



DONGGUAN NANJING ELECTRONICS LTD.,

## TO-220-2 Silicon Carbide Schottky Diode

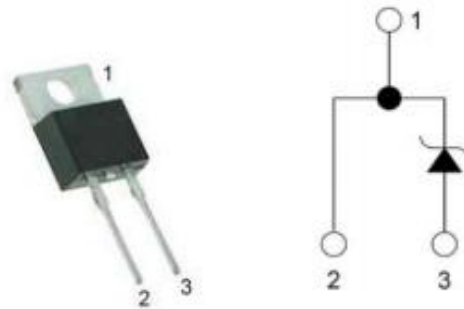
**NJ10HS065C** SiC Diode 650V, 10A, 34nC

### 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
- High surge current capability



**TO-220-2  
Pin definition**

### Applications

- Motor Drives
- Solar / Wind Inverters
- 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	$V_R$	$I_F$ $T_C=155^\circ\text{C}$	$Q_C$
NJ10HS065C	650V	10A	34nC

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

## Typical Characteristics

### Maximum Ratings

$T_C=25^{\circ}\text{C}$ , 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

$T_C=25^{\circ}\text{C}$ , unless otherwise specified

Parameter	Symbol	Value	Unit
Continuous Forward Current: $T_C = 25^{\circ}\text{C}$ $T_C = 135^{\circ}\text{C}$ $T_C = 155^{\circ}\text{C}$	$I_F$	37 16 10	A
Non Repetitive Forward Surge Current: $T_C = 25^{\circ}\text{C}$ , $t_p=10\text{ms}$ , Half Sine Pulse $T_C = 110^{\circ}\text{C}$ , $t_p=10\text{ms}$ , Half Sine Pulse	$I_{FSM}$	90 80 900	A
Repetitive peak Forward Surge Current: Freq = 0.1Hz, 100 cycles $T_C = 25^{\circ}\text{C}$ , $t_p=10\text{ms}$ , Half Sine Pulse $T_C = 110^{\circ}\text{C}$ , $t_p=10\text{ms}$ , Half Sine Pulse	$I_{FRM}$	80 70	A
Total power dissipation: $T_C = 25^{\circ}\text{C}$	$P_D$	136	W
Operating Junction Temperature :	$T_j$	-55 to 175	$^{\circ}\text{C}$
Storage Temperature :	$T_{stg}$	-55 to 175	$^{\circ}\text{C}$

## Typical Characteristics

### Thermal Resistance

Parameter	Symbol	Typ.	Max	Unit
Thermal resistance, junction-case	$R_{thJC}$	1.1		$^{\circ}C/W$

### Electrical Characteristic

$T_C = 25^{\circ}C$ , unless otherwise specified

Parameter	Symbol	Value			Unit	Test Condition
		Min.	Typ.	Max.		
DC Blocking Voltage	$V_{DC}$	650			V	$I_R = 250\mu A$ $T_j = 25^{\circ}C$
Forward Voltage	$V_F$		1.35 1.45 1.50	1.5	V	$I_F = 10A$ $T_j = 25^{\circ}C$ $T_j = 125^{\circ}C$ $T_j = 175^{\circ}C$
Reverse Current	$I_R$		17 25 37	80	$\mu A$	$V_R = 650V$ $T_j = 25^{\circ}C$ $T_j = 125^{\circ}C$ $T_j = 175^{\circ}C$
Total Capacitance Charge	$Q_C$		34		nC	$V_R = 400V$ $T_j = 25^{\circ}C$
Total Capacitance	C		540 65 48		pF	$V_R = 1V$ $V_R = 200V$ $V_R = 400V$ $T_j = 25^{\circ}C$ Freq = 1MHz

