DONGGUAN NANJING ELECTRONICS LTD.,

TO-220-2 Silicon Carbide Schottky Diode

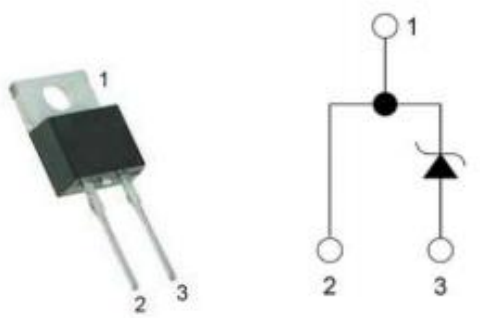
NJ06PS065C SiC Diode 650V, 6A, 15nC

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-220-2 Pin definition

Applications

- Switch Mode Power Supplies
- Solar Inverters
- AC/DC converters
- DC/DC converters
- Uninterruptable power supplies

Benefits

- Higher System Efficiency
- Parallel Device Convenience
- Higher Temperature Application
- High Frequency Operation
- Hard Switching & Higher Reliability
- Environmental Protection

Key performance parameters

Type	V_R	I_F T_C=150℃	Q_C
NJ06PS065C	650V	6A	15nC

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

Parameter	Symbol	Value	Unit
Continuous Forward Current: T_C = 25°C T_C = 135°C T_C = 150°C	I_F	19 8 6	A
Non Repetitive Forward Surge Current: T_C = 25°C, tp =10ms, Half Sine Pulse T_C = 110°C, tp =10ms, Half Sine Pulse T_C = 25°C, tp =10 μs, Square	I_{FSM}	40 35 300	A
Repetitive peak Forward Surge Current: Freq = 0.1Hz, 100 cycles T_C = 25°C, tp=10ms, Half Sine Pulse T_C = 110°C, tp=10ms, Half Sine Pulse	I_{FRM}	35 30	A
Total power dissipation: T_C = 25°C	P_D	68	W
Operating Junction Temperature :	T_j	-55 to 175	°C
Storage Temperature :	T_{stg}	-55 to 175	°C

Thermal Resistance

Parameter	Symbol	Typ.	Max	Unit
Thermal resistance	R_{thJC}	1.8		°C/W

Electrical Characteristic

T_C =25°C, unless otherwise specified

Parameter	Symbol	Value			Unit	Test Condition
		Min.	Typ.	Max.		
DC Blocking Voltage	V_{DC}	650			V	I_R = 250μA T_j = 25°C
Forward Voltage	V_F		1.45 1.6 1.75	1.8	V	I_F = 6A T_j =25°C T_j = 125°C T_j =175°C
Reverse Current	I_R		7 38 108	80	uA	V_R = 650V T_j = 25°C T_j = 125°C T_j =175°C
Total Capacitance Charge	Q_C		15		nC	V_R = 400V
Total Capacitance	C		230 33 24		pF	V_R = 1V V_R = 200V V_R = 400V T_j = 25°C Freq = 1MHz

