

## Features

- Zero Reverse Recovery Current
- AEC-Q101 Qualified
- Positive Temperature Coefficient
- High-Speed Switching
- Epoxy Meets UL 94 V-0 Flammability Rating
- Halogen Free. "Green" Device (Note 1)
- Lead Free Finish/RoHS Compliant(Note 2) ("P" Suffix designates RoHS Compliant. See ordering information)

## Benefits

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

## Applications

- Switching Power Supply
- Power Factor Correction
- Motor Drive, Traction
- Charging Pile

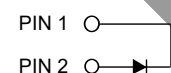
## Maximum Ratings

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 @ $T_C=25^{\circ}\text{C}$	$I_F$	7.9	A
Continuous forward Current @ $T_C=128^{\circ}\text{C}$	$I_F$	4	A
Non-repetitive Peak Forward Surge Current @ $T_C=25^{\circ}\text{C}$ , $t_p=10\text{ms}$ , Half Sine Pulse	$I_{FSM}$	28	A
Power Dissipation @ $T_C=25^{\circ}\text{C}$	$P_D$	25	W
Power Dissipation @ $T_C=110^{\circ}\text{C}$	$P_D$	10.9	W

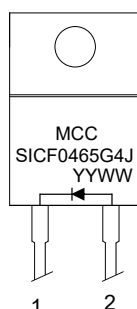
Note:

1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. High Temperature Solder Exemptions Applied, see EU Directive Annex 7a.

## Internal Structure:



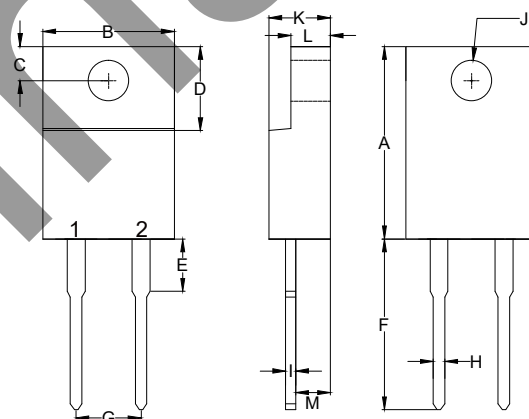
## Device Marking:



Device Code: SICF0465G4J  
Date Code: YYWW (Year & Week)

# 4Amp Silicon Carbide Schottky Barrier Rectifier 650 Volts

ITO-220AC



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.567	0.606	14.40	15.40	
B	-----	0.406	-----	10.30	
C	0.085	0.112	2.15	2.85	
D	0.248	0.272	6.30	6.90	
E	-----	0.161	-----	4.10	
F	0.500	0.559	12.70	14.20	
G	0.200		5.10		
H	-----	0.035	-----	0.90	
I	-----	0.032	-----	0.80	
J	0.102	0.150	2.60	3.80	Φ
K	-----	0.189	-----	4.80	
L	-----	0.123	-----	3.10	
M	0.098	0.114	2.50	2.90	

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

Parameter	Symbol	Conditions	Typ.	Max.	Units
Forward Voltage	$V_F$	$I_F=4A, T_J=25^{\circ}C$	1.45	1.65	V
		$I_F=4A, T_J=175^{\circ}C$	2.0		V
Reverse Leakage Current	$I_R$	$V_R=650V, T_J=25^{\circ}C$	0.1	20	$\mu A$
		$V_R=650V, T_J=175^{\circ}C$	1		$\mu A$
Total Capacitive Charge	$Q_C$	$V_R=400V$	11		nC
Total capacitance	C	$V_R=0V, f=1MHz$	194		pF
		$V_R=200V, f=1MHz$	20.5		pF
		$V_R=400V, f=1MHz$	19.5		pF
Capacitance Stored Energy	$E_C$	$V_R=400V$	1.34		$\mu J$

**Thermal characteristics**

Parameter	Symbol	Min	Typ	Max	Units
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	$R_{thJ-C}$		5.98		$^{\circ}C/W$