Characteristics Curves

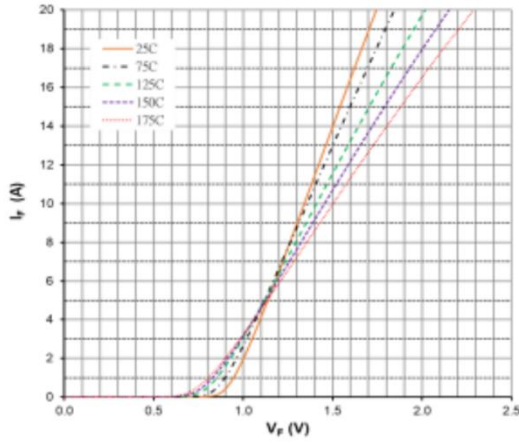


Figure 1. Forward Characteristics

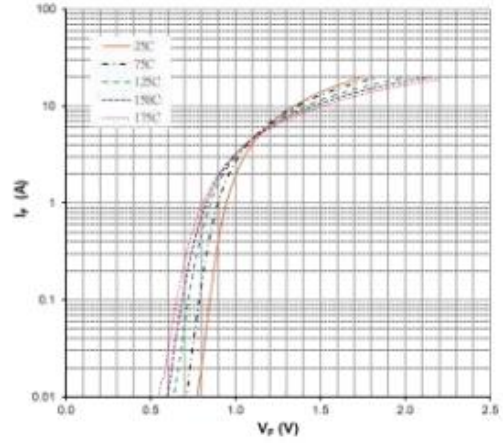


Figure 2. Forward Characteristics

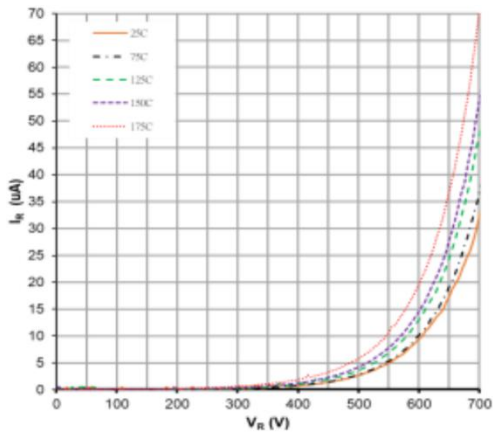


Figure 3. Reverse Characteristics

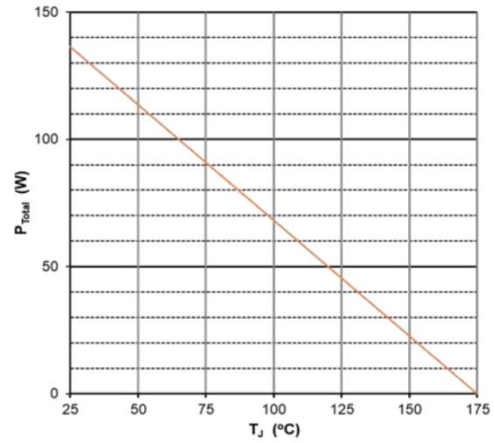


Figure 4. Power Derating

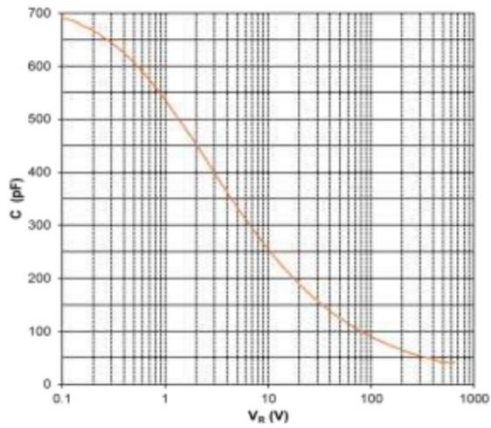


Figure 5. Capacitance vs Reverse Voltage

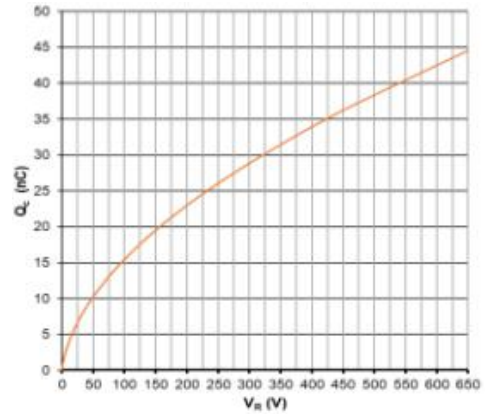
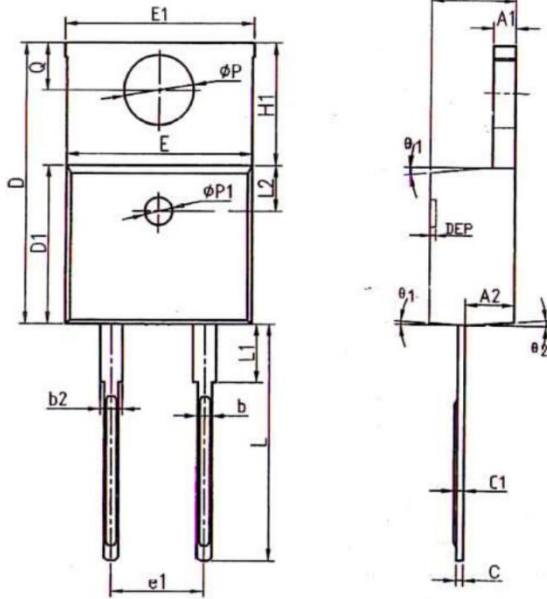


Figure 6. Recovery Charge vs Reverse Voltage

# Package Outline Dimensions

## 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		
$\phi P$	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
$\theta 1$	5°	7°	9°	5°	7°	9°
$\theta 2$	1°	3°	5°	1°	3°	5°
$\phi P1$	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
NJ10HS065C	TO-220-2	50pcs/Tube	NJ10HS065C	500