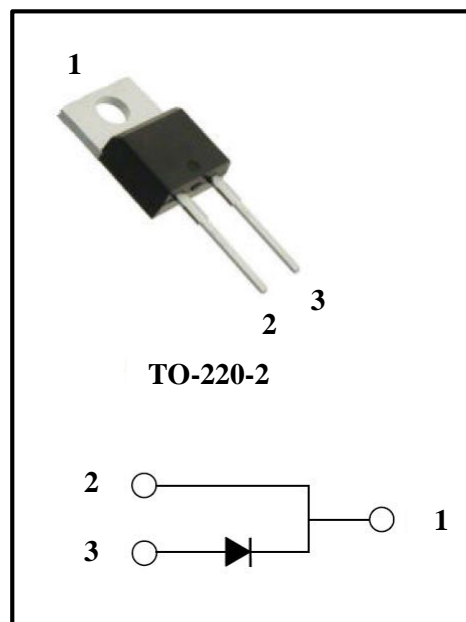


Features

- 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		
Type N0.	Marking	Package
MPCC15N65A	MPCC15N65A	TO-220-2

Absolute Maximum Ratings $T_C = 25^\circ\text{C}$, unless otherwise noted					
Parameter	Symbol	Test Conditions	Value	Unit	Note
Repetitive Peak Reverse Voltage	V_{RRM}		650	V	
Surge Peak Reverse Voltage	V_{RSM}		650	V	
DC Blocking Voltage	V_{DC}		650	V	
Continuous Forward Current	I_F	$T_C = 25^\circ\text{C}$	39	A	Fig.7
		$T_C = 150^\circ\text{C}$	15		
Non-Repetitive Forward Surge Current	I_{FSM}	$T_C = 25^\circ\text{C}$, $t_p=8.3\text{ms}$, Half Sine Wave	135	A	
Non-Repetitive Peak Forward Current	$I_{F,Max}$	$T_C = 25^\circ\text{C}$, $t_p=10\mu\text{s}$, Pulse	1400	A	
Power Dissipation	P_{tot}	$T_C = 25^\circ\text{C}$	160	W	Fig.6
Operating Junction and Storage Temperature	T_J, T_{stg}		-55~+175	$^\circ\text{C}$	



芯善物科技

MPCC15N65A

Silicon Carbide Schottky Diode

Electrical Characteristics $T_J = 25^\circ\text{C}$, unless otherwise noted							
Parameter	Symbol	Test Conditions	Value			Unit	Note
			Min.	Typ.	Max.		
Forward Voltage	V_F	$I_F = 4\text{A}, T_J = 25^\circ\text{C}$	--	1.4	1.65	V	Fig.1
		$I_F = 4\text{A}, T_J = 175^\circ\text{C}$	--	1.7	2.3		
Reverse Current	I_R	$V_R = 650\text{V}, T_J = 25^\circ\text{C}$	--	2	20	uA	Fig.2
		$V_R = 650\text{V}, T_J = 175^\circ\text{C}$	--	10	200	uA	
Total Capacitance	C	$V_R = 0\text{V}, f=1\text{ MHz}$	--	865	--	pF	Fig.3
		$V_R = 200\text{V}, f=1\text{ MHz}$	--	88	--		
		$V_R = 400\text{V}, f=1\text{ MHz}$	--	72	--		
Total Capacitive charge	Q_c	$V_{DD} = 400\text{V}, T_J = 25^\circ\text{C},$ $Q_c = \int_0^{V_R} C(V)dV$		33		nC	Fig.4
Capacitance Stored Energy	E_c	$V_R = 400\text{V}$		6.2		uJ	Fig.5

Thermal Characteristics				
Parameter	Symbol	Typ.	Unit	Note
Thermal Resistance from Junction to Case	R_{thJC}	1.0	$^\circ\text{C}/\text{W}$	Fig.8

