

## Features

- Zero Reverse Recovery Current
- Merged PiN Schottky (MPS) Diodes Technologies
- Positive Temperature Coefficient
- High-Speed Switching
- Epoxy Meets UL 94 V-0 Flammability Rating
- Halogen Free. "Green" Device <sup>(Note1)</sup>
- Lead Free Finish/RoHS Compliant<sup>(Note2)</sup> ("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@ $T_j=25^\circ\text{C}$	$V_{RRM}$	1200	V
Surge Peak Reverse Voltage@ $T_j=25^\circ\text{C}$	$V_{RSM}$	1200	V
DC Reverse Voltage@ $T_j=25^\circ\text{C}$	$V_{DC}$	1200	V
Continuous forward Current @ $T_c=25^\circ\text{C}$	$I_F$	41	A
		20	
Non-repetitive Peak Forward Surge Current @ $T_c=25^\circ\text{C}$ , $t_p=10\text{ms}$ , Half Sine Pulse	$I_{FSM}$	180	A
$i^2t$ Value@ $T_c=25^\circ\text{C}$ , $t_p=10\text{ms}$	$\int i^2 dt$	162	$\text{A}^2\text{S}$
Power Dissipation @ $T_c=25^\circ\text{C}$	$P_D$	161	W
		69	

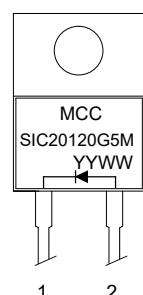
Note1: Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

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

## Internal Structure:

## Device Marking:

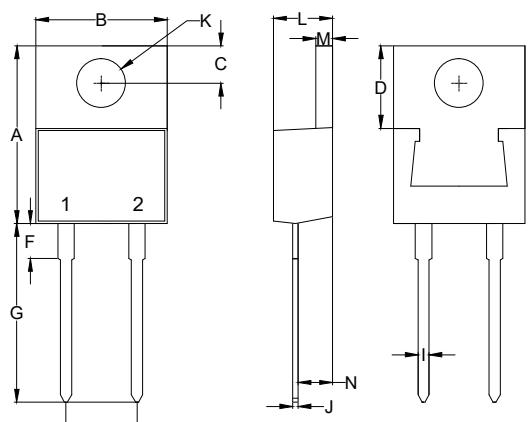
PIN 1 → CASE  
PIN 2 → CASE



Device Code: SIC20120G5M  
Date Code: YYWW (Year & Week)

# 20 Amp Silicon Carbide Schottky Diode 1200 Volts

## TO-220AC



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	$V_F$	$I_F=20A, T_J=25^\circ C$	1.48	1.70	V
		$I_F=20A, T_J=175^\circ C$	2.20		V
Reverse Leakage Current	$I_R$	$V_R=1200V, T_J=25^\circ C$	0.5	25	$\mu A$
		$V_R=1200V, T_J=175^\circ C$	30		$\mu A$
Total Capacitive Charge	$Q_C$	$V_R=800V, T_J=25^\circ C$	93		nC
Total capacitance	C	$V_R=0V, f=1MHz$	1265		pF
		$V_R=400V, f=1MHz$	87		pF
		$V_R=800V, f=1MHz$	67		pF
Capacitance Stored Energy	$E_C$	$V_R=800V$	26.5		$\mu J$

**Thermal characteristics**

Parameter	Symbol	Min	Typ	Max	Unit
Operating Junction Temperature Range	$T_j$	-55		175	°C
Storage Temperature Range	$T_{stg}$	-55		175	°C
Thermal Resistance from Junction to Case	$R_{thJ-C}$		0.93		°C/W

