



芯长铭科技

# MPCC6N120A

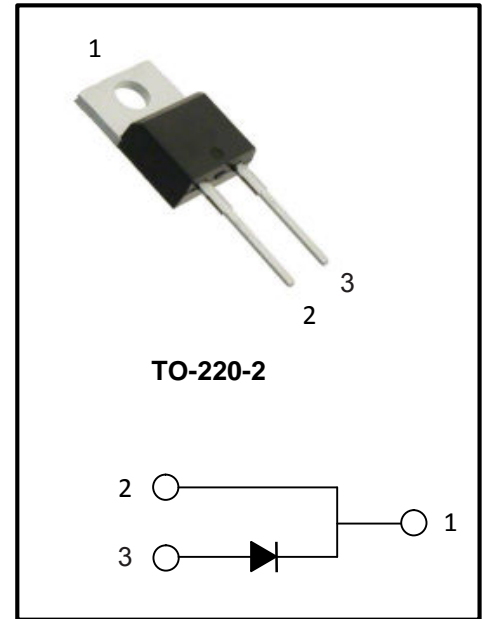
## Silicon Carbide Schottky Diode

### Features

- Zero Reverse Recovery Current
- Zero Forward Recovery Voltage
- Temperature-independent Switching Behavior
- Positive Temperature Coefficient on  $V_F$
- High-speed switching possible
- High surge current capability

### Applications

- Switch Mode Power Supply(SMPS)
- Motor Drives
- Power Factor Correction(PFC)



### Ordering Information

Ordering Information		
Type NO.	Marking	Package
MPCC6N120A	MPCC6N120A	TO-220-2

### Maximum Ratings (T<sub>C</sub> = 25°C unless otherwise specified)

Symbol	Parameter	Value	Unit	Test Conditions	Note
V <sub>RRM</sub>	Repetitive Peak Reverse Voltage	1200	V		
V <sub>RSM</sub>	Surge Peak Reverse Voltage	1200	V		
V <sub>DC</sub>	DC Blocking Voltage	1200	V		
I <sub>F</sub>	Continuous Forward Current	19 6	A	T <sub>C</sub> =25°C T <sub>C</sub> =155°C	Fig. 7
I <sub>FSM</sub>	Non Repetitive Forward Surge Current	60	A	T <sub>C</sub> =25°C, t <sub>p</sub> =8.3ms, Half Sine Wave	
I <sub>F,Max</sub>	Non-Repetitive Peak Forward Current	472	A	T <sub>C</sub> =25°C, t <sub>p</sub> = 10 μs, Pulse	
P <sub>tot</sub>	Power Dissipation	109	W	T <sub>C</sub> =25°C	Fig. 6
T <sub>J</sub> , T <sub>stg</sub>	Operating Junction and Storage Temperature	-55 to +175	°C		



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### Electrical Characteristics

Symbol	Parameter	Typ.	Max.	Unit	Test Conditions	Note
$V_F$	Forward Voltage	1.58 2.18	1.8 2.5	V	$I_F = 6\text{ A } T_J = 25^\circ\text{C}$ $I_F = 6\text{ A } T_J = 175^\circ\text{C}$	Fig. 1
$I_R$	Reverse Current	1 8	20 200	$\mu\text{A}$	$V_R = 1200\text{ V } T_J = 25^\circ\text{C}$ $V_R = 1200\text{ V } T_J = 175^\circ\text{C}$	Fig. 2
$Q_C$	Total Capacitive Charge	19		nC	$V_R = 1200\text{ V},$ $T_J = 25^\circ\text{C}$ $Q_C = \int_0^{V_R} C(V)dV$	Fig. 4
C	Total Capacitance	385 28 22		pF	$V_R = 0\text{ V}, T_J = 25^\circ\text{C}, f = 1\text{ MHz}$ $V_R = 400\text{ V}, T_J = 25^\circ\text{C}, f = 1\text{ MHz}$ $V_R = 800\text{ V}, T_J = 25^\circ\text{C}, f = 1\text{ MHz}$	Fig. 3
$E_C$	Capacitance Stored Energy	4.1		$\mu\text{J}$	$V_R = 600\text{ V}$	Fig. 5

### Thermal Characteristics

Symbol	Parameter	Typ.	Unit	Note
$R_{\theta JC}$	Thermal Resistance from Junction to Case	1.08	$^\circ\text{C}/\text{W}$	Fig. 8



