DONGGUAN NANJING ELECTRONICS LTD.,

TO-252-2 Silicon Carbide Schottky Diode

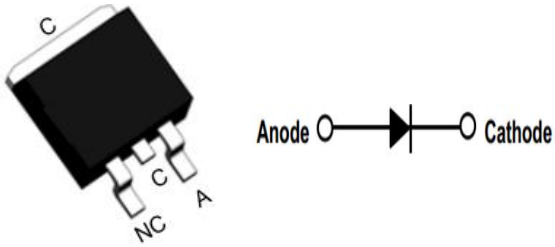
NJ65C4T2 SiC Diode 650 V, 4 A, 12 nC

General Description

This product family offers state of the art performance. It is designed for high frequency applications here high efficiency and high reliability are required.

Features

- Zero Forward/Reverse Recovery Current
- High Blocking Voltage
- High Frequency Operation
- Positive Temperature Coefficient on VF
- Temperature Independent Switching Behavior



TO-252-2
Pin definition

Applications

- Motor Drives
- Solar
- AC/DC converters
- DC/DC converters
- Uninterruptable power supplies

Benefits

- Higher System Efficiency
- Parallel Device Convenience without thermal runaway
- Higher Temperature Application
- No Switching loss
- Hard Switching & Higher Reliability
- Environmental Protection

Key performance parameters

Type	V_R	I_F T_C=150°C	Q_C
NJ65C4T2	650 V	4A	12 nC

Caution: This device is sensitive to electrostatic discharge .Users should follow ESD handing procedures.

Maximum Ratings

T_C=25℃, unless otherwise specified

Parameter	Symbol	Value	Unit
Peak Repetitive Reverse Voltage	V_{RRM}	650	V
Peak Reverse Surge Voltage	V_{RSM}	650	V
DC Blocking Voltage	V_R	650	V

Maximum Ratings

T_C=25℃, unless otherwise specified

Symbol	Parameter	Test conditions	Value	Unit
V_{RRM}	Repetitive peak reverse voltage		650	V
V_{RSM}	Surge peak reverse voltage		650	V
$I_{F(AVG)}$	Average forward current	T_C=155°C	4*	A
I_{FSM}	Non-Repetitive forward surge current	T_C=25°C , tp=10ms, Half Sine Wave	32	A
P_{tot}	Power dissipation	Tc=25℃ Tc=110℃	66* 28*	W
Tj	Operating junction temperature		-55~175	°C
Tstg	Storage temperature		-55~175	°C

* Assumes thermal resistance of 2.25°C/W or less

Electrica Characteristic

T_C =25℃, unless otherwise specified

Symbol	Parameter	Test conditions	Value			Unit
			Min.	Typ.	Max.	
V_{DC}	DC blocking voltage	Tj=25°C	650			V
V_F	Diode forward voltage	IF=4A,Tj=25℃ IF=4A,Tj=175℃		1.39 1.68		V
I_R	Reverse current	V_R=650V ,Tj=25°C V_R=650V ,Tj=175°C		1 9		μA

AC Characteristic

Symbol	Parameter	Test conditions	Value			Unit
			Min.	Typ.	Max.	
Q_C	Total capactive charge	V_R=400V Tj=25°C $Qc = \int_0^{V_R} C(V)dV$		12		nC
C	Total capacitance	V_R=1V f=1MHz V_R=300V f=1MHz V_R=600V f=1MHz		176 20.9 19.3		pF
E_C	Capacitance stored energy	V_R=400V		3		μJ