## Curve Characteristics

Figure 1. Forward Characteristics

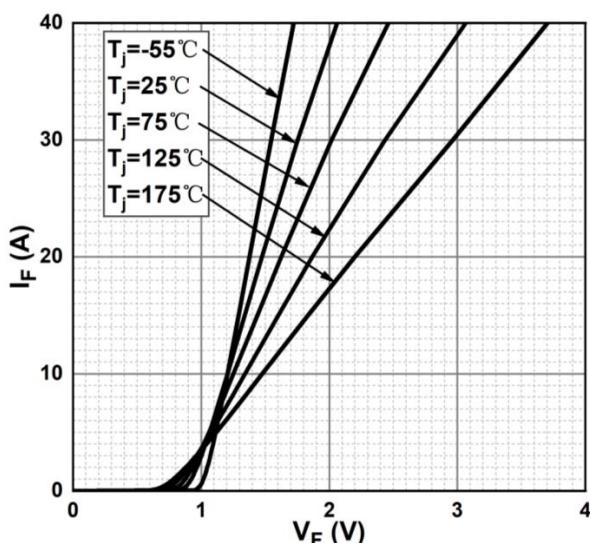


Figure 3. Capacitance vs. Reverse Voltage

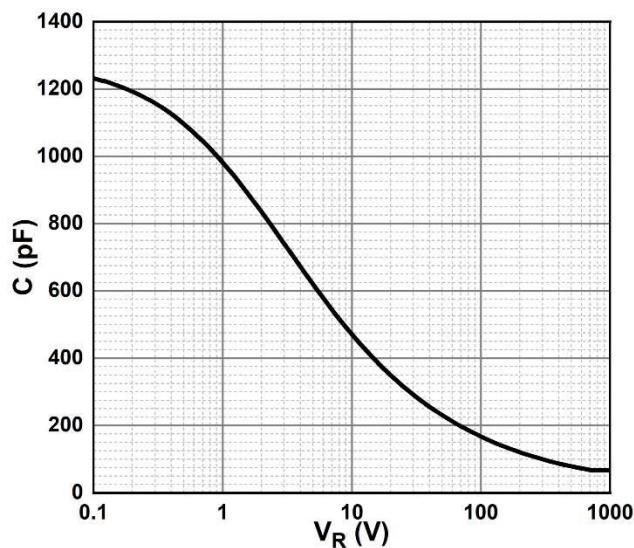


Figure 5. Capacitance Stored Energy

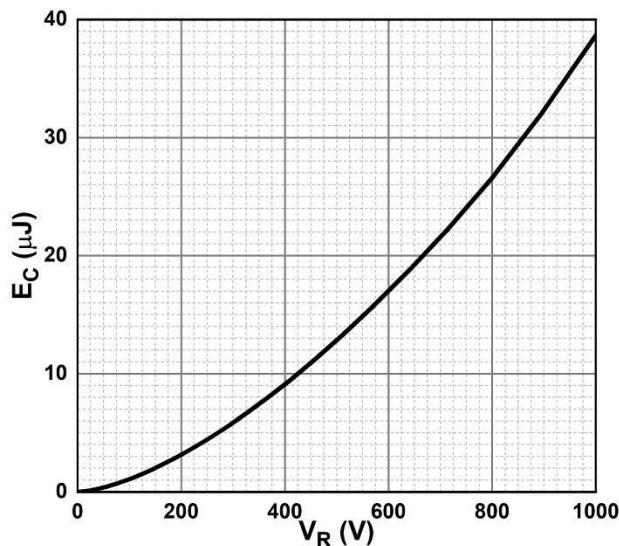


Figure 2. Reverse Characteristics

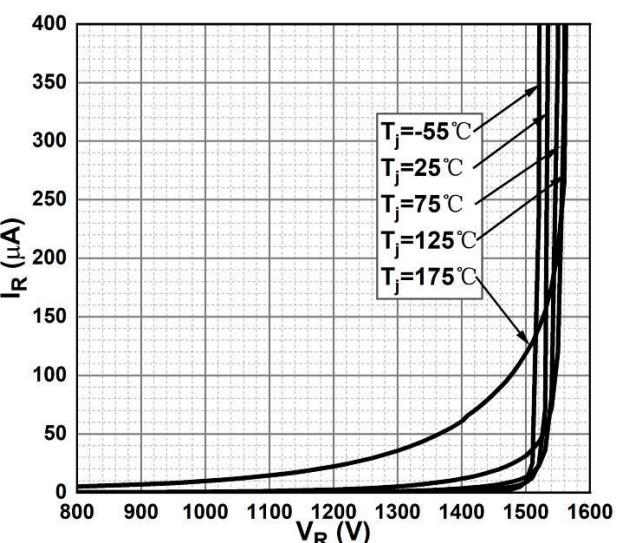


Figure 4. Total Capacitance Charge vs. Reverse Voltage

