Silicon Carbide Schottky Diode

Parameter	Value	Unit
V_{RRM}	650	V
I_F	15	A
Q_C	32	nC

PDFN8x8

Features

- Zero reverse recovery current
- Zero forward recovery voltage
- Temperature independent switching behavior
- High temperature operation
- High frequency operation

Applications

- Boost Converter
- Power Factor Correction
- Switched-Mode Power Supply
- Uninterruptible Power Supply

Maximum Ratings (at T_J=25℃ unless otherwise specified)

Parameter	Symbol	Value	Unit
Repetitive Peak Reverse Voltage	V_{RRM}	650	V
Surge Peak Reverse Voltage	V_{RSM}	650	V
Continuous Forward Current T_C = 25℃ T_C = 125℃ T_C = 135℃	I_F	 31.9 17.1 15	A
Repetitive Peak Forward Surge Current T_C = 25℃, tp =10ms, Half Sine Pulse, D=0.1,1000Cycle	I_{FRM}	45	A
Non-Repetitive Forward Surge Current T_C = 25℃, tp =10ms, Half Sine Pulse	I_{FSM}	90	A
i^2t Value T_C = 25℃, tp =10ms, Half Sine Pulse	$\int i^2dt$	40.5	A^2s
Power dissipation T_C = 25℃ T_C = 110℃	P_{tot}	 120 52	W
Operating junction Range	T_J	-55 to +175	℃
Storage temperature Range	T_{stg}	-55 to +175	℃

Thermal Characteristics

Parameter	Symbol	Typ.	Unit
Thermal resistance, junction – case.	R_{thJC}	1.25	℃/W

Electrical Characteristics(at T_J=25℃ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
DC Blocking Voltage	V_{DC}		650			V
Instantaneous forward voltage per leg	V_F	I_F =15A T_J=25℃ T_J= 175℃		1.5 2.1	1.7 2.5	V
Reverse current per leg	I_R	V_R=650V T_J=25℃ T_J= 175℃		0.35 2.4	50 100	uA
Total Capacitance	C	f = 1MHZ V_R=0V V_R=200V V_R=400V		618 62 56		pF
Total Capacitive Charge	Q_C	V_R=400V T_J=25℃		32		nC
Capacitance Stored Energy	E_C	V_R=400V		8		uJ

