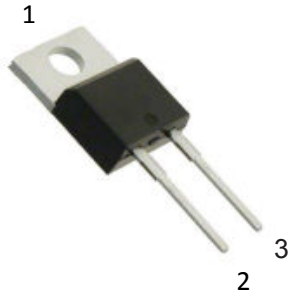
MPCC10N120

Silicon Carbide Schottky Diode

Features

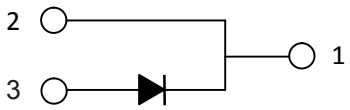
- Shorter recovery time
- Reduced temperature dependence
- High-speed switching possible
- High surge current capability



TO-220-2

Construction

- Silicion carbide epitaxial planar type



Ordering Information

Type No.	Marking	Package Code
MPCC10N120	MPCC10N120	TO-220-2

Maximum Ratings (T_c = 25°C unless otherwise specified)

Symbol	Parameter	Value	Unit	Test Conditions	Note
V_{RRM}	Repetitive Peak Reverse Voltage	1200	V		
V_{RSM}	Surge Peak Reverse Voltage	1200	V		
V_{DC}	DC Blocking Voltage	1200	V		
I_F	Continuous Forward Current	34 19 10	A	T_C=25°C T_C=125°C T_C=150°C	Fig. 7
I_{FRM}	Repetitive Peak Forward Surge Current	50	A	T_C=25°C, t_P=10 ms, Half Sine Wave, D=0.3	
I_{FSM}	Non-Repetitive Peak Forward Surge Current	70	A	T_C=25°C, t_P=10ms, Half Sine Wave, D=0.3	
$I_{F,Max}$	Non-Repetitive Peak Forward Surge Current	600	A	T_C=25°C, t_P= 10 μs, Pulse	
P_{tot}	Power Dissipation	205 90	W	T_C=25°C T_C=110°C	Fig. 6
T_J, T_{stg}	Operating Junction and Storage Temperature	-55 to +175	°C		

Electrical Characteristics

Symbol	Parameter	Typ.	Max.	Unit	Test Conditions	Note
V_F	Forward Voltage	1.5 2.2	1.8	V	I_F= 10 A T_J=25°C I_F= 10 A T_J=175°C	Fig. 1
I_R	Reverse Current	10 50	100 400	μA	V_R= 1200 V T_J=25°C V_R= 1200 V T_J=175°C	Fig. 2
Q_C	Total Capacitive Charge	50		nC	V_R= 600 V, T_J= 25°C $Q_C=\int_0^{V_R} C(V)dV$	Fig. 4
C	Total Capacitance	610 46 40		pF	V_R= 0 V, T_J= 25°C, f = 1 MHz V_R= 400 V, T_J= 25°C, f = 1 MHz V_R= 600 V, T_J= 25°C, f = 1 MHz	Fig. 3
E_C	Capacitance Stored Energy	15		μJ	V_R= 600 V	Fig. 5

Thermal Characteristics

Symbol	Parameter	Typ.	Unit	Note
$R_{\theta JC}$	Thermal Resistance from Junction to Case	0.73	°C/W	Fig. 8

