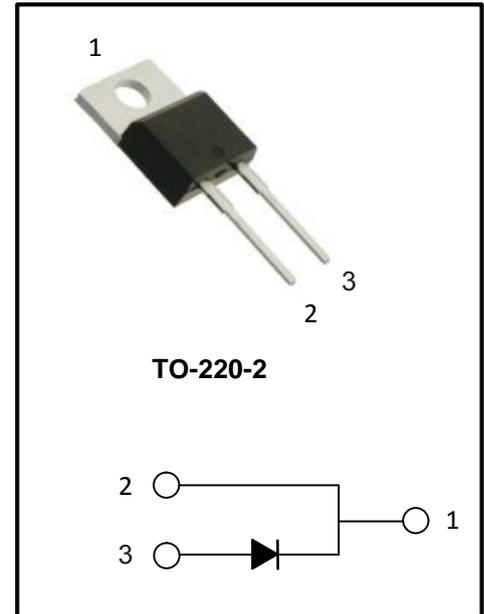


Features

- 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
MPCC6N65A	MPCC6N65A	TO-220-2

Maximum Ratings ($T_c = 25^\circ\text{C}$ unless otherwise specified)

Symbol	Parameter	Value	Unit	Test Conditions	Note
V_{RRM}	Repetitive Peak Reverse Voltage	650	V		
V_{RSM}	Surge Peak Reverse Voltage	650	V		
V_{DC}	DC Blocking Voltage	650	V		
I_F	Continuous Forward Current	22 11 6	A	$T_c=25^\circ\text{C}$ $T_c=110^\circ\text{C}$ $T_c=135^\circ\text{C}$	Fig. 7
I_{FRM}	Repetitive Peak Forward Surge Current	30	A	$T_c=25^\circ\text{C}$, $t_p=8.3$ ms, Half Sine Wave, $D=0.3$	
I_{FSM}	Non-Repetitive Peak Forward Surge Current	60	A	$T_c=25^\circ\text{C}$, $t_p=8.3$ ms, Half Sine Wave	
$I_{F,Max}$	Non-Repetitive Peak Forward Surge Current	500	A	$T_c=25^\circ\text{C}$, $t_p=10$ μs , Pulse	
P_{tot}	Power Dissipation	111 51	W	$T_c=25^\circ\text{C}$ $T_c=110^\circ\text{C}$	Fig. 6
T_J, T_{stg}	Operating Junction and Storage Temperature	-55 to +175	$^\circ\text{C}$		



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MPCC6N65A

Silicon Carbide Schottky Diode

Electrical Characteristics

Symbol	Parameter	Typ.	Max.	Unit	Test Conditions	Note
V_F	Forward Voltage	1.4 1.75	1.65 2.3	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 5	20 100	μA	$V_R = 650\text{ V } T_J = 25^\circ\text{C}$ $V_R = 650\text{ V } T_J = 175^\circ\text{C}$	Fig. 2
Q_C	Total Capacitive Charge	18		nC	$V_R = 400\text{ V}$ $T_J = 25^\circ\text{C}$ $Q_C = \int_0^{V_R} C(V) dV$	Fig. 4
C	Total Capacitance	300 34 30		pF	$V_R = 0\text{ V}, T_J = 25^\circ\text{C}, f = 1\text{ MHz}$ $V_R = 200\text{ V}, T_J = 25^\circ\text{C}, f = 1\text{ MHz}$ $V_R = 400\text{ V}, T_J = 25^\circ\text{C}, f = 1\text{ MHz}$	Fig. 3
E_C	Capacitance Stored Energy	4.3		μJ	$V_R = 400\text{ V}$	Fig. 5

Thermal Characteristics

Symbol	Parameter	Typ.	Unit	Note
$R_{\theta JC}$	Thermal Resistance from Junction to Case	1.6	$^\circ\text{C/W}$	Fig. 8



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Silicon Carbide Schottky Diode

