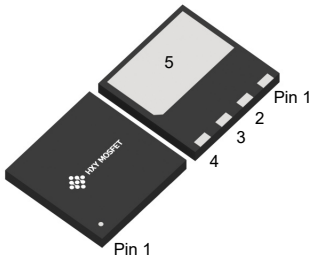
WNSC10650T6J

Silicon Carbide Schottky Diode

Features

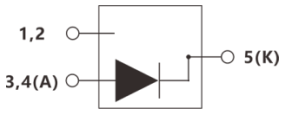
- 650-Volt Schottky Rectifier
- Zero Reverse Recovery Current
- Zero Forward Recovery Voltage
- High-Frequency Operation
- Temperature-Independent Switching Behavior
- Extremely Fast Switching
- Positive Temperature Coefficient on V_F



DFN8X8B

Benefits

- Replace Bipolar with Unipolar Rectifiers
- Essentially No Switching Losses
- Higher Efficiency
- Reduction of Heat Sink Requirements
- Parallel Devices Without Thermal Runaway



Applications

- Switch Mode Power Supplies
- Power Factor Correction
- Motor Drives

Part Number	Package	Qty(PCS)
WNSC10650T6J	DFN8X8B	3000

Maximum Ratings (T_C = 25 ˚C unless otherwise specified)

Symbol	Parameter	Value	Unit	Test Conditions
V_{RRM}	Repetitive Peak Reverse Voltage	650	V	
V_{RSM}	Surge Peak Reverse Voltage	650	V	
I_F	Continuous Forward Current	29.8 13.8 10	A	T_C=25˚C T_C=135˚C T_C=151 ˚C
I_{FRM}	Repetitive Peak Forward Surge Current	40	A	T_C=25˚C, t_p = 10 ms, Half Sine Wave
I_{FSM}	Non-Repetitive Peak Forward Surge Current	80	A	T_C=25˚C, t_p = 10 ms, Half Sine Wave
P_{tot}	Power Dissipation	106 46	W	T_C=25˚C T_C=110˚C
T_J , T_{stg}	Operating Junction and Storage Temperature	-55 to +175	˚C	
$\int i^2dt$	i²dt value	32	A^2s	T_C=25˚C, t_p = 10 ms, Half Sine Wave

Electrical Characteristics

Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Conditions
V_{DC}	DC Blocking Voltage	650			V	
V_F	Forward Voltage		1.37 1.74	1.7 2.5	V	I_F = 10 A T_J=25°C I_F = 10 A T_J=175°C
I_R	Reverse Current		0.2 2	50 100	μA	V_R = 650 V T_J=25°C V_R = 650 V T_J=175°C
Q_C	Total Capacitive Charge		28		nC	V_R = 400 V T_J = 25°C
C	Total Capacitance		536 55 53		pF	V_R = 0 V, T_J = 25°C, f = 1 MHz V_R = 200 V, T_J = 25°C, f = 1 MHz V_R = 400 V, T_J = 25°C, f = 1 MHz
E_C	Capacitance Stored Energy		6.8		μJ	V_R = 400 V

Thermal Characteristics

Symbol	Parameter	Typ.	Unit
$R_{\theta JC}$	Thermal Resistance from Junction to Case	1.41	°C/W

