

## Silicon Carbide Schottky Barrier Diode

$V_{RRM}$	650 V	$I_F$	6A
$V_{F(Typ.)}$	1.3 V	$Q_C$	21 nC

### Features

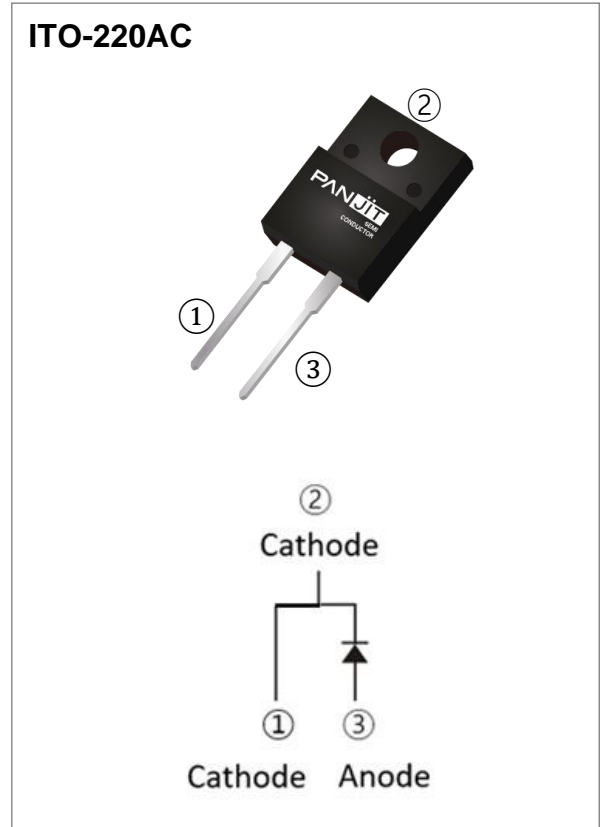
- Positive Temperature Coefficient on  $V_F$
- Low Conduction Loss
- Zero Reverse Recovery
- High junction temperature 175 °C
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

### Mechanical Data

- Case: ITO-220AC molded plastic
- Terminals: Solderable per MIL-STD-750, Method 2026
- Approx. Weight: 1.6225 grams

### Application

- PFC, UPS, PV Inverter



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

PARAMETER		SYMBOL	LIMIT	UNIT
Repetitive Peak Reverse Voltage		$V_{RRM}$	650	V
DC Blocking Voltage		$V_{DC}$	650	V
Continuous Forward Current	$T_C = 153\text{ }^\circ\text{C}$	$I_F$	6	A
Repetitive Peak Surge Current <i>Half Sine Wave, D=0.1</i>	$T_C = 25\text{ }^\circ\text{C}$ , $t_p = 10\text{ms}$	$I_{FRM}$	54	A
	$T_C = 125\text{ }^\circ\text{C}$ , $t_p = 10\text{ms}$		42	
Peak Forward Surge Current <i>Half Sine Wave</i>	$T_C = 25\text{ }^\circ\text{C}$ , $t_p = 10\text{ms}$	$I_{FSM}$	66	A
	$T_C = 125\text{ }^\circ\text{C}$ , $t_p = 10\text{ms}$		58	
Peak Forward Surge Current	$t_p = 10\mu\text{s}$ , <i>Pulse</i>		800	A
$i^2t$ value	$T_C = 25\text{ }^\circ\text{C}$ , $t_p = 10\text{ms}$	$\int i^2 dt$	21.8	A <sup>2</sup> s
	$T_C = 125\text{ }^\circ\text{C}$ , $t_p = 10\text{ms}$		16.8	
Maximum Power Dissipation		$P_{total}$	60	W
Operating Junction Temperature Range		$T_J$	-55~175	°C
Storage Temperature Range		$T_{STG}$	-55~175	°C

