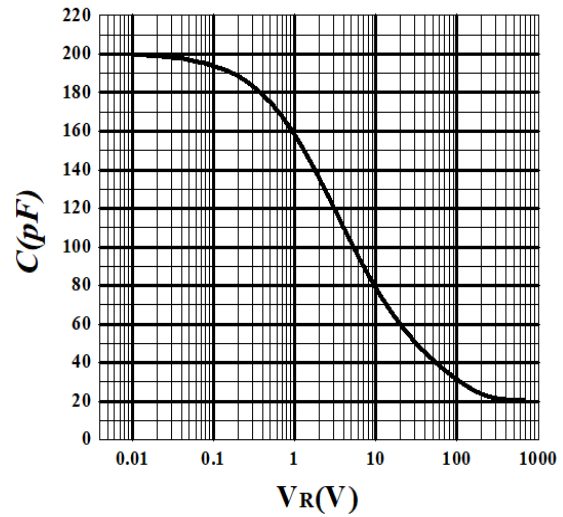
Forward Characteristics



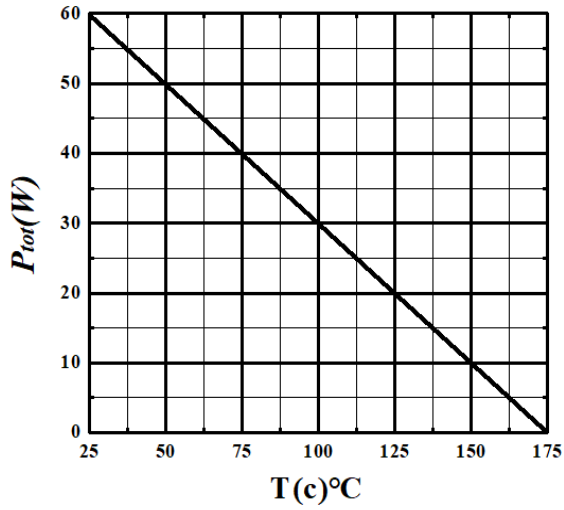
Reverse Characteristics



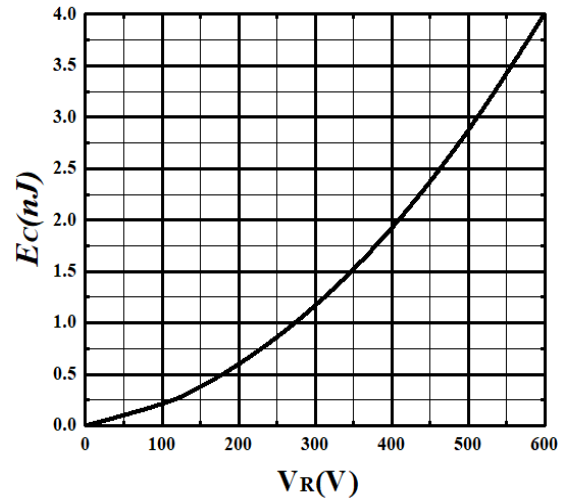
Current Derating



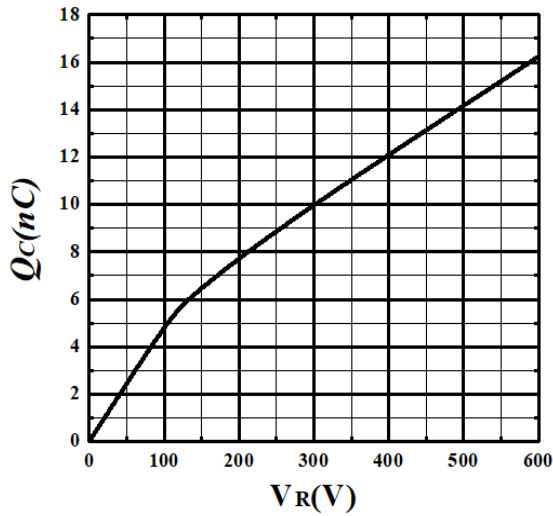
Capacitance vs. V_R



Power Derating



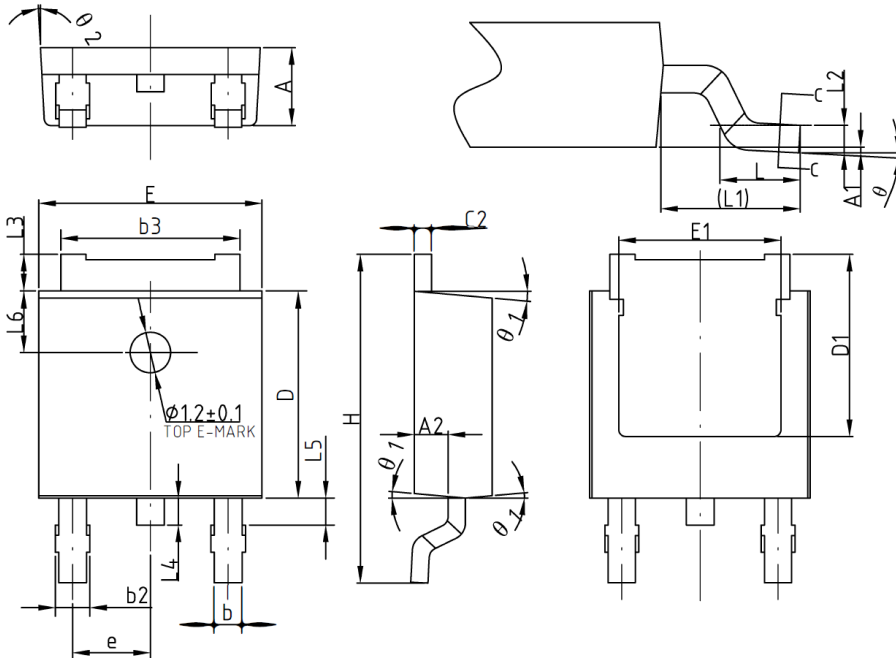
Capacitance Stored Energy



Total Capacitance Charge vs. V_R



Package Information



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°