Typical Characteristics

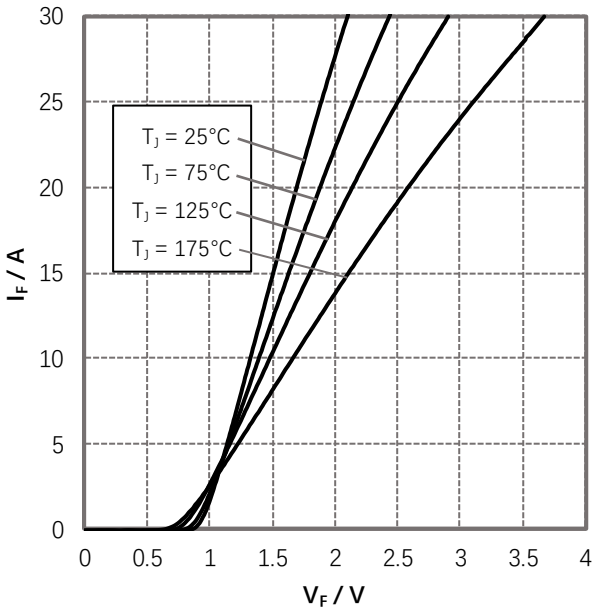


Figure 1. Forward Characteristics

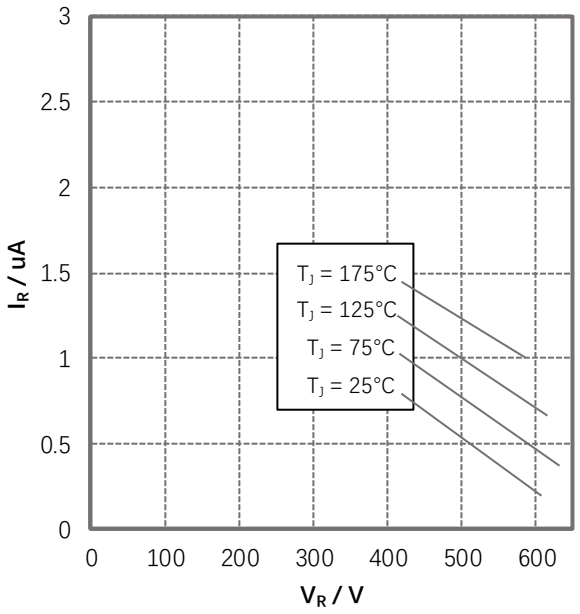


Figure 2. Reverse Characteristics

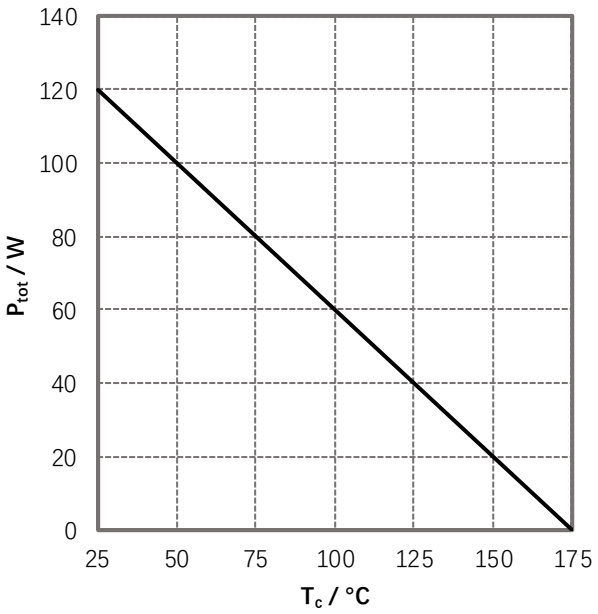


Figure 3. Power Derating

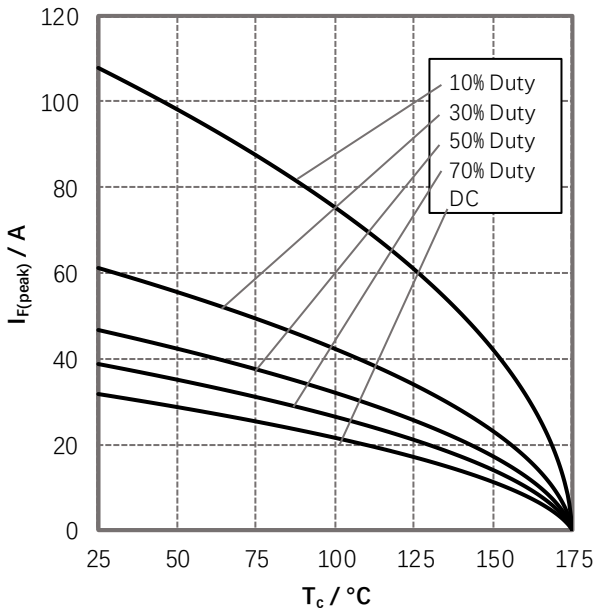


Figure 4. Current Derating
Valid for switching of above 20kHz, excluding D.C. curve