Typical Characteristics

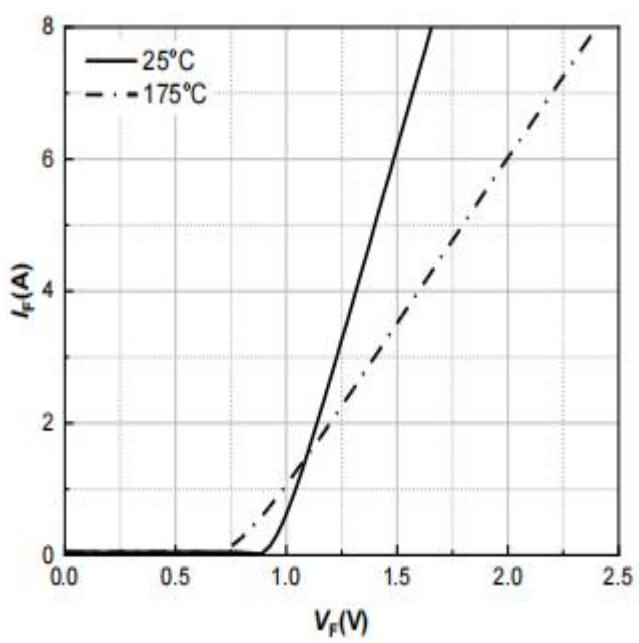


Figure.1 Typical forward characteristics

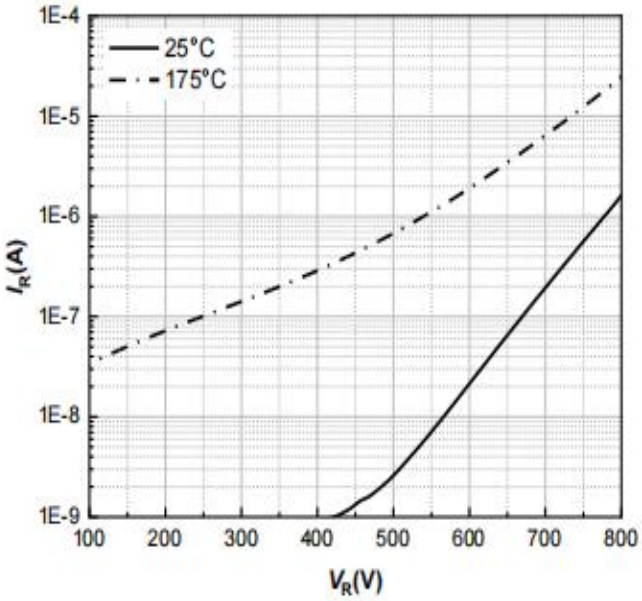


Figure.2 Typical reverse current as function of reverse voltage

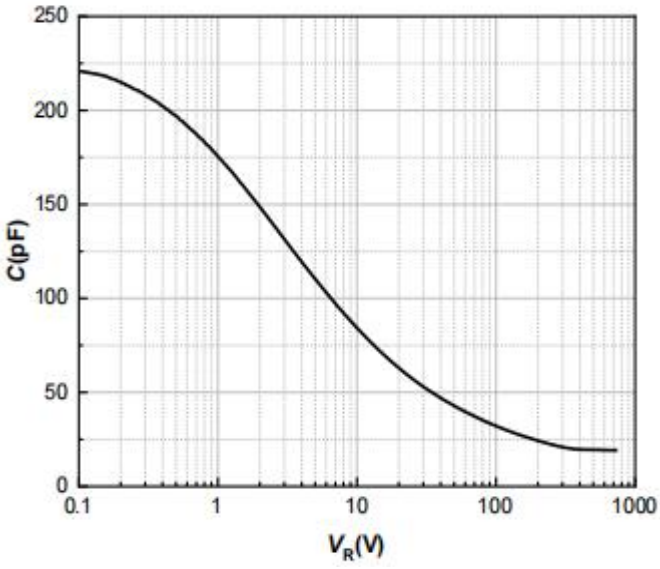


Figure.3 Typical capacitance as function of reverse voltage, C=f(VR); Tj=25。C; f=1 MHz