Typical Performance

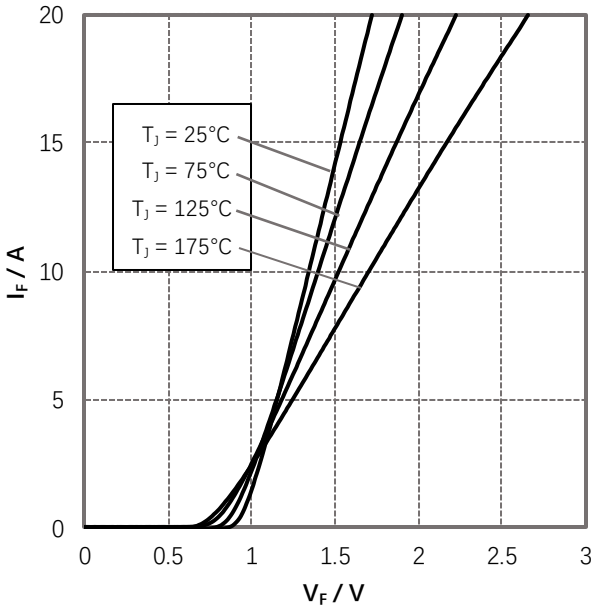


Figure 1. Forward Characteristics

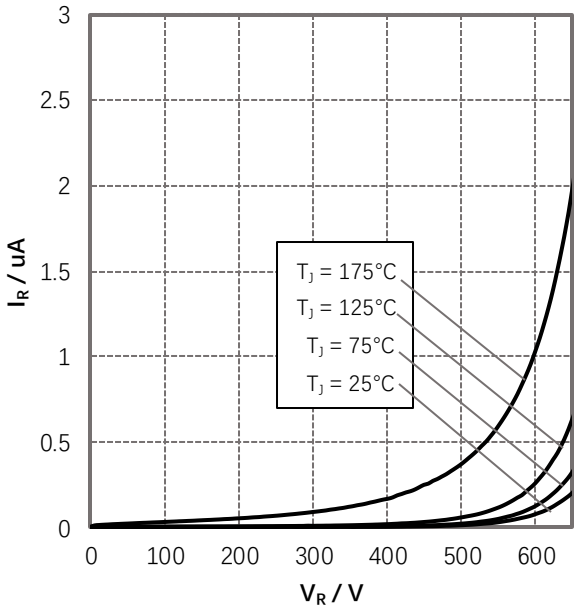


Figure 2. Reverse Characteristics

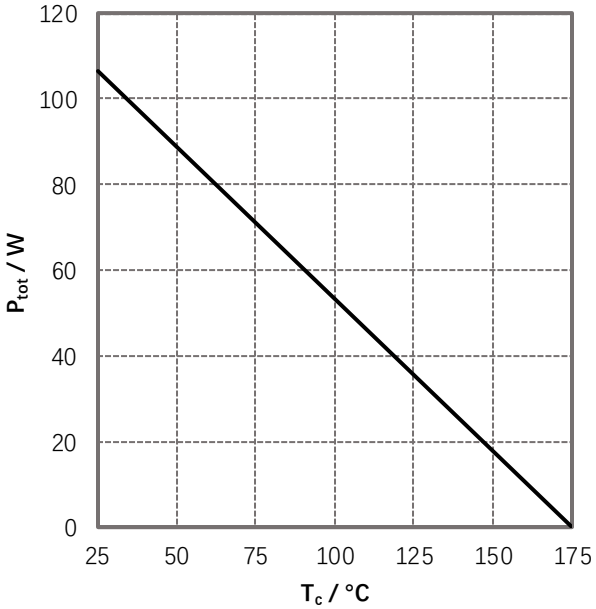


Figure 3. Power Derating

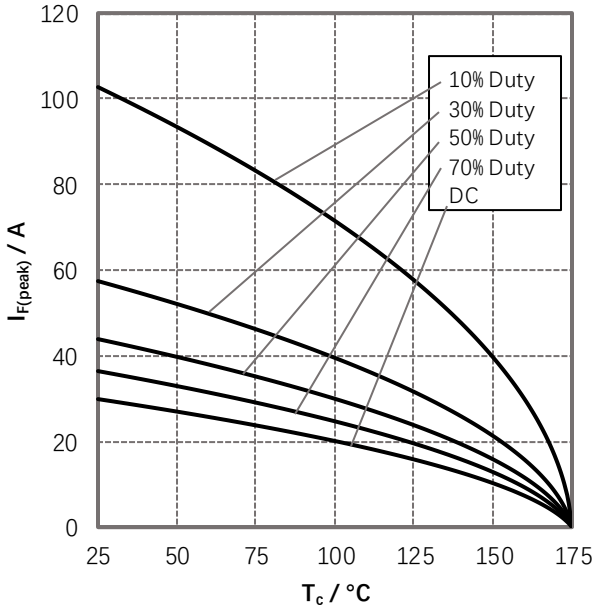


Figure 4. Current Derating

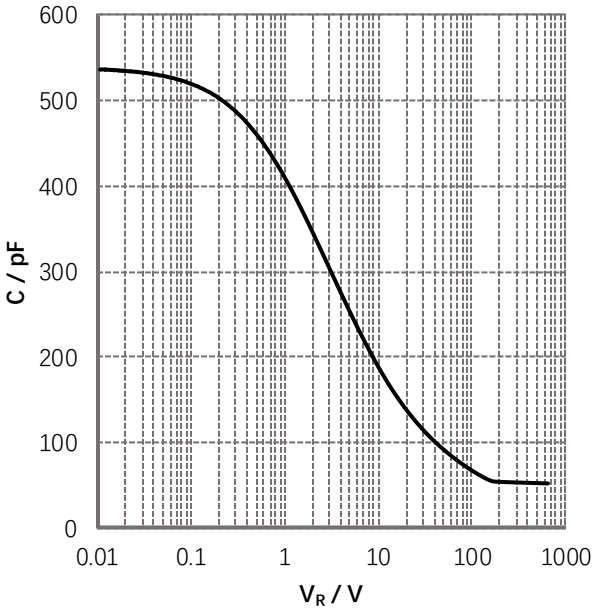


Figure 5. Capacitance vs. Reverse Voltage

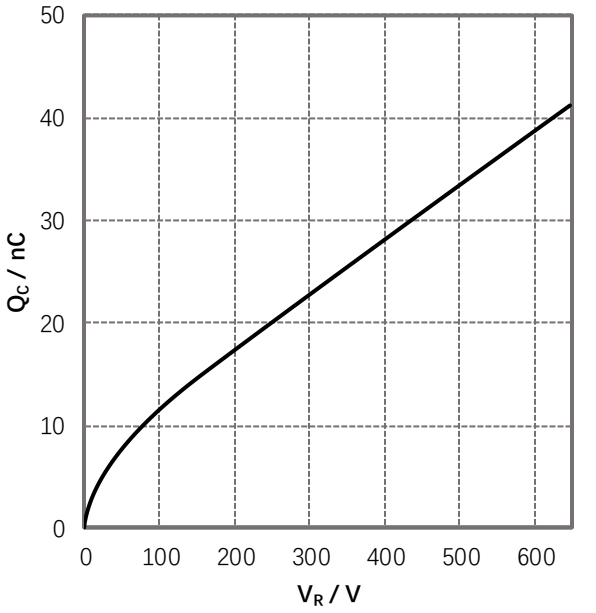


Figure 6. Total Capacitance Charge vs. Reverse Voltage

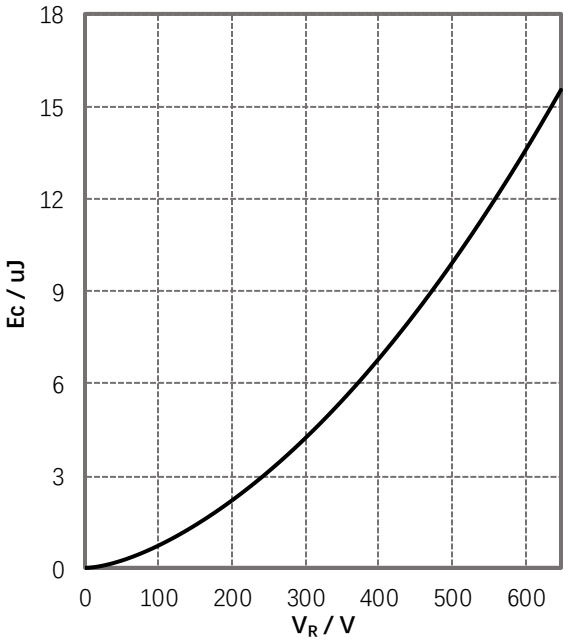


Figure 7. Capacitance Stored Energy

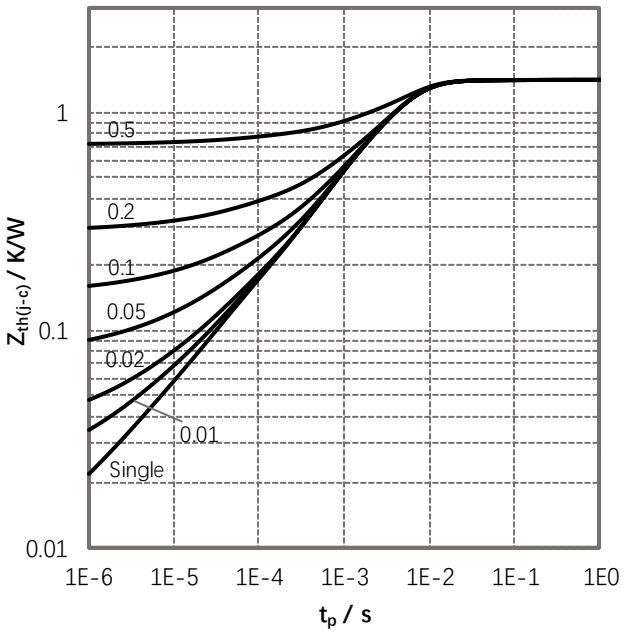