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

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Forward Voltage Drop	$V_F$	$I_F = 6\text{ A}, T_J = 25\text{ }^\circ\text{C}$	-	1.3	1.55	V
		$I_F = 6\text{ A}, T_J = 125\text{ }^\circ\text{C}$	-	1.36	-	
		$I_F = 6\text{ A}, T_J = 175\text{ }^\circ\text{C}$	-	1.46	-	
Reverse Leakage Current	$I_R$	$V_R = 650\text{ V}, T_J = 25\text{ }^\circ\text{C}$	-	0.3	15	$\mu\text{A}$
		$V_R = 650\text{ V}, T_J = 175\text{ }^\circ\text{C}$	-	1.7	-	$\mu\text{A}$
Total Capacitive Charge	$Q_C$	$I_F = 6\text{ A}, V_R = 400\text{ V}$	-	21	-	nC
Total Capacitance	C	$V_R = 1\text{ V}, f = 1\text{ MHz}$	-	325	-	pF
		$V_R = 200\text{ V}, f = 1\text{ MHz}$	-	40	-	pF
		$V_R = 400\text{ V}, f = 1\text{ MHz}$	-	38	-	pF
Capacitance Stored Energy	$E_C$	$V_R = 400\text{ V}$	-	3.6	-	$\mu\text{J}$
Thermal Resistance	$R_{\theta JC}$		-	1.9	2.5	$^\circ\text{C/W}$