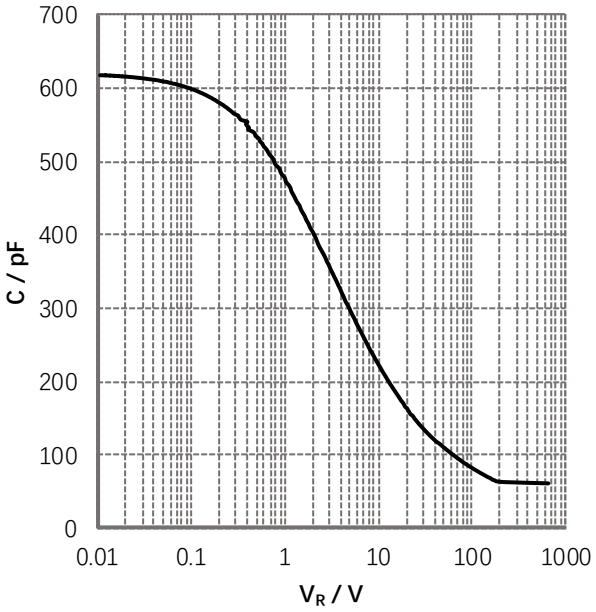


Figure 5. Capacitance vs. Reverse Voltage

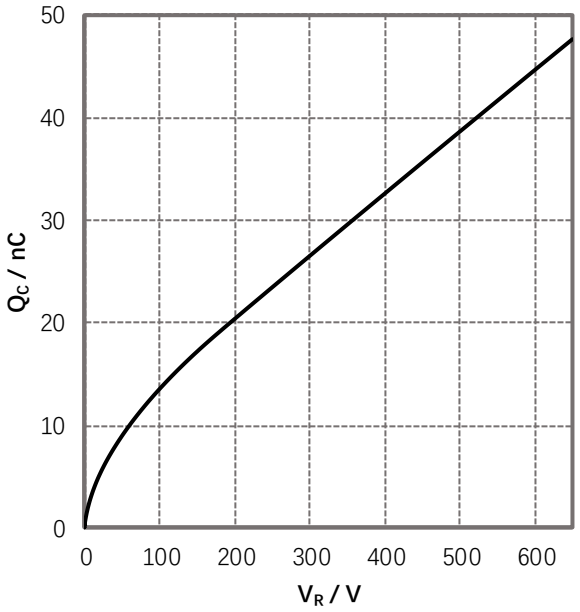


Figure 6. Reverse Charge vs. Reverse Voltage

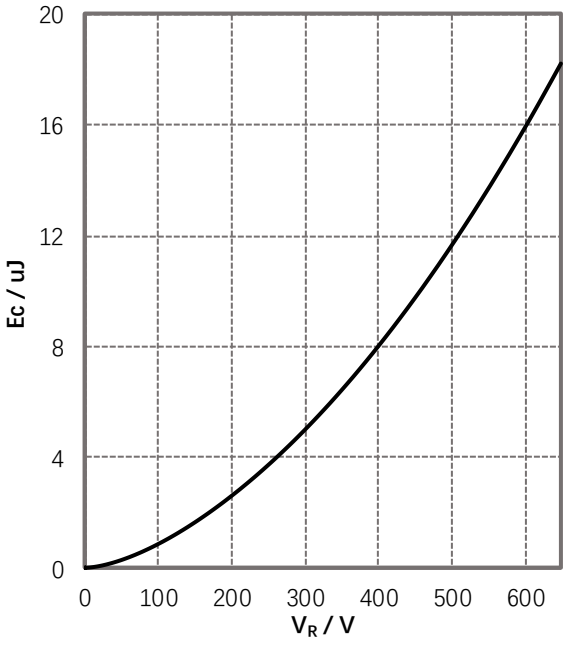


Figure 7. Capacitance Stored Energy

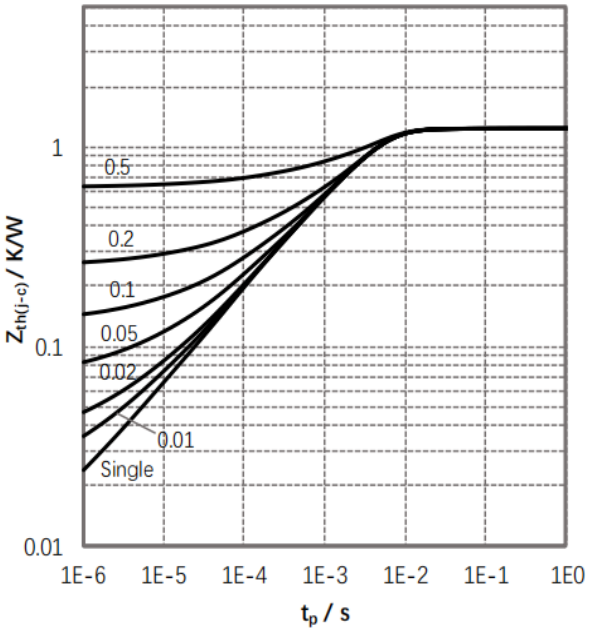
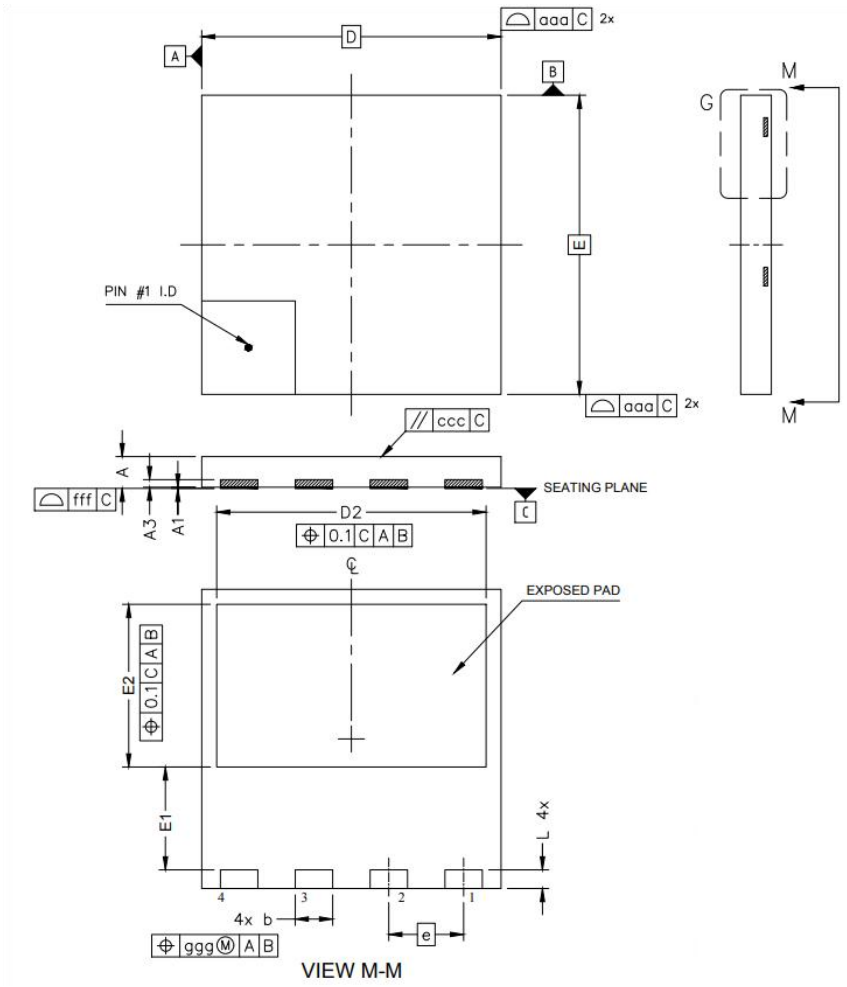


Figure 8. Transient Thermal Impedance

Package Outlines(Unit:mm)

PDFN8x8



SYMBOL	MIN	MAX
A	0.75	0.95
A1	0.00	0.05
A3	0.10	0.30
b	0.90	1.10
D	7.90	8.10
E	7.90	8.10
D2	7.10	7.30
E1	2.65	2.85
E2	4.25	4.45
e	2.00 BSC	
L	0.40	0.60
aaa	0.10	
ggg	0.05	
ccc	0.05	
fff	0.05	

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