

## Features

- Zero Reverse Recovery Current
- Positive Temperature Coefficient
- High-Speed Switching
- Epoxy Meets UL 94 V-0 Flammability Rating
- Halogen Free. "Green" Device (Note1)
- Lead Free Finish/RoHS Compliant(Note2) ("P" Suffix designates RoHS Compliant. See ordering information)

## Benefits

- Temperature-Independent Performance
- Low Switching Loss
- Low Heat Dissipation Requirements

## Applications

- Solar inverter
- Power Factor Correction
- Motor Drive
- Charging Pile

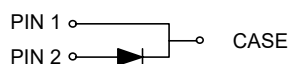
## Maximum Ratings

Parameter	Symbol	Rating	Unit
Peak Repetitive Reverse Voltage@ $T_j=25^{\circ}\text{C}$	$V_{RRM}$	650	V
Surge Peak Reverse Voltage@ $T_j=25^{\circ}\text{C}$	$V_{RSM}$	650	V
DC Reverse Voltage@ $T_j=25^{\circ}\text{C}$	$V_{DC}$	650	V
Continuous forward Current	@ $T_c=25^{\circ}\text{C}$	29	A
	@ $T_c=135^{\circ}\text{C}$	13	
	@ $T_c=163^{\circ}\text{C}$	6.0	
Non-repetitive Peak Forward Surge Current @ $T_c=25^{\circ}\text{C}$ , $t_p=10\text{ms}$ , Half Sine Pulse	$I_{FSM}$	75	A
Power Dissipation	@ $T_c=25^{\circ}\text{C}$	110	W
	@ $T_c=110^{\circ}\text{C}$	47	
$i^2t$ Value@ $T_c=25^{\circ}\text{C}$ , $t_p=10\text{ms}$	$\int i^2 dt$	28	A <sup>2</sup> S

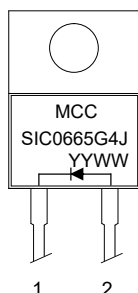
Note1: Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

Note2: High Temperature Solder Exemptions Applied, see EU Directive Annex 7a.

### Internal Structure:



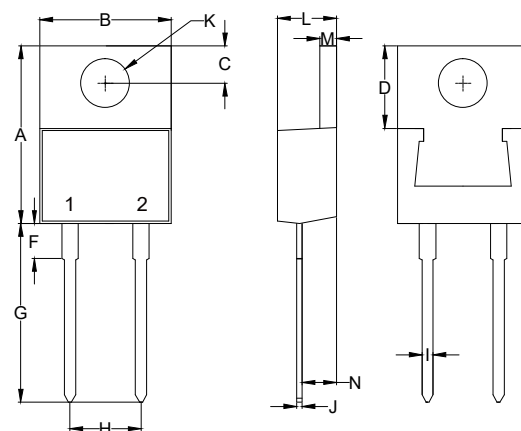
### Device Marking:



Device Code: SIC0665G4J  
Date Code: YYWW (Year & Week)

# 6 Amp Silicon Carbide Schottky Diode 650 Volts

## TO-220AC



DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.560	0.625	14.22	15.88	
B	0.380	0.420	9.65	10.67	
C	0.100	0.135	2.54	3.43	
D	0.230	0.270	5.84	6.86	
F	-----	0.250	-----	6.35	
G	0.500	0.580	12.70	14.73	
H	0.190	0.210	4.83	5.33	
I	0.020	0.045	0.51	1.14	
J	0.012	0.025	0.30	0.64	
K	0.139	0.161	3.53	4.09	Φ
L	0.140	0.190	3.56	4.83	
M	0.045	0.055	1.14	1.40	
N	0.080	0.115	2.03	2.92	