TYPICAL CHARACTERISTIC CURVES

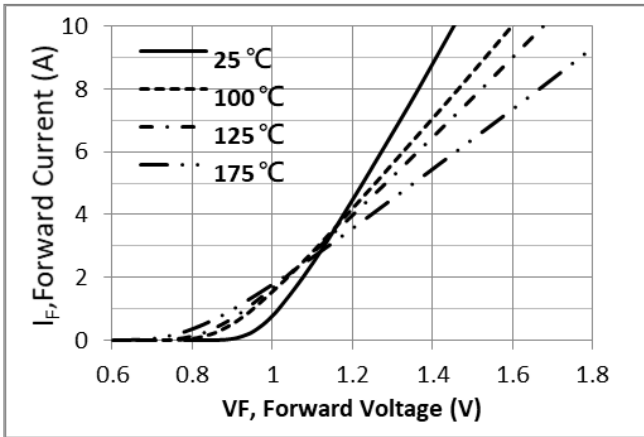


Fig.1 Forward Characteristics

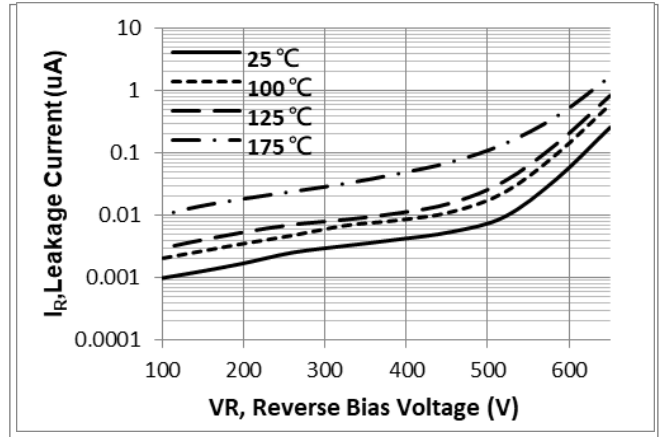


Fig.2 Reverse Characteristics

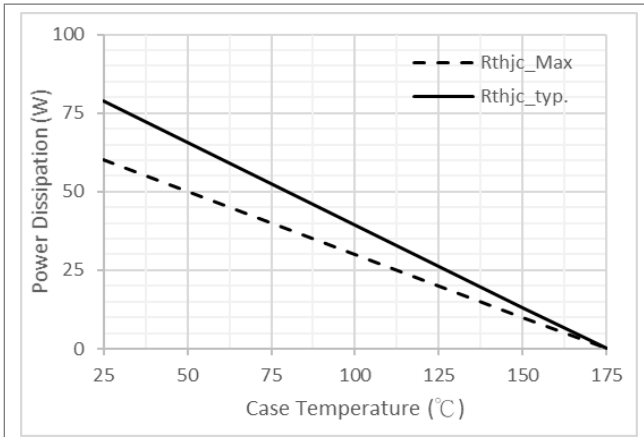


Fig.3 Power Derating Curve

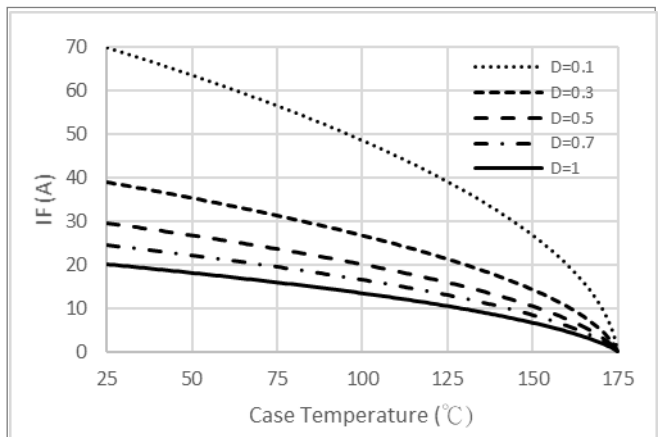


Fig.4 Maximum Forward Current

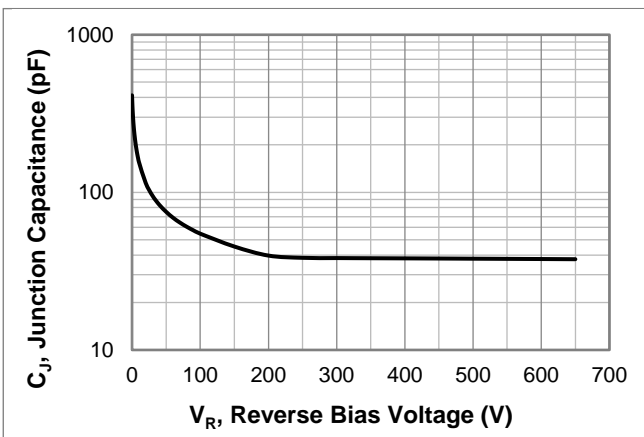


Fig.5 Typical Junction Capacitance

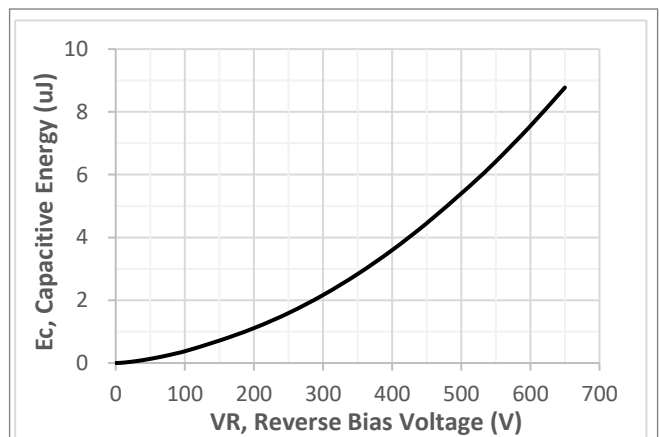
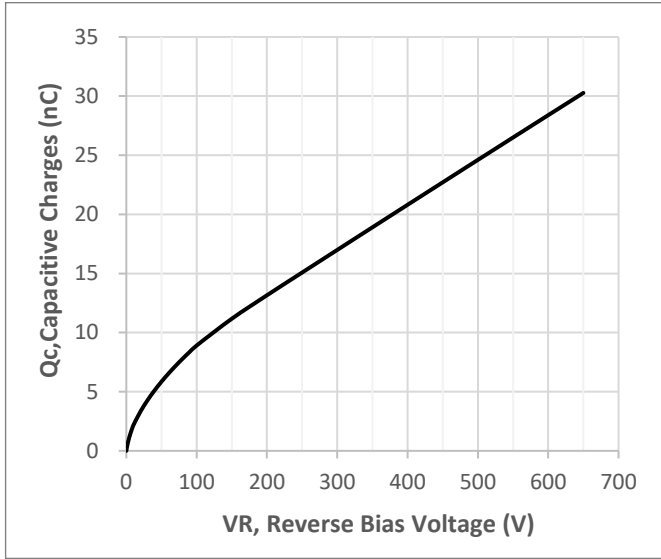
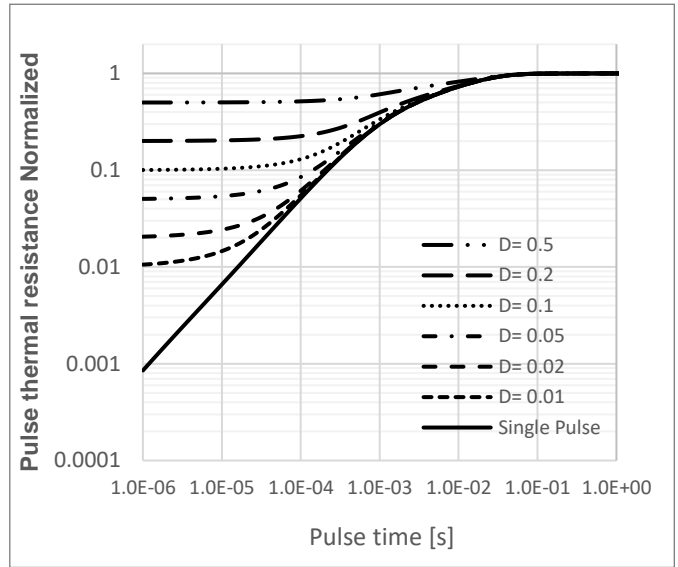