Typical Performance $T_j = 25^\circ\text{C}$, unless otherwise noted

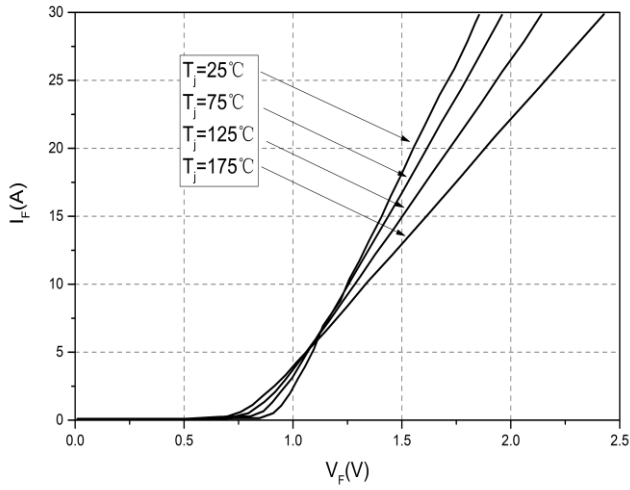


Figure 1. Forward Characteristics

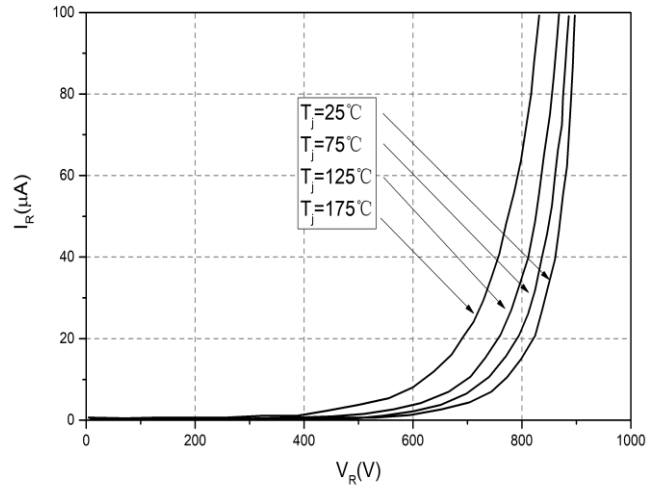


Figure 2. Reverse Characteristics

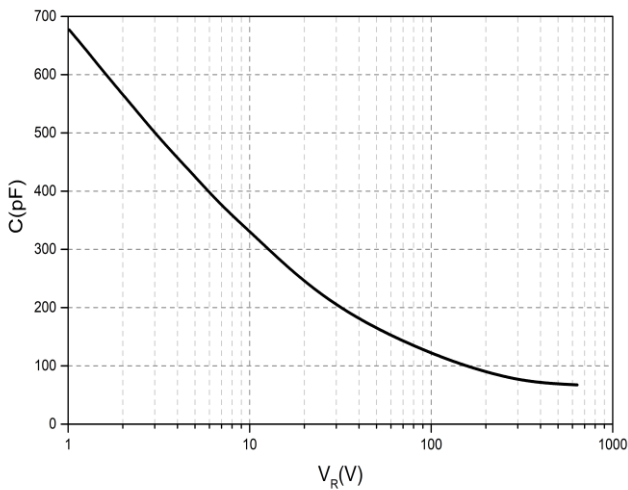


Figure 3. Capacitance vs. Reverse Voltage

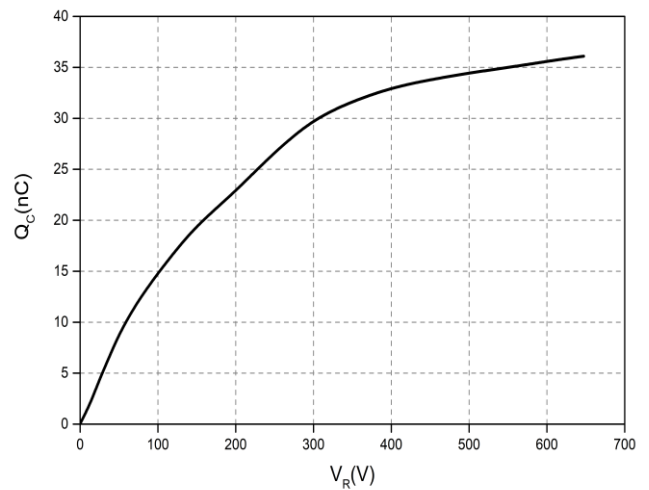


Figure 4. Total Capacitance Charge vs. Reverse Voltage