**Electrical Characteristics @ 25°C (Unless Otherwise Specified)**

Parameter	Symbol	Conditions	Typ.	Max.	Unit
Forward Voltage	$V_F$	$I_F=6A, T_J=25^{\circ}C$	1.20	1.40	V
		$I_F=6A, T_J=175^{\circ}C$	1.35		V
Reverse Leakage Current	$I_R$	$V_R=650V, T_J=25^{\circ}C$	0.5	25	$\mu A$
		$V_R=650V, T_J=175^{\circ}C$	5.0		$\mu A$
Total Capacitive Charge	$Q_C$	$V_R=400V, T_J=25^{\circ}C$	31		nC
Total capacitance	C	$V_R=0V, f=1MHz$	568		pF
		$V_R=200V, f=1MHz$	58		pF
		$V_R=400V, f=1MHz$	56		pF
Capacitance Stored Energy	$E_C$	$V_R=400V$	4.8		$\mu J$

**Thermal characteristics**

Parameter	Symbol	Min	Typ	Max	Unit
Operating Junction Temperature Range	$T_J$	-55		175	$^{\circ}C$
Storage Temperature Range	$T_{stg}$	-55		175	$^{\circ}C$
Thermal Resistance from Junction to Case	$R_{th_{J-C}}$		1.36		$^{\circ}C/W$