Characteristics Curves

Figure 1. Forward Characteristics

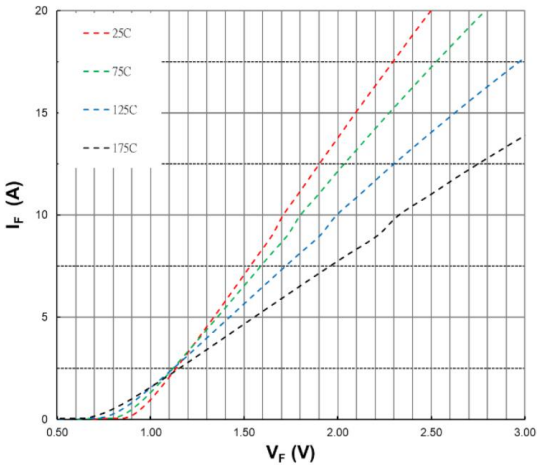


Figure 2. Forward Characteristics

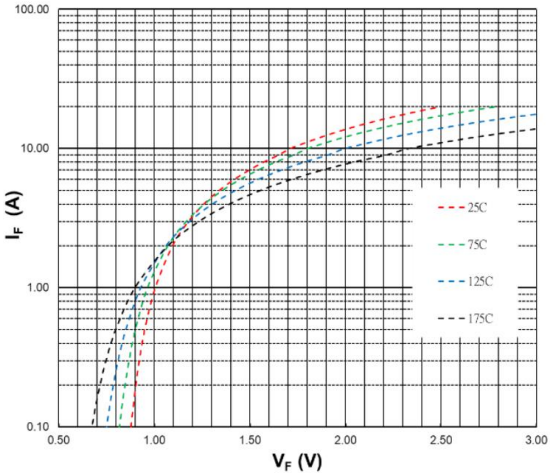


Figure 3. Reverse Characteristics

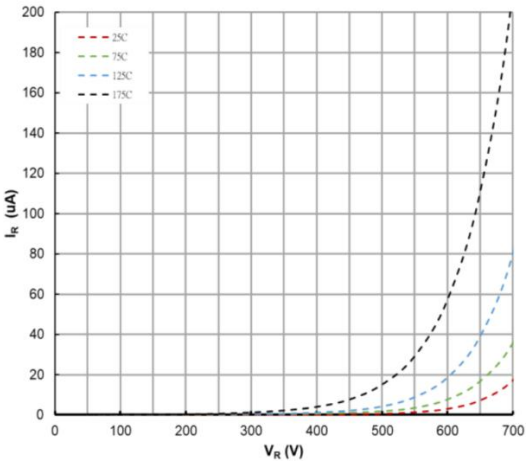


Figure 4. Power Derating

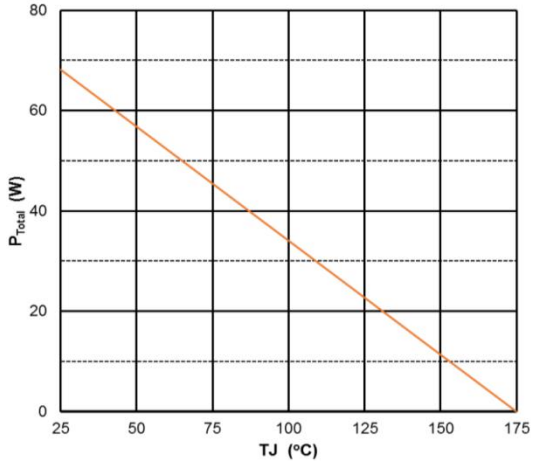


Figure 5. Capacitance vs Reverse Voltage

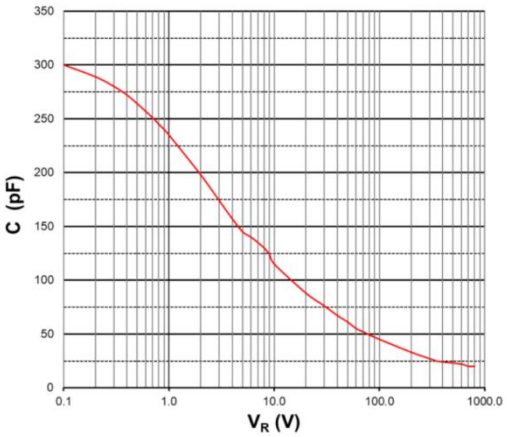
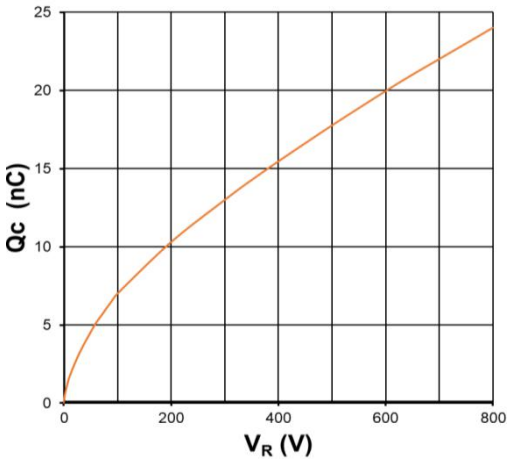
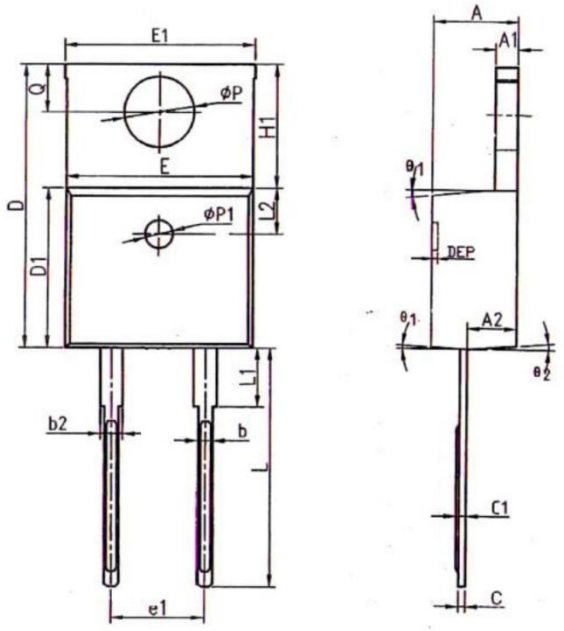


Figure 6. Recovery Charge vs Reverse Voltage



Package Outline:TO-220-2



COMMON DIMENSIONS

SYMBOL	MM			INCH		
	MIN	NOM	MAX	MIN	NOM	MAX
A	4.40	4.57	4.70	0.173	0.180	0.185
A1	1.22	1.27	1.32	0.048	0.050	0.052
A2	2.59	2.69	2.79	0.102	0.106	0.110
b	0.77	0.813	0.90	0.030	0.032	0.035
b2	1.20	1.27	1.36	0.047	0.050	0.054
c	0.34	0.381	0.47	0.013	0.015	0.019
c1	0.40	0.559	0.60	0.016	0.022	0.024
D	14.70	15.00	15.30	0.579	0.591	0.602
D1	8.60	8.70	8.80	0.339	0.343	0.346
E	10.06	10.16	10.26	0.396	0.400	0.404
E1	10.10	10.25	10.35	0.398	0.404	0.407
E2	10.00	10.10	10.20	0.394	0.398	0.402
e	2.54 BSC			0.100 BSC		
e1	5.08 BSC			0.200 BSC		
H1	6.10	6.30	6.50	0.240	0.248	0.256
L	13.20	13.40	13.50	0.520	0.528	0.531
L1	-	3.75	4.00	-	0.148	0.157
L2	2.50 REF			0.098 REF		
ΦP	3.76	3.84	3.88	0.148	0.151	0.153
Q	2.60	2.743	2.90	0.102	0.108	0.114
θ1	5°	7°	9°	5°	7°	9°
θ2	1°	3°	5°	1°	3°	5°
ΦP1	1.40	1.50	1.60	0.055	0.059	0.063
DEP	0.05	0.10	0.20	0.002	0.004	0.008

Part Number	Package	Packing	Marking	M.O.Q
NJ06PS065C	TO-220-2	50pcs/Tube	NJ06PS065C	500