Typical Performance

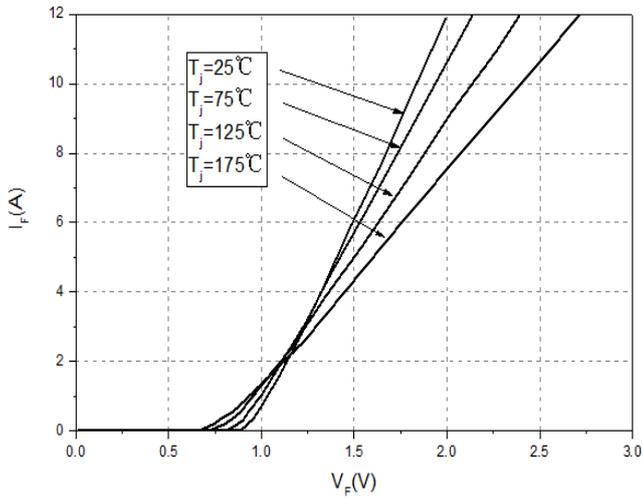


Figure 1. Forward Characteristics

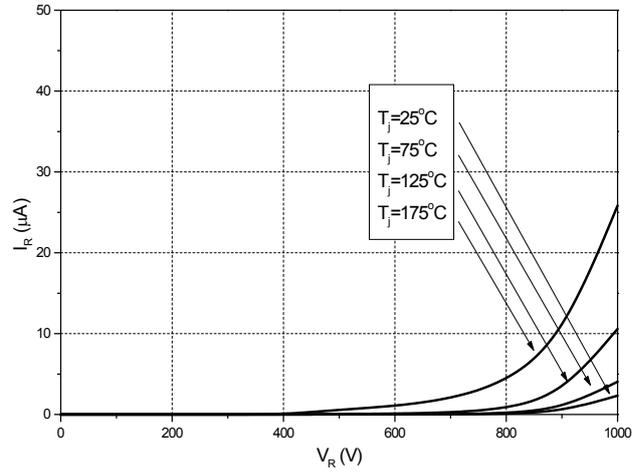


Figure 2. Reverse Characteristics

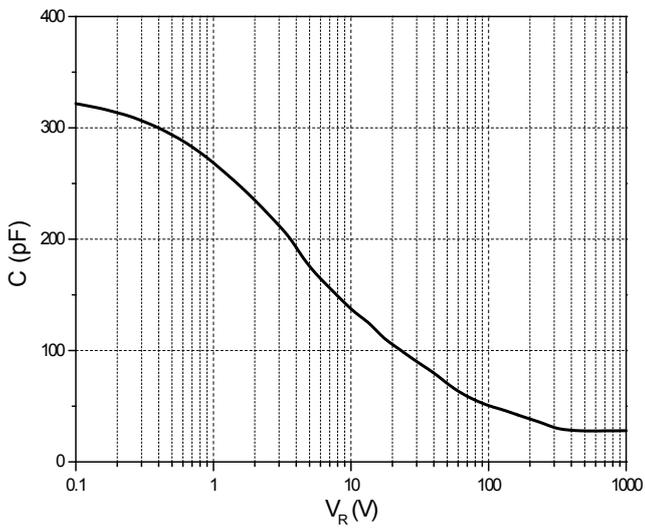


Figure 3. Capacitance vs. Reverse Voltage

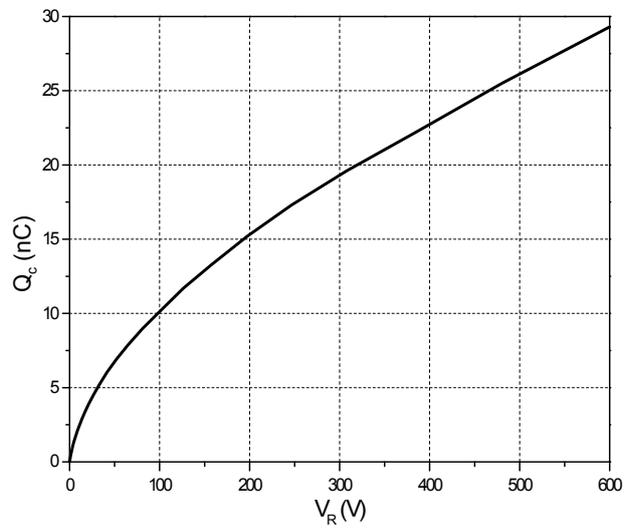


Figure 4. Total Capacitance Charge vs. Reverse Voltage



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Silicon Carbide Schottky Diode

