

## Silicon Carbide Schottky Barrier Diode

$V_{RRM}$	650 V	$I_F$	20 A
$V_{F(Typ.)}$	1.5 V	$Q_C$	43.5 nC

### Features

- Temperature Independent Switching Behavior
- High Surge Current Capability
- Positive Temperature Coefficient on  $V_F$
- Low Conduction Loss
- Zero Reverse Recovery
- High junction temperature 175 °C
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

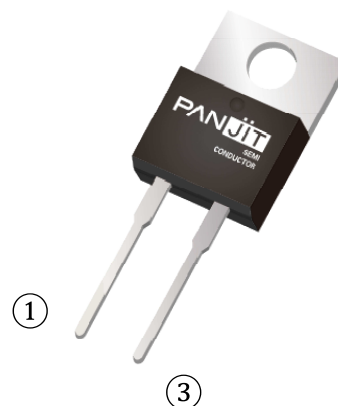
### Mechanical Data

- Case: TO-220AC molded plastic
- Terminals: Solderable per MIL-STD-750, Method 2026
- Approx. Weight: 0.067 ounces, 1.89 grams

### Application

- PFC, UPS, PV Inverter, EV Charging Station, Welder

### TO-220AC



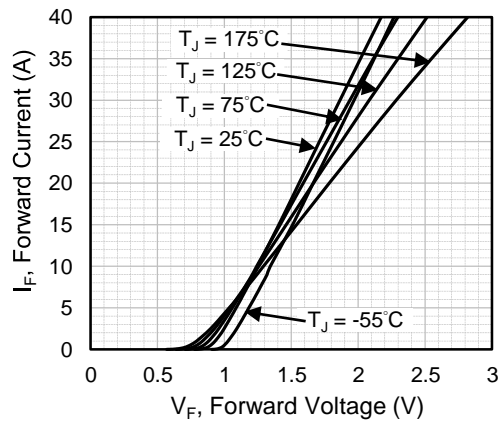
### Maximum Ratings and Thermal Characteristics ( $T_C = 25\text{ }^{\circ}\text{C}$ unless otherwise specified)

PARAMETER		SYMBOL	LIMIT	UNITS
Repetitive Peak Reverse Voltage		$V_{RRM}$	650	V
DC Blocking Voltage		$V_{DC}$	650	V
Continuous Forward Current	$T_C = 140\text{ }^{\circ}\text{C}$	$I_F$	20	A
Repetitive Peak Surge Current <i>Half Sine Wave, <math>D=0.1</math></i>	$T_C = 25\text{ }^{\circ}\text{C}$ , $t_p = 10\text{ms}$	$I_{FRM}$	68	A
	$T_C = 125\text{ }^{\circ}\text{C}$ , $t_p = 10\text{ms}$		56	
Peak Forward Surge Current <i>Half Sine Wave</i>	$T_C = 25\text{ }^{\circ}\text{C}$ , $t_p = 10\text{ms}$	$I_{FSM}$	88	A
	$T_C = 125\text{ }^{\circ}\text{C}$ , $t_p = 10\text{ms}$		76	
Peak Forward Surge Current <i><math>t_p = 10\mu\text{s}</math>, Pulse</i>			800	A
Maximum Power Dissipation		$P_{total}$	153.1	W
Operating Junction Temperature Range		$T_J$	-55~175	$^{\circ}\text{C}$
Storage Temperature Range		$T_{STG}$	-55~175	$^{\circ}\text{C}$

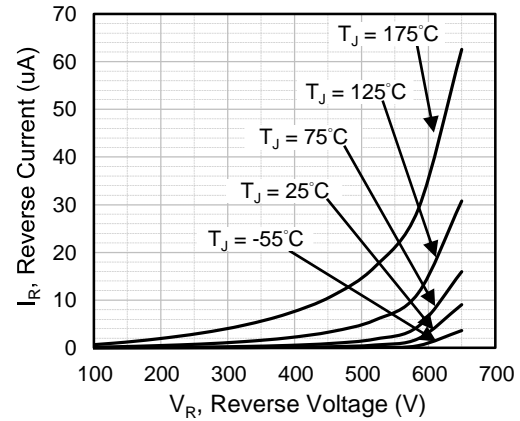
**Electrical Characteristics** ( $T_C = 25\text{ }^{\circ}\text{C}$  unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNITS
Forward Voltage Drop	$V_F$	$I_F = 20\text{ A}, T_J = 25\text{ }^{\circ}\text{C}$	-	1.5	1.7	V
		$I_F = 20\text{ A}, T_J = 175\text{ }^{\circ}\text{C}$	-	1.8	-	
Reverse Leakage Current	$I_R$	$V_R = 650\text{ V}, T_J = 25\text{ }^{\circ}\text{C}$	-	9	120	$\mu\text{A}$
		$V_R = 650\text{ V}, T_J = 175\text{ }^{\circ}\text{C}$	-	0.062	-	mA
Total Capacitive Charge	$Q_C$	$I_F = 20\text{ A}, V_R = 400\text{V}$	-	43.5	-	nC
Total Capacitance	C	$V_R = 1\text{V}, f = 1\text{MHz}$	-	747	-	pF
		$V_R = 200\text{V}, f = 1\text{MHz}$	-	77.8	-	pF
		$V_R = 400\text{V}, f = 1\text{MHz}$	-	63.3	-	pF
Capacitance Stored Energy	$E_C$	$V_R = 400\text{V}$	-	6.8	-	$\mu\text{J}$
Thermal Resistance	$R_{\theta JC}$		-	0.98	-	$^{\circ}\text{C/W}$