Typical Performance

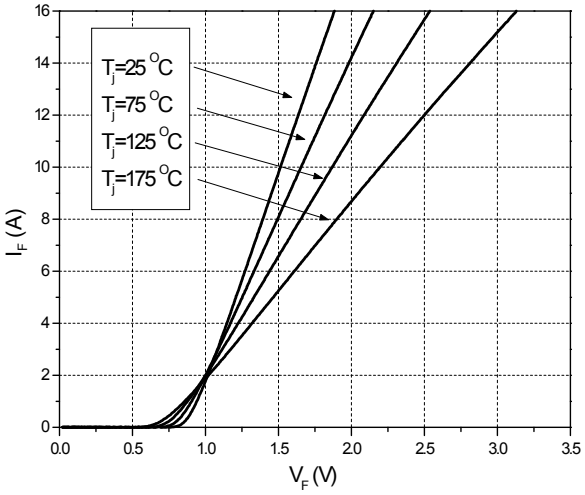


Figure 1.Forward Characteristics

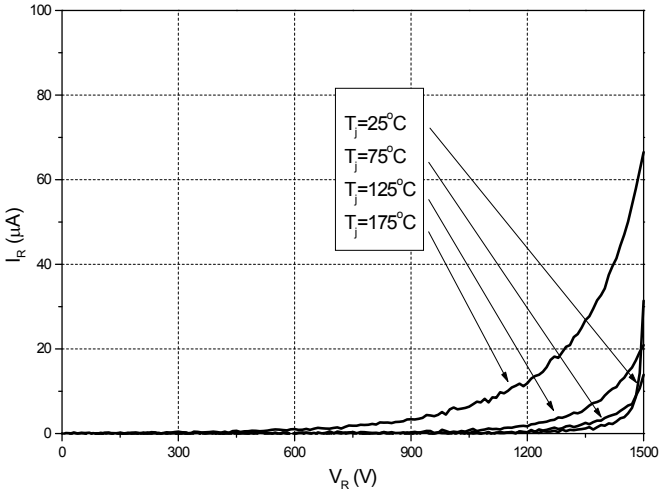


Figure2. Reverse Characteristics

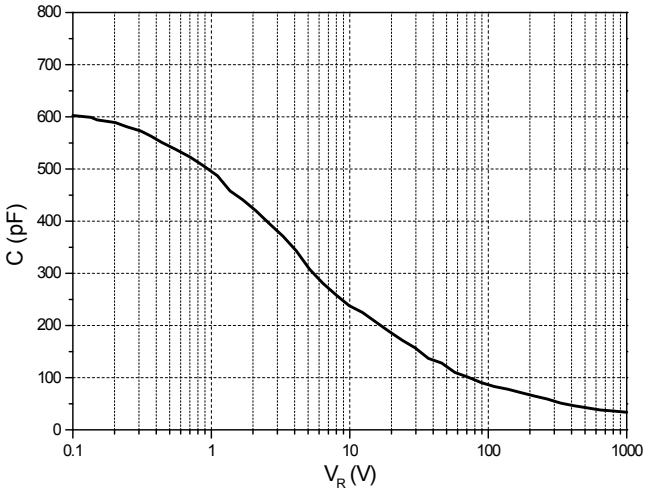


Figure 3.Capacitance vs. Reverse Voltage

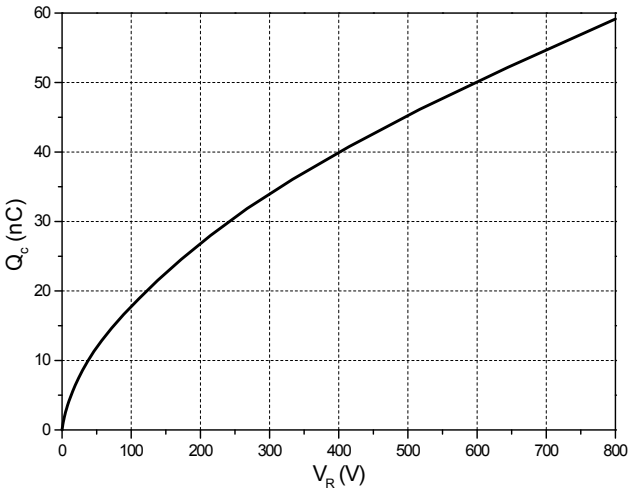


Figure 4. Total Capacitance Charge vs. Reverse Voltage