### Curve Characteristics

Figure 1. Forward Characteristics

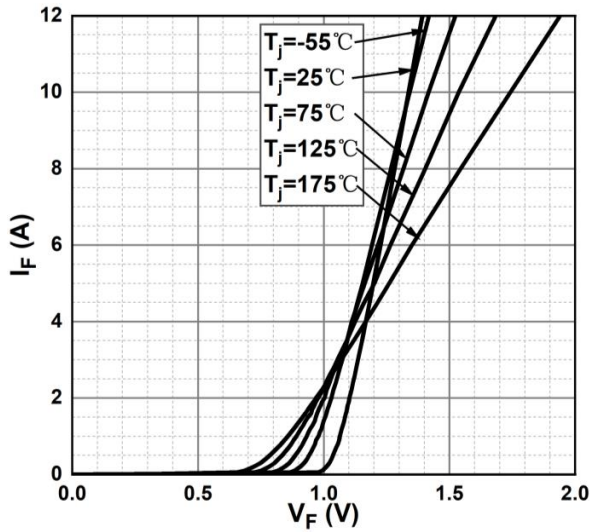


Figure 2. Reverse Characteristics

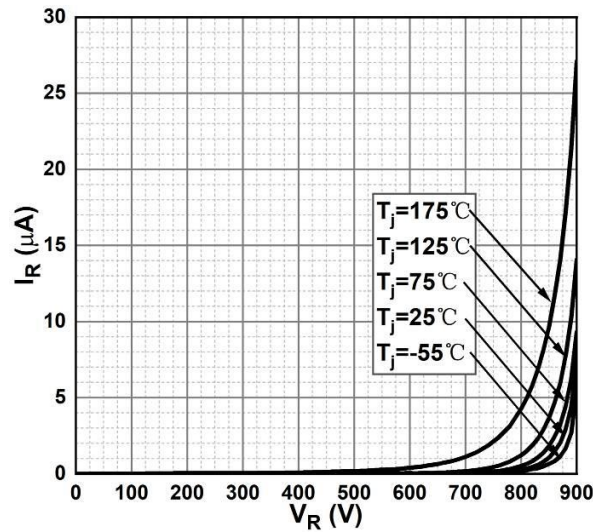


Figure 3. Capacitance vs. Reverse Voltage

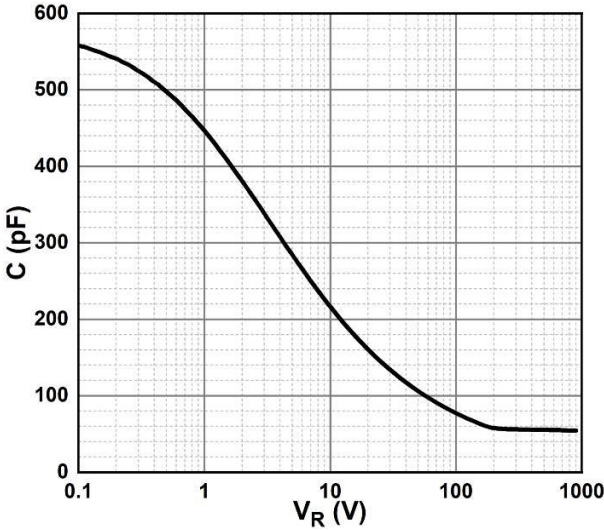


Figure 4. Total Capacitance Charge vs. Reverse Voltage

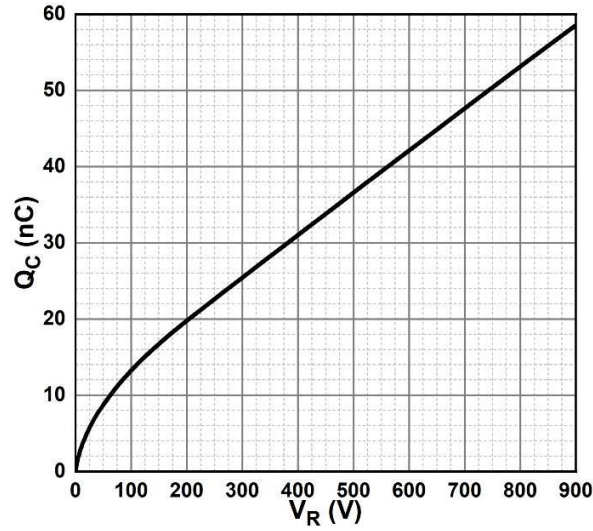


Figure 5. Capacitance Stored Energy

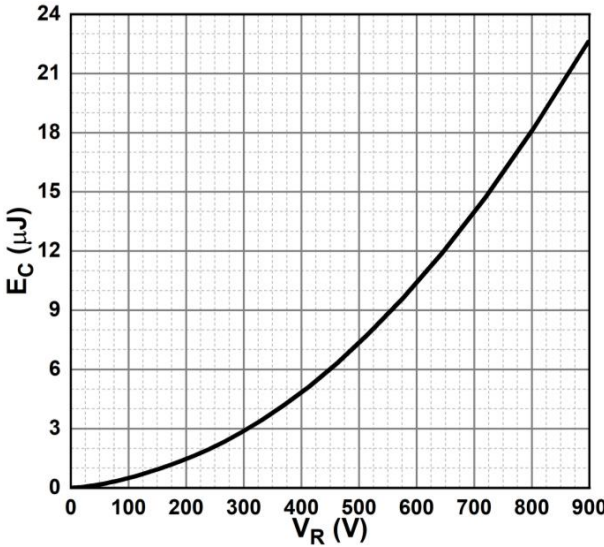
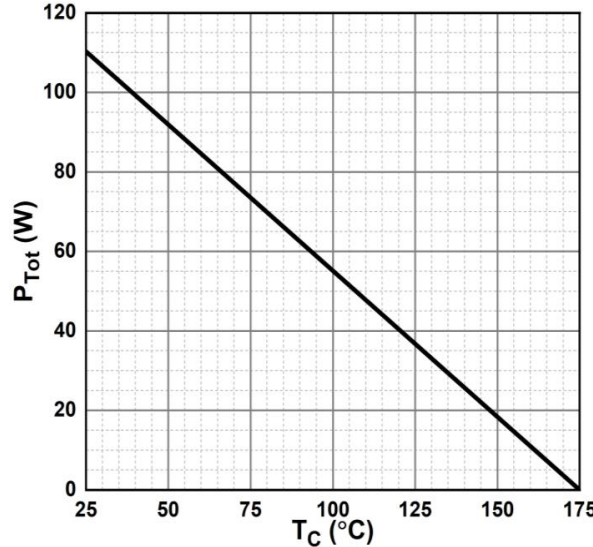