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### Typical Performance

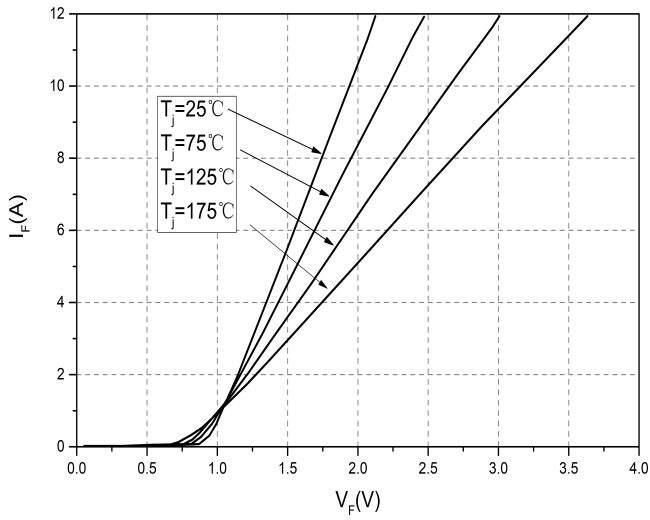


Figure 1. Forward Characteristics

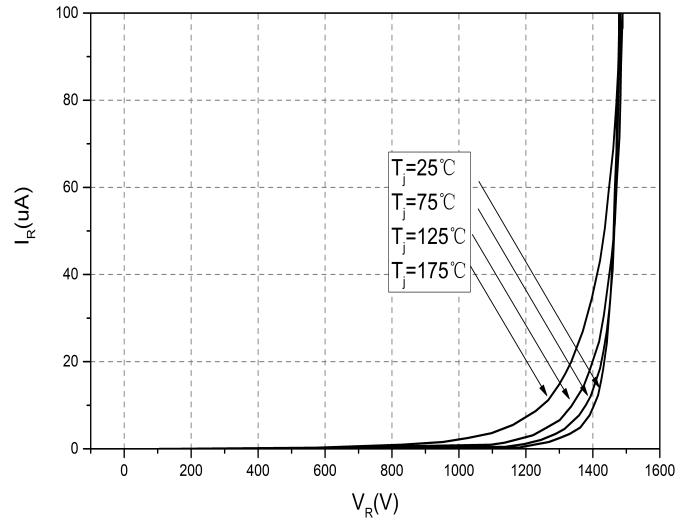


Figure 2. Reverse Characteristics

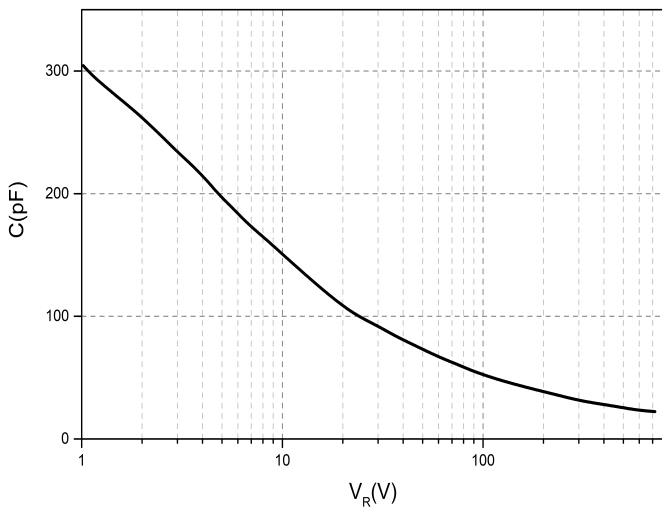


Figure 3. Capacitance vs. Reverse Voltage

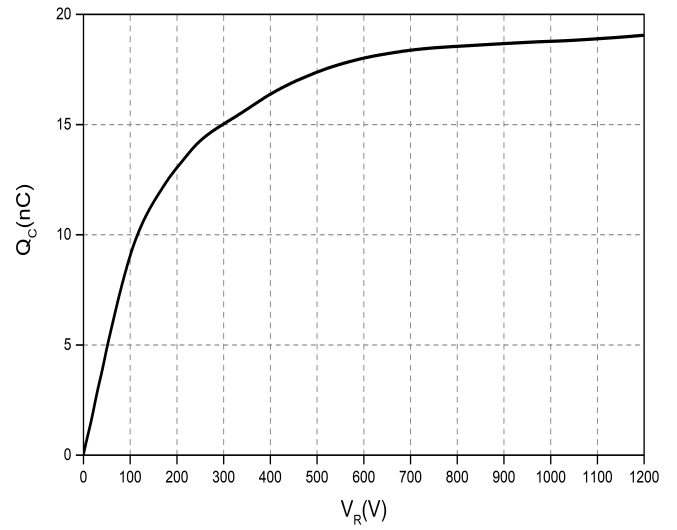


Figure 4. Total Capacitance Charge vs. Reverse Voltage