## Curve Characteristics

Figure 1. Forward Characteristics

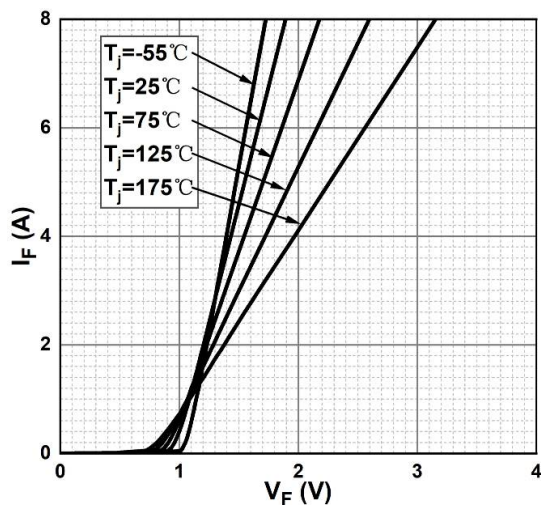


Figure 2. Reverse Characteristics

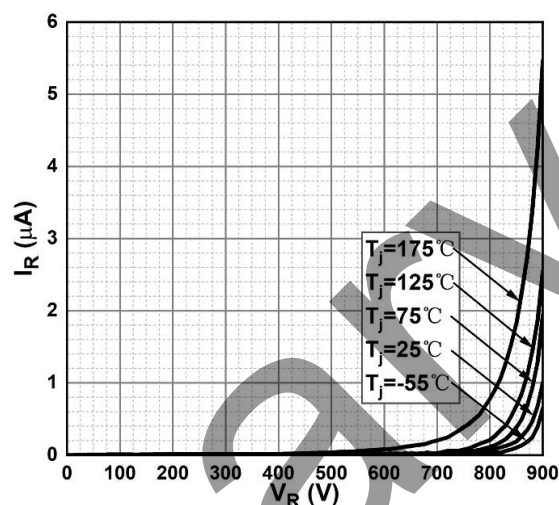


Figure 3. Capacitance vs. Reverse Voltage

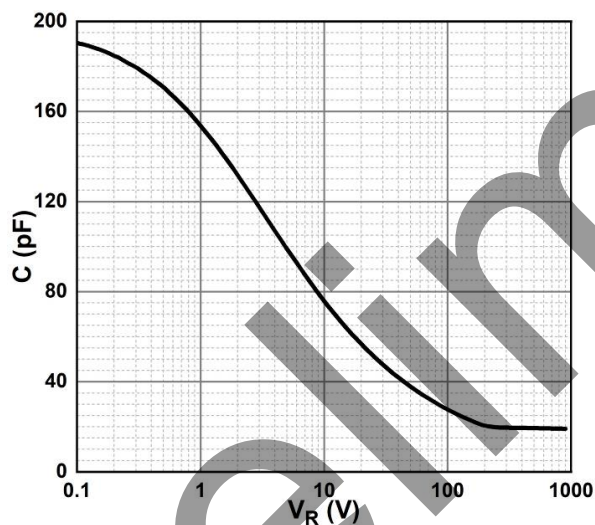


Figure 4. Total Capacitance Charge vs. Reverse Voltage

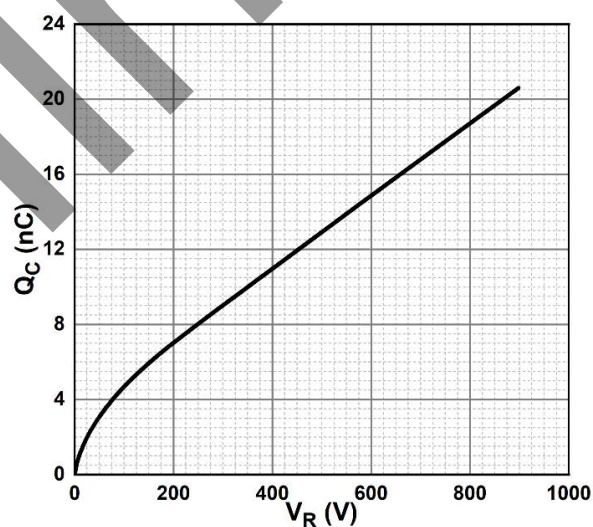


Figure 5. Capacitance Stored Energy