Typical Performance

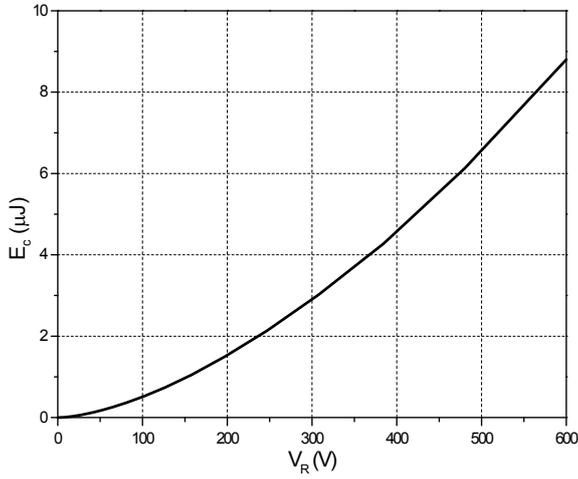


Figure 5. Capacitance Stored Energy

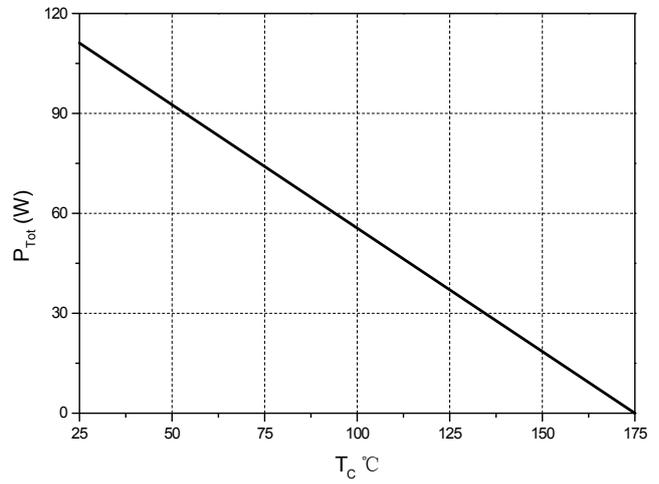


Figure 6. Power Derating

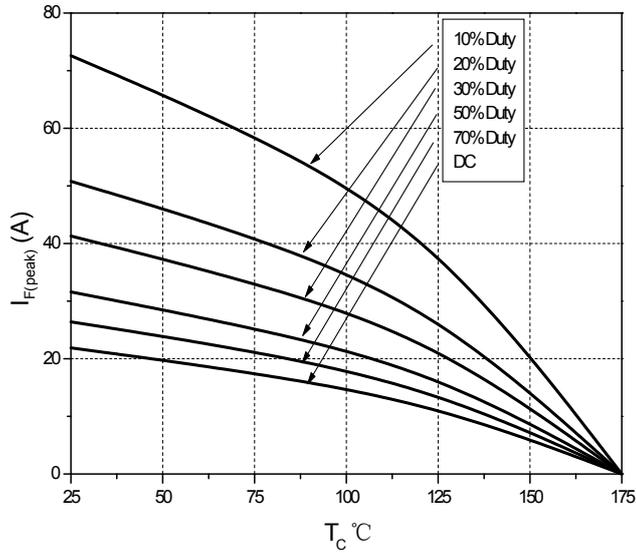


Figure 7. Current Derating

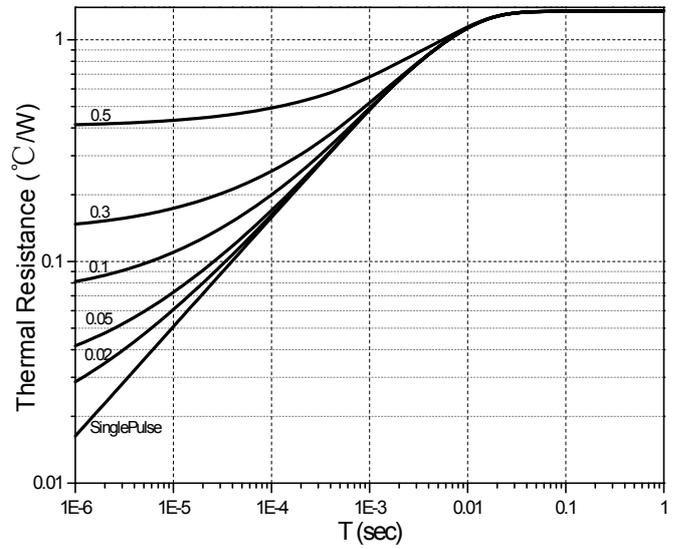


Figure 8. Transient Thermal Impedance



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Outline Dimensions

unit : mm