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### Typical Performance

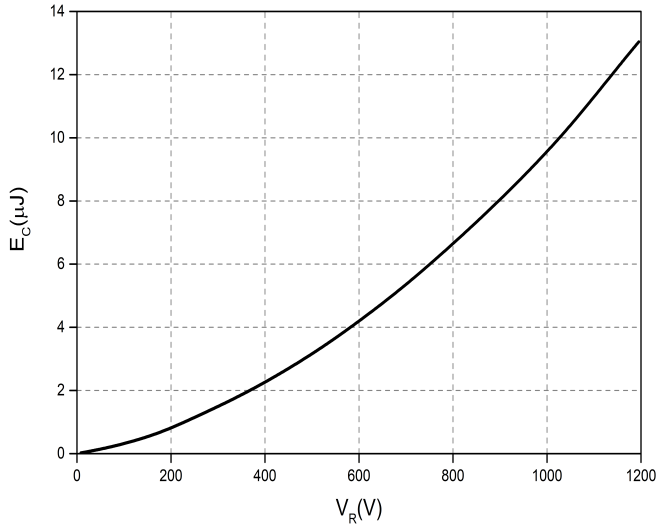


Figure 5. Capacitance Stored Energy

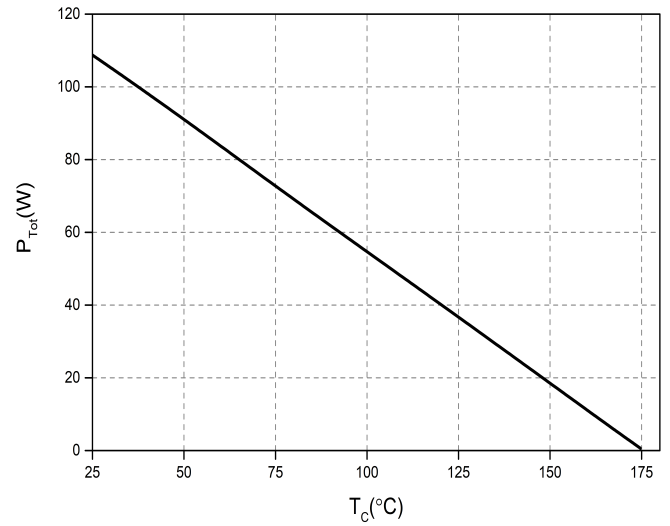


Figure 6. Power derating

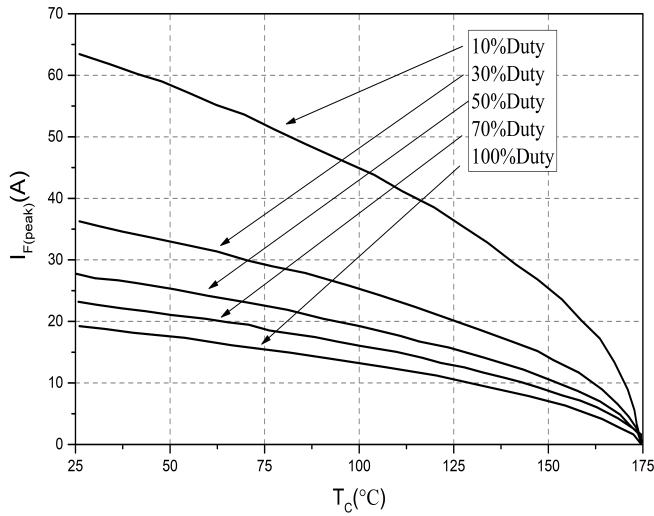


Figure 7. Current Derating

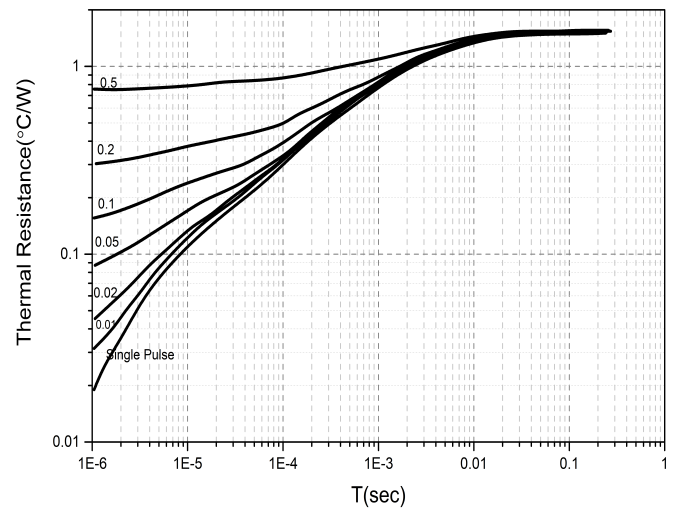


Figure 8. Transient Thermal Impedance



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## Outline Dimensions

unit : mm