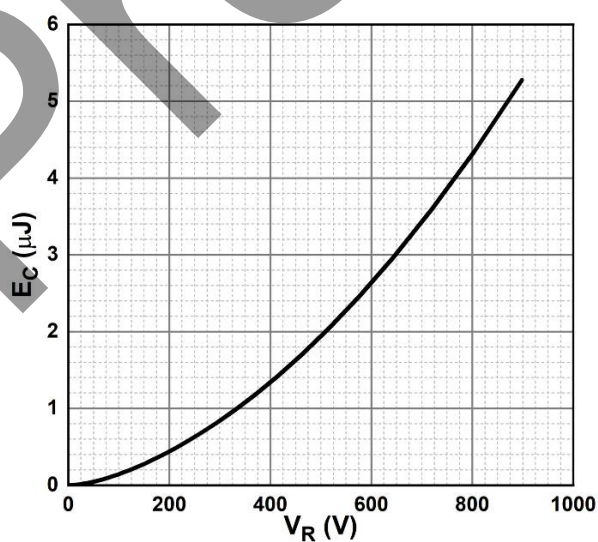
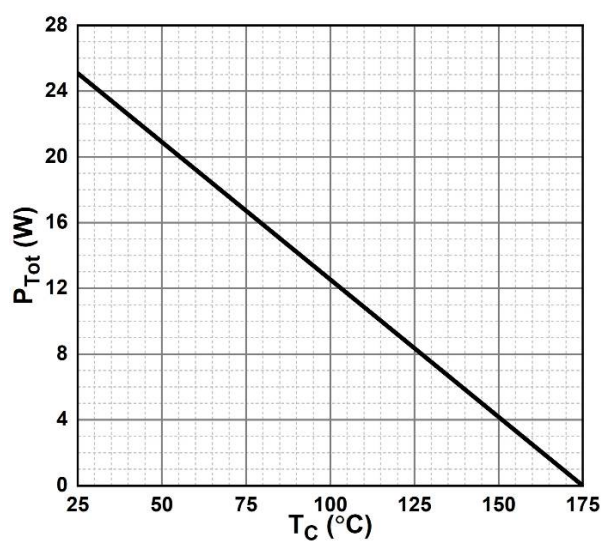


Figure 6. Power Derating



## Curve Characteristics

Figure 7. Current Derating

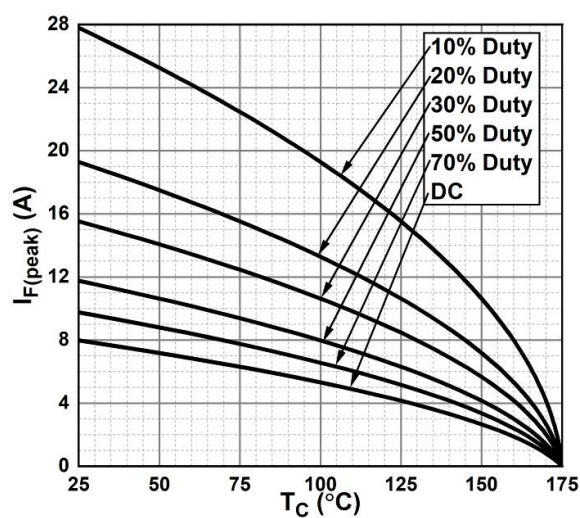
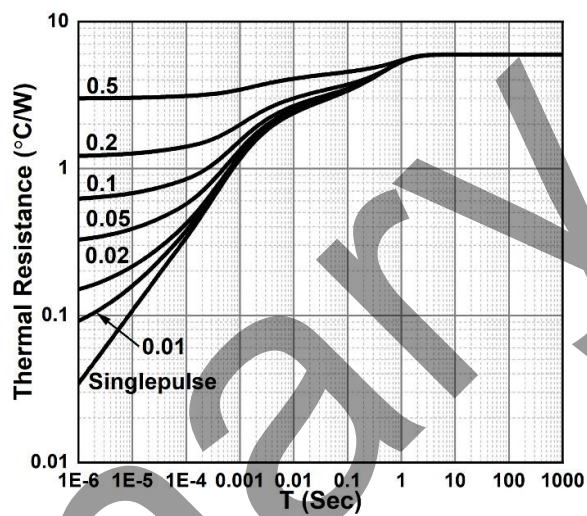


Figure 8. Transient Thermal Impedance



## Ordering Information

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

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