Fig.6 Capacitance Stored Energy



**Fig.7 Total capacitive charges VS. Reverse voltage applied (typical values)**

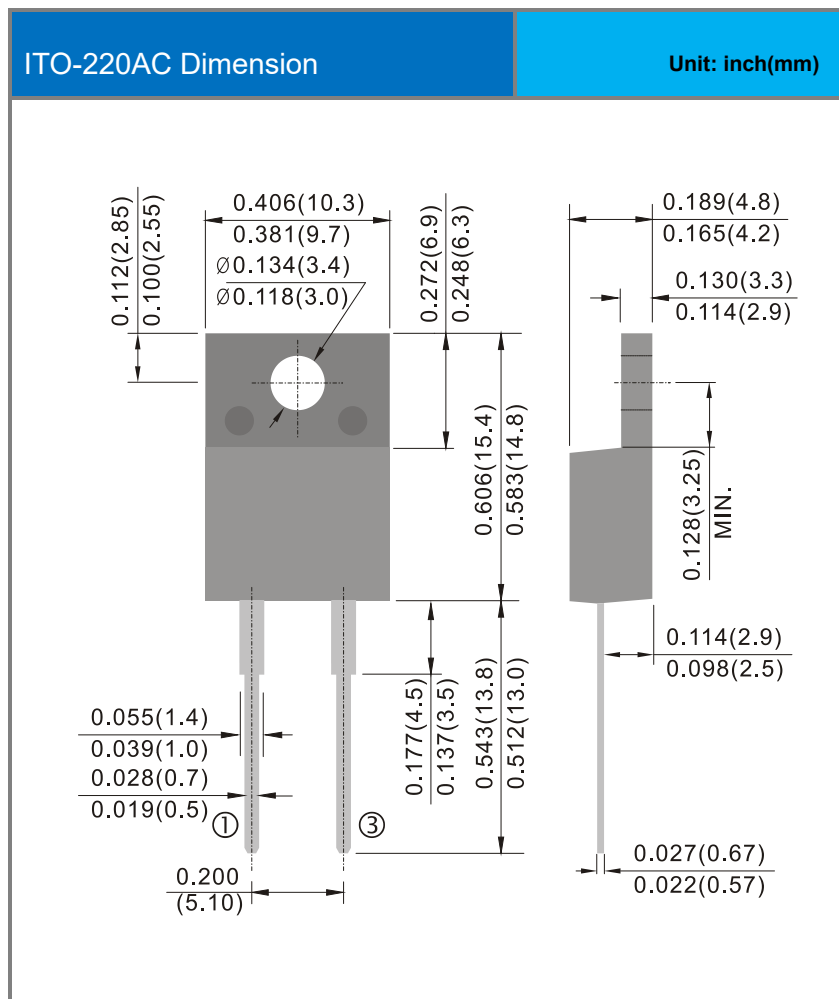


**Fig.8 Max. Transient thermal impedance**

**Product and Packing Information**

Part No.	Package Type	Packing Type	Marking
PCDF0665G3	ITO-220AC	50pcs / Tube	CDF0665G3

**Packaging Information**



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