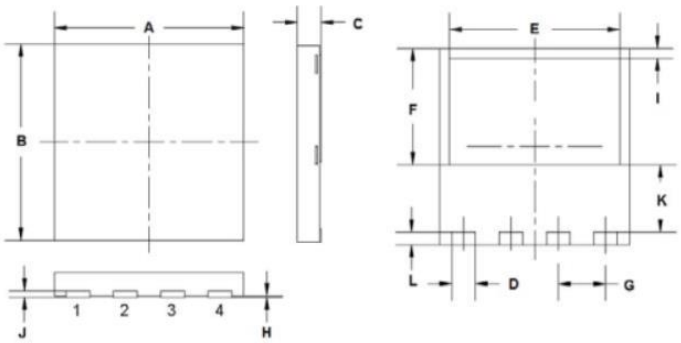


Figure 8. Transient Thermal Impedance

Package Information
DFN8X8B



Unit: mm

Dimension	Min.	Max.
A	7.90	8.10
B	7.90	8.10
C	0.75	0.95
D	0.90	1.10
E	7.10	7.30
F	4.65	4.85
G	1.80	2.20
H	0.00	0.05
I	0.30	0.50
J	0.10	0.30
K	2.65	2.85
L	0.40	0.60

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PESDNC2XD5VBL AZ4836-01L HSG3D15B3.3MA ESD5L5.0C-HXY PESDSC2FD5VU PJEC5V0M1FN2
ESD5LM5.0C-HXY HSD15C.TCT HSEN2411D3 TPSMB100CA-VR HLY323BC1524L HSTS521050B331
LM393DR-HXY AQ15C-01FTG HACPDQC5V0-HF HESDSLC3V3D3B PJSD24CW_R1 RLSD32A121V
TPSMB28A-VR HAZ4007-01H HESD36VD3B PESDLC2FD3V3BH AZ4007-01H HCEZ36V,L3F