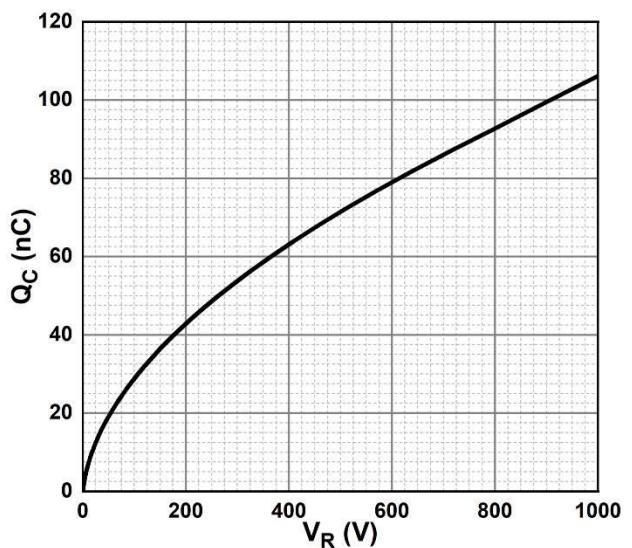
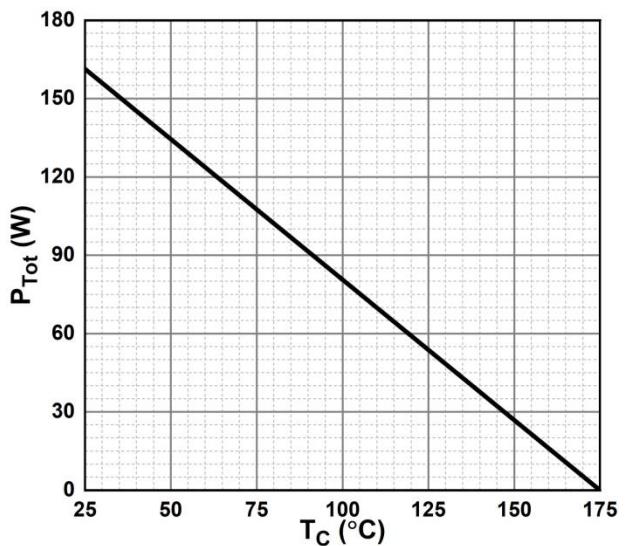


Figure 6. Power Derating



## Curve Characteristics

Fig. 7 - Current Derating

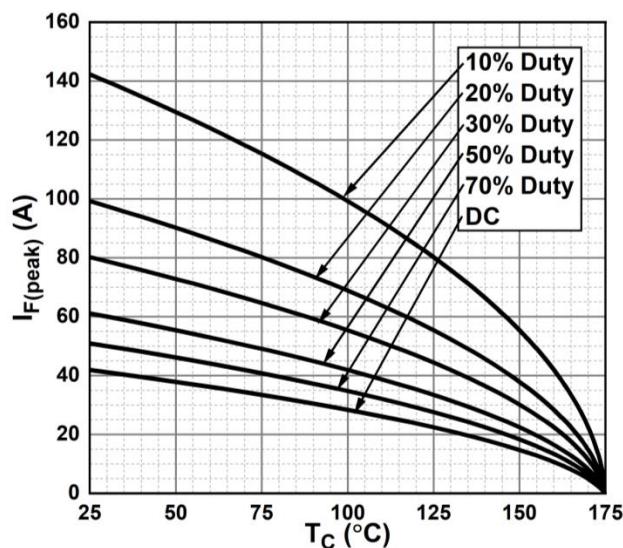
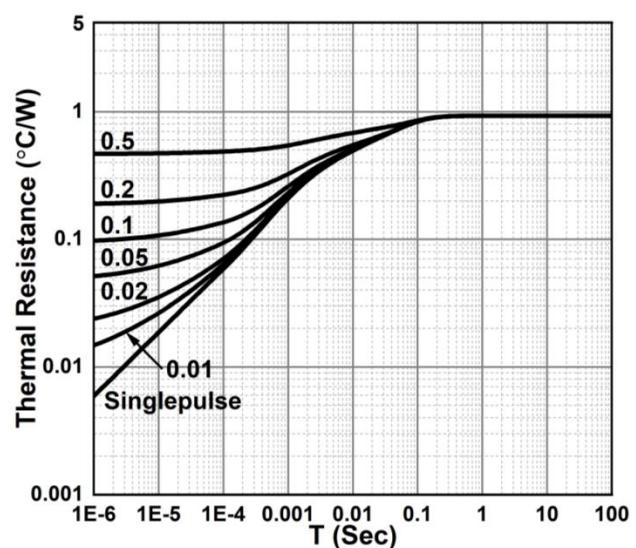


Fig. 8 - Transient Thermal Impedance



## Ordering Information

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

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