Typical Performance $T_J = 25^\circ\text{C}$, unless otherwise noted

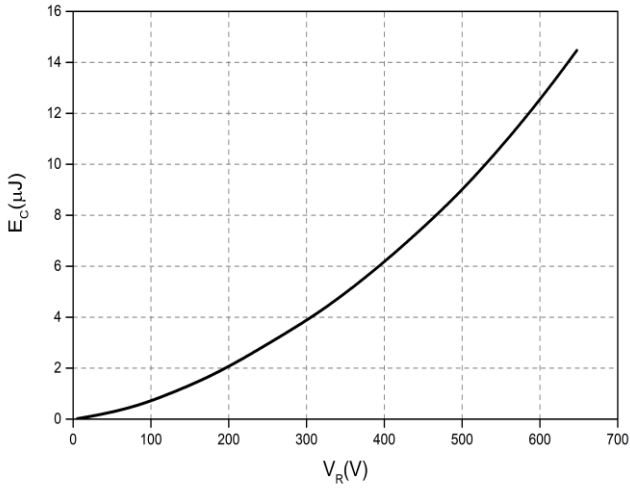


Figure 5. Capacitance Stored Energy

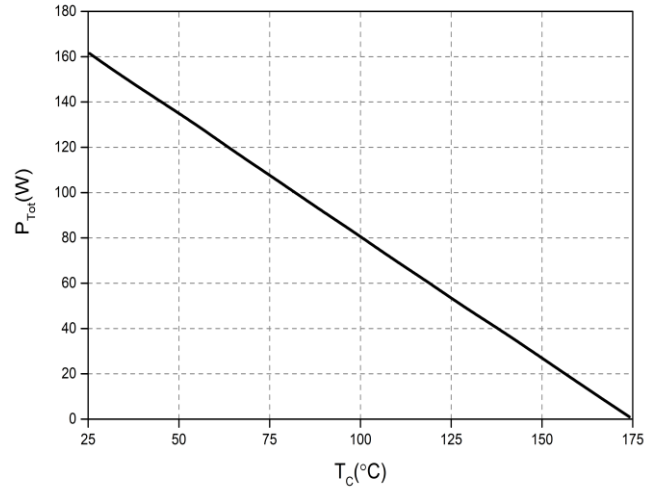


Figure 6. Power derating

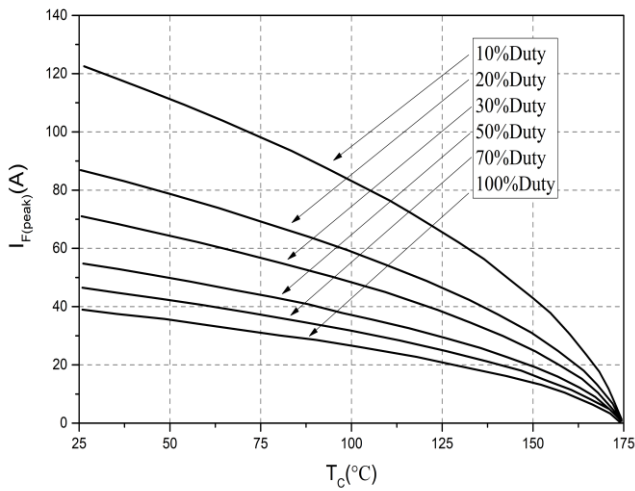


Figure 7. Current Derating

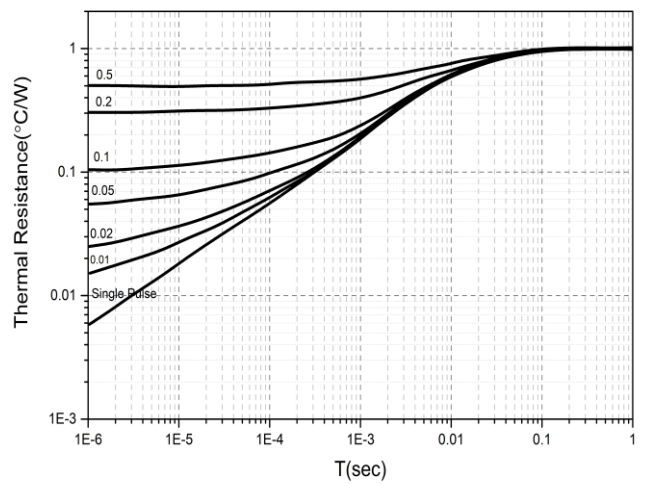


Figure 8. Transient Thermal Impedance

Outline Dimensions

Unit: μm