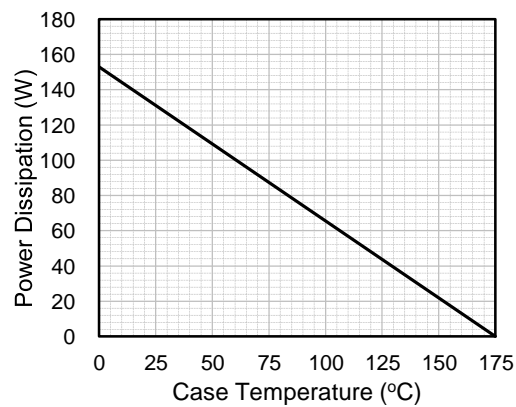
**TYPICAL CHARACTERISTIC CURVES**



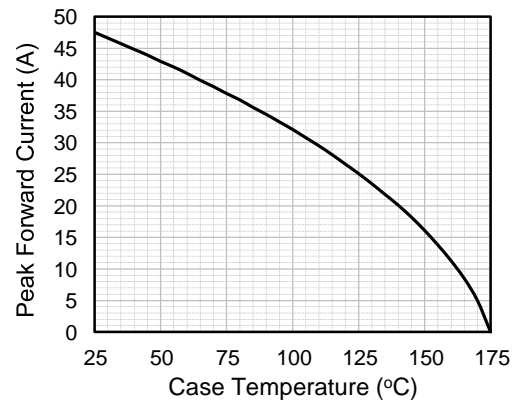
**Fig.1 Forward Characteristics**



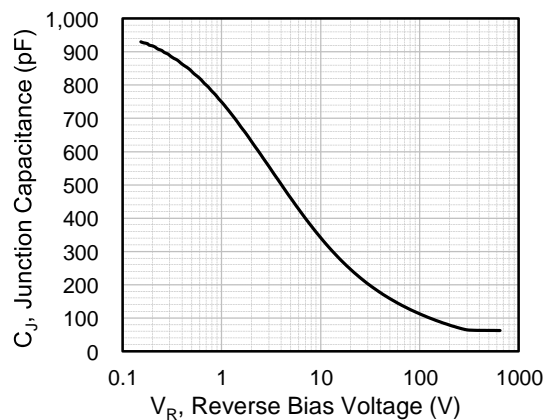
**Fig.2 Reverse Characteristics**



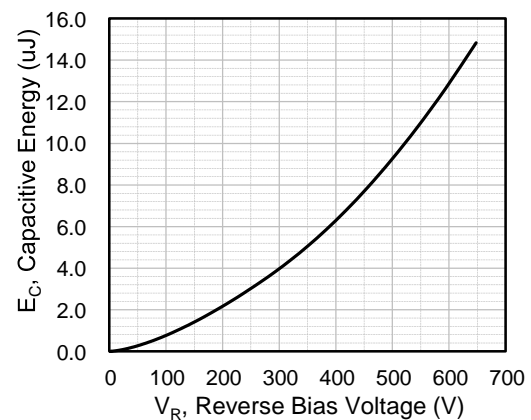
**Fig.3 Power Derating Curve**



**Fig.4 Current Derating Curve**



**Fig.5 Typical Junction Capacitance**

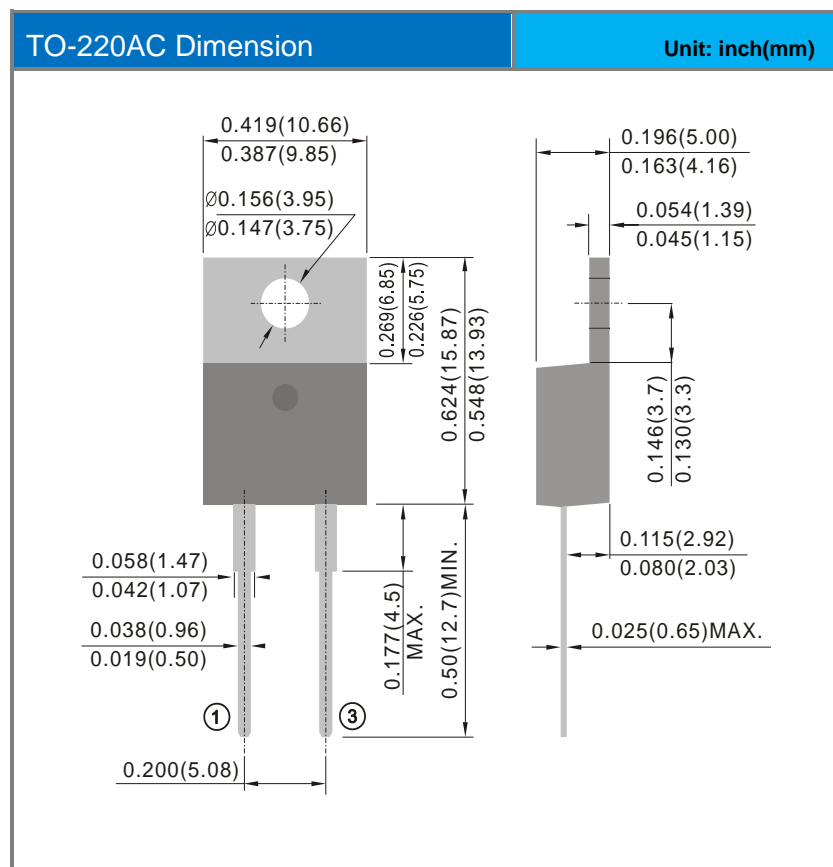


**Fig.6 Capacitance Stored Energy**

## Product and Packing Information

Part No.	Package Type	Packing Type	Marking
PCDP2065G1	TO-220AC	50pcs / Tube	CDP2065G1

## Packaging Information



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