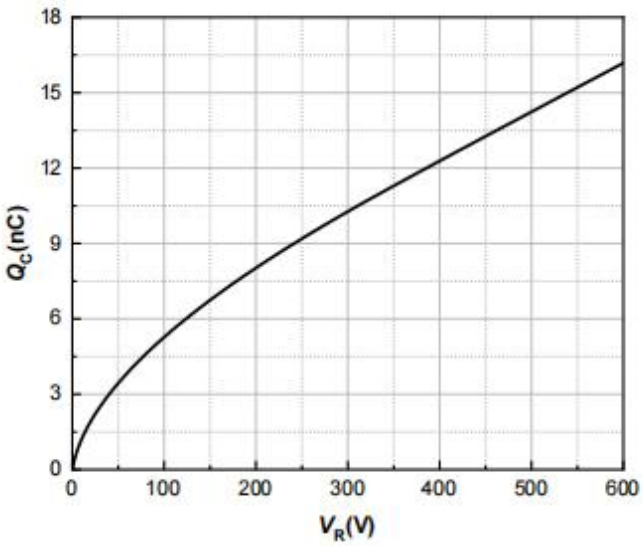
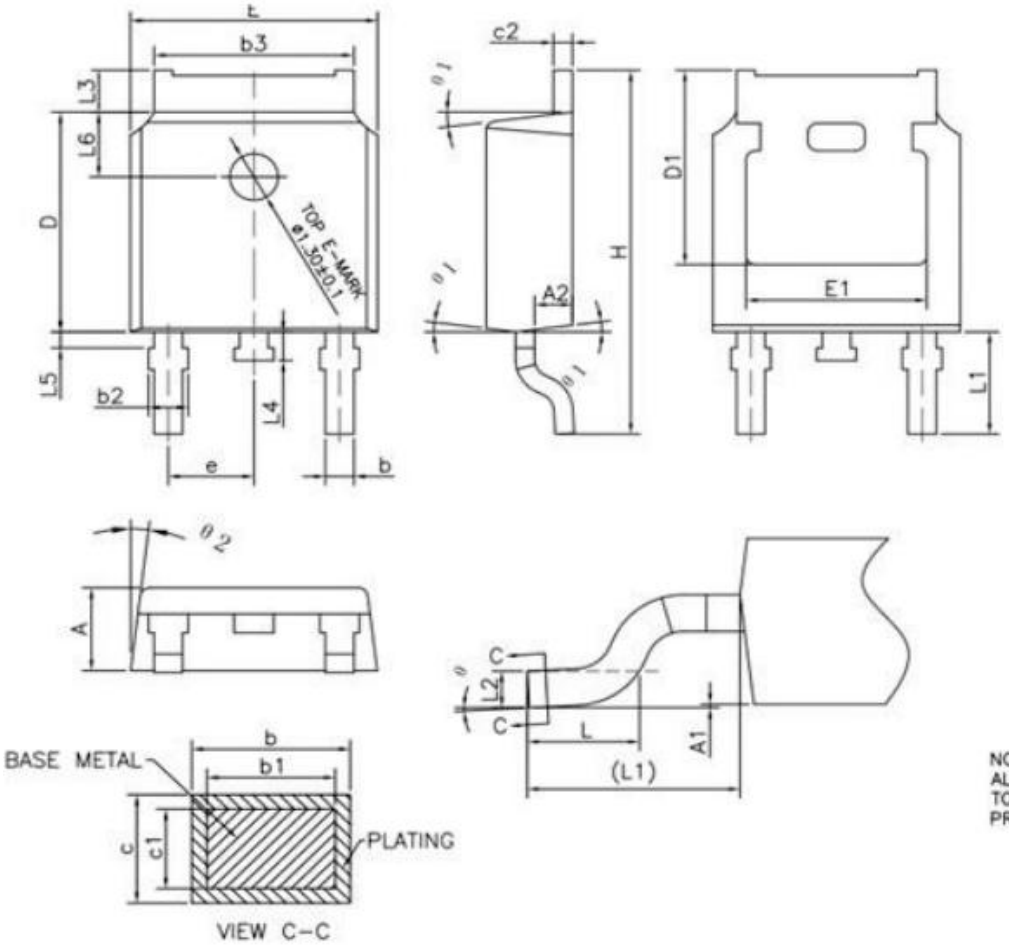


Figure.4 Typical reverse charge as function of reverse voltage

Package Outline: TO-252-2



COMMON DIMENSIONS
(UNITS OF MEASURE =MILLIMETER)

SYMBOL	MIN	NOM	MAX
A	2.20	2.30	2.38
A1	0	---	0.10
A2	0.90	1.01	1.10
b	0.72	---	0.85
b1	0.71	0.76	0.81
b2	0.72	---	0.90
b3	5.13	5.33	5.46
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	2.186	2.286	2.386
H	9.80	10.10	10.40
L	1.40	1.50	1.70
L1	2.90 REF		
L2	0.508 BSC		
L3	0.90	---	1.25
L4	0.60	0.80	1.00
L5	0.15	---	0.75
L6	1.80 REF		
θ	0°	---	8°
θ1	5°	7°	9°
θ2	5°	7°	9°

NOTES:
ALL DIMENSIONS REFER TO JEDEC STANDARED TO-252 AA DO NOT INCLUDE MOLD FLASH OR PROTRUSIONS