

## Silicon Carbide Schottky Barrier Diode

$V_{RRM}$	650 V	$I_F$	12 A
$V_{F(Typ.)}$	1.5 V	$Q_C$	29 nC

### Features

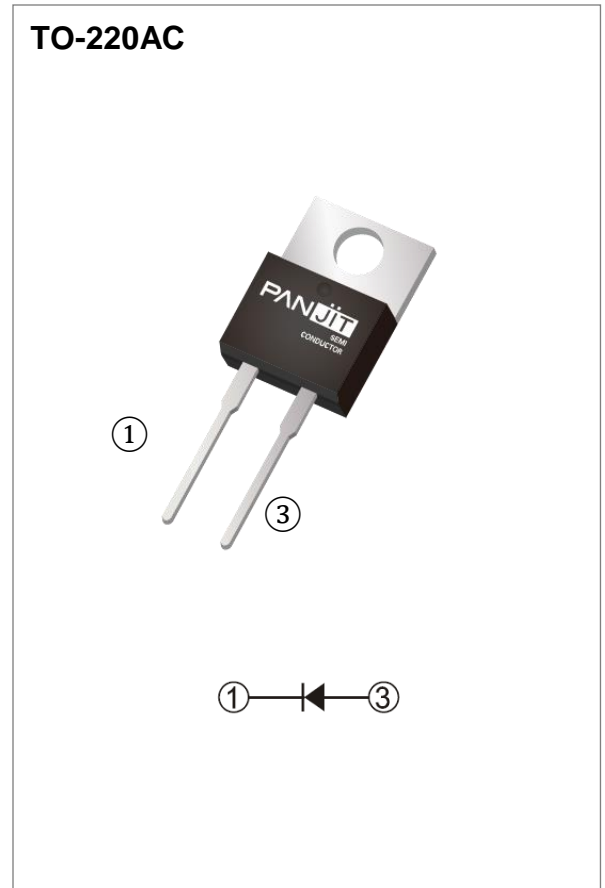
- Temperature Independent Switching Behavior
- High Surge Current Capability
- Low Switching Loss
- Zero Reverse Recovery
- High junction temperature 175 °C
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

### Mechanical Data

- Case: TO-220AC molded plastic
- Terminals: Solderable per MIL-STD-750, Method 2026
- Approx. Weight: 1.8903 grams

### Application

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



### 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	$T_C = 150\text{ }^\circ\text{C}$	$I_F$	12	A
Repetitive Peak Surge Current <i>Half Sine Wave, <math>D=0.1</math></i>	$T_C = 25\text{ }^\circ\text{C}$ , $t_p = 10\text{ms}$	$I_{FRM}$	44	A
	$T_C = 125\text{ }^\circ\text{C}$ , $t_p = 10\text{ms}$		36	
Peak Forward Surge Current <i>Half Sine Wave</i>	$T_C = 25\text{ }^\circ\text{C}$ , $t_p = 10\text{ms}$	$I_{FSM}$	52	A
	$T_C = 125\text{ }^\circ\text{C}$ , $t_p = 10\text{ms}$		48	
Peak Forward Surge Current <i><math>t_p = 10\text{us}</math>, Pulse</i>			539	A
Maximum Power Dissipation		$P_{total}$	122.4	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	$V_F$	$I_F = 12\text{ A}, T_J = 25\text{ }^\circ\text{C}$	-	1.5	1.8	V
		$I_F = 12\text{ A}, T_J = 175\text{ }^\circ\text{C}$	-	1.69	-	
Reverse Leakage Current	$I_R$	$V_R = 650\text{ V}, T_J = 25\text{ }^\circ\text{C}$	-	0.4	100	$\mu\text{A}$
		$V_R = 650\text{ V}, T_J = 175\text{ }^\circ\text{C}$	-	2	-	$\mu\text{A}$
Total Capacitive Charge	$Q_C$	$V_R = 400\text{V}$	-	29	-	nC
Total Capacitance	C	$V_R = 1\text{V}, f = 1\text{MHz}$	-	372	-	pF
		$V_R = 200\text{V}, f = 1\text{MHz}$	-	59	-	pF
		$V_R = 400\text{V}, f = 1\text{MHz}$	-	44	-	pF
Capacitance Stored Energy	$E_C$	$V_R = 400\text{V}$	-	4.8	-	$\mu\text{J}$
Thermal Resistance	$R_{\theta JC}$		-	1.23	-	$^\circ\text{C/W}$