Figure 6. Power Derating



## Curve Characteristics

Fig. 7 - Current Derating

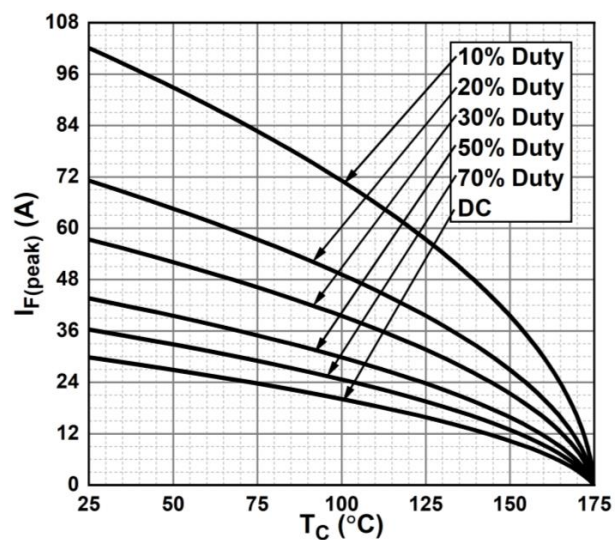
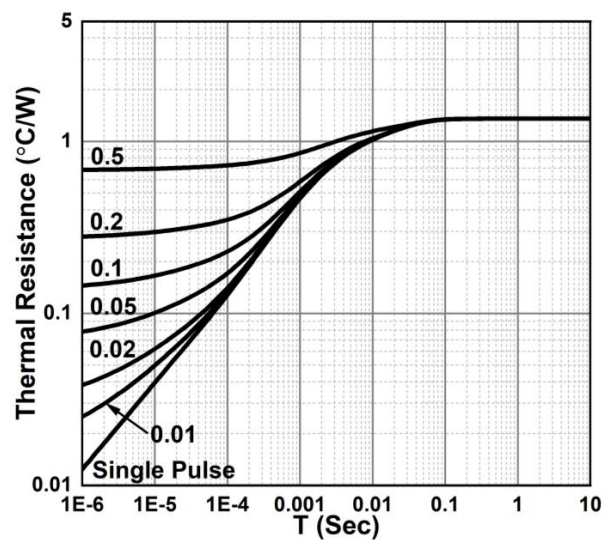


Fig. 8 - Transient Thermal Impedance



## Ordering Information

Device	Packing
Part Number-BP	Bulk: 50pcs/Tube, 1Kpcs/Box, 5Kpcs/Carton

### \*\*\*IMPORTANT NOTICE\*\*\*

**Micro Commercial Components Corp.** reserves the right to make changes without further notice to any product herein to make corrections, modifications , enhancements , improvements , or other changes . **Micro Commercial Components Corp.** does not assume any liability arising out of the application or use of any product described herein; neither does it convey any license under its patent rights ,nor the rights of others . The user of products in such applications shall assume all risks of such use and will agree to hold **Micro Commercial Components Corp.** and all the companies whose products are represented on our website, harmless against all damages. **Micro Commercial Components Corp.** products are sold subject to the general terms and conditions of commercial sale, as published at <https://www.mccsemi.com/Home/TermsAndConditions>.

### \*\*\*LIFE SUPPORT\*\*\*

MCC's products are not authorized for use as critical components in life support devices or systems without the express written approval of Micro Commercial Components Corporation.

### \*\*\*CUSTOMER AWARENESS\*\*\*

Counterfeiting of semiconductor parts is a growing problem in the industry. Micro Commercial Components (MCC) is taking strong measures to protect ourselves and our customers from the proliferation of counterfeit parts. MCC strongly encourages customers to purchase MCC parts either directly from MCC or from Authorized MCC Distributors who are listed by country on our web page cited below. Products customers buy either from MCC directly or from Authorized MCC Distributors are genuine parts, have full traceability, meet MCC's quality standards for handling and storage. **MCC will not provide any warranty coverage or other assistance for parts bought from Unauthorized Sources.** MCC is committed to combat this global problem and encourage our customers to do their part in stopping this practice by buying direct or from authorized distributors.