Typical Performance

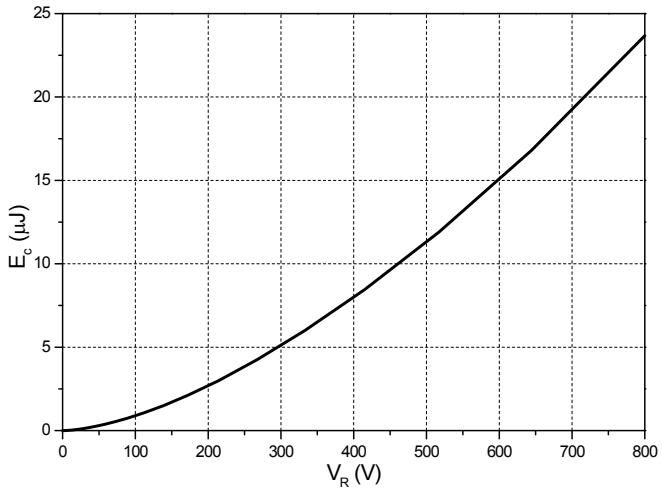


Figure 5. Capacitance Stored Energy

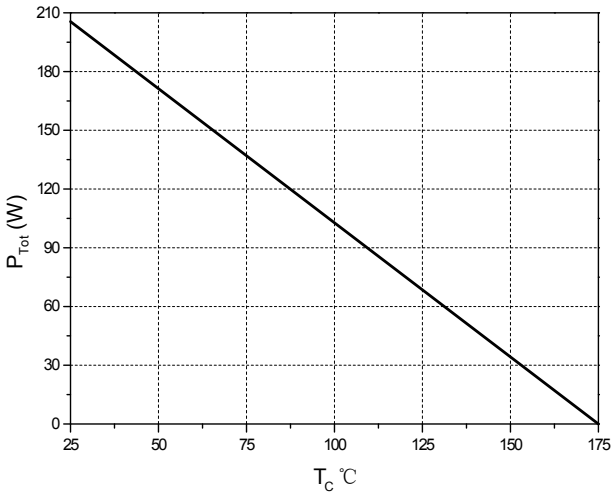


Figure 6. Power Derating

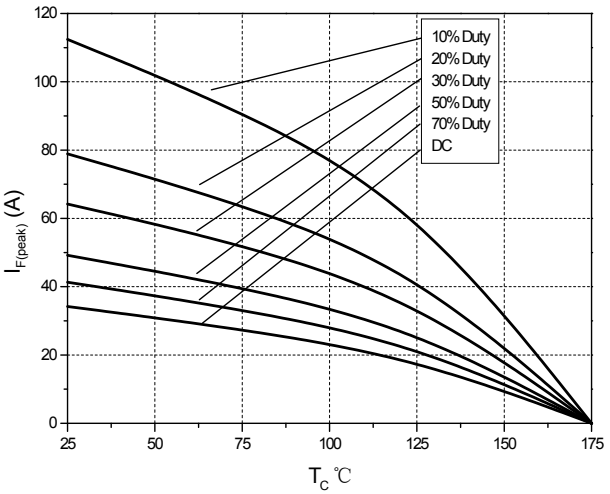


Figure 7. Current Derating

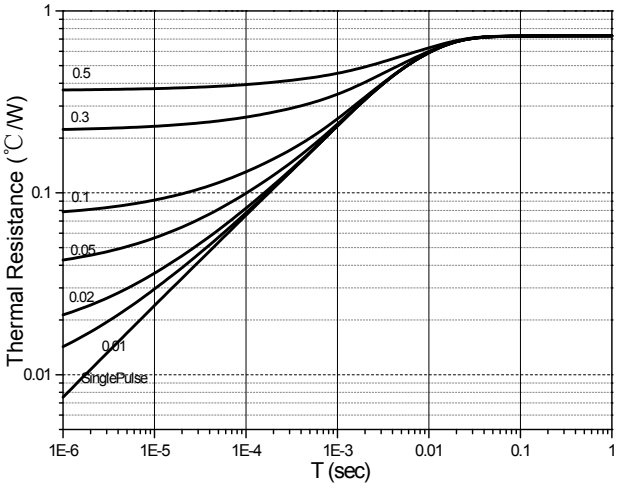


Figure 8. Transient Thermal Impendance