TYPICAL CHARACTERISTIC CURVES

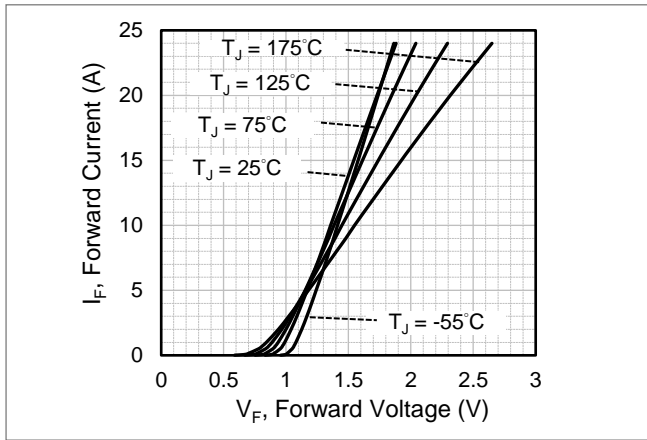


Fig.1 Forward Characteristics

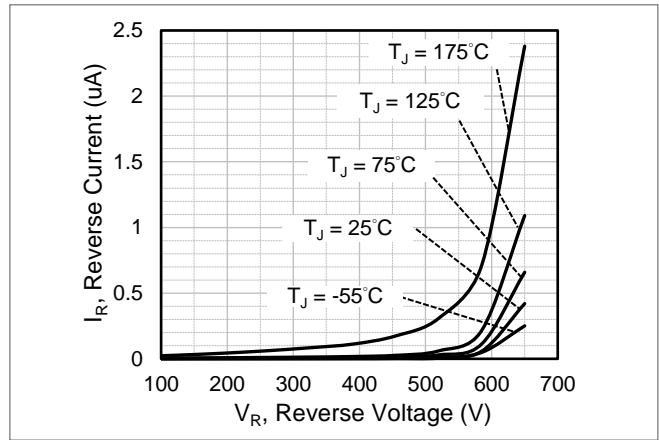


Fig.2 Reverse Characteristics

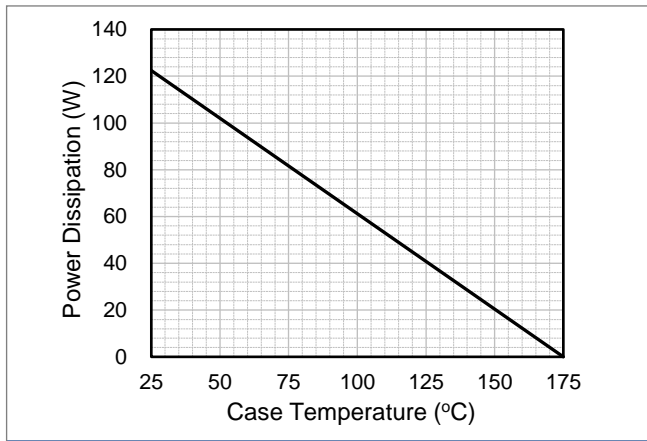


Fig.3 Power Derating Curve

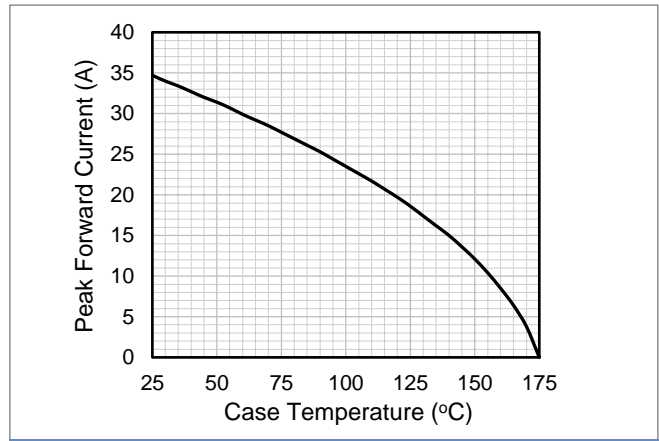


Fig.4 Current Derating Curve

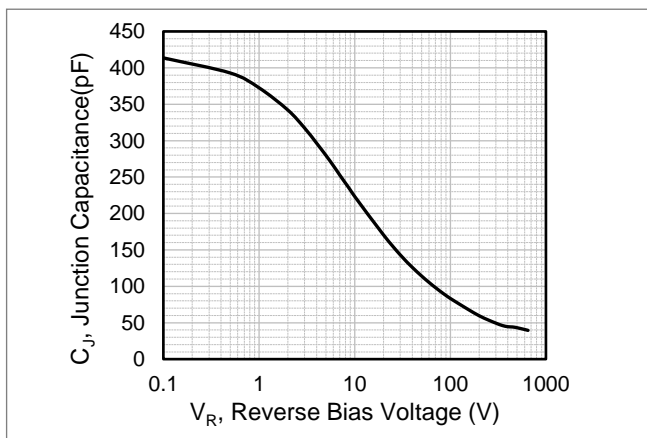


Fig.5 Typical Junction Capacitance

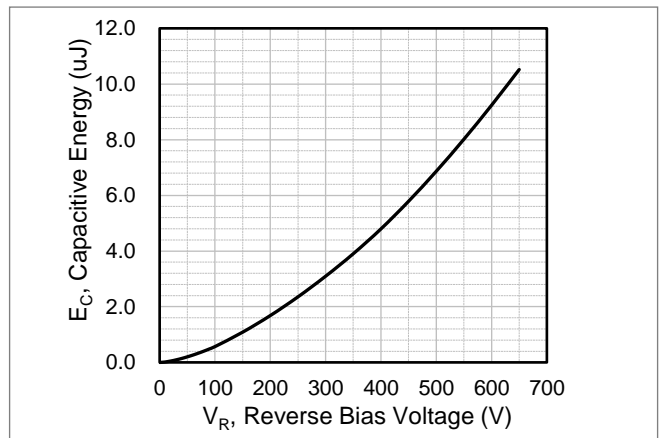


Fig.6 Capacitance Stored Energy

Product and Packing Information

Part No.	Package Type	Packing Type	Marking
PCDP1265GC	TO-220AC	50pcs / Tube	CDP1265GC

**Packaging Information**

