

Silicon Carbide Schottky Barrier Diode

V_{RRM}	1200 V	I_F	20 A
$V_{F(Typ.)}$	1.4 V	Q_C	103 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

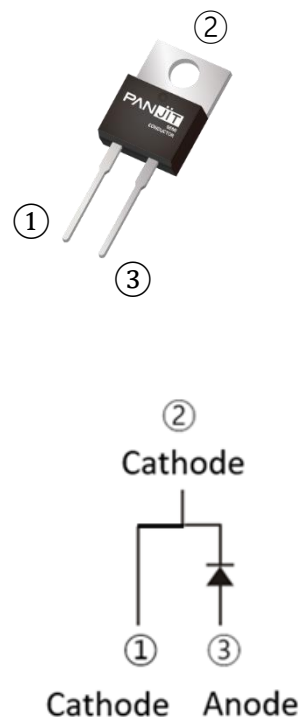
Mechanical Data

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

Application

- PFC, UPS, PV Inverter

TO-220AC



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}	1200	V
DC Blocking Voltage		V_{DC}	1200	V
Continuous Forward Current	$T_C = 158\text{ }^{\circ}\text{C}$	I_F	20	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}	112	A
	$T_C = 125\text{ }^{\circ}\text{C}$, $t_p = 10\text{ms}$		88	
Peak Forward Surge Current <i>Half Sine Wave</i>	$T_C = 25\text{ }^{\circ}\text{C}$, $t_p = 10\text{ms}$	I_{FSM}	232	A
	$T_C = 125\text{ }^{\circ}\text{C}$, $t_p = 10\text{ms}$		208	
Peak Forward Surge Current	$t_p = 10\mu\text{s}$, Pulse		1200	
i^2t value	$T_C = 25\text{ }^{\circ}\text{C}$, $t_p = 10\text{ms}$	$\int i^2 dt$	269	A^2s
	$T_C = 125\text{ }^{\circ}\text{C}$, $t_p = 10\text{ms}$		216	
Maximum Power Dissipation		P_{total}	268	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.	UNIT
Forward Voltage Drop	V_F	$I_F = 20\text{ A}, T_J = 25\text{ }^{\circ}\text{C}$	-	1.4	1.6	V
		$I_F = 20\text{ A}, T_J = 125\text{ }^{\circ}\text{C}$	-	1.7	-	
		$I_F = 20\text{ A}, T_J = 175\text{ }^{\circ}\text{C}$	-	1.9	-	
Reverse Leakage Current	I_R	$V_R = 1200\text{ V}, T_J = 25\text{ }^{\circ}\text{C}$	-	0.8	50	μA
		$V_R = 1200\text{ V}, T_J = 175\text{ }^{\circ}\text{C}$	-	4.4	-	μA
Total Capacitive Charge	Q_C	$I_F = 10\text{ A}, V_R = 800\text{ V}$	-	103	-	nC
Total Capacitance	C	$V_R = 1\text{ V}, f = 1\text{ MHz}$	-	1157	-	pF
		$V_R = 400\text{ V}, f = 1\text{ MHz}$	-	99	-	pF
		$V_R = 800\text{ V}, f = 1\text{ MHz}$	-	84.5	-	pF
Capacitance Stored Energy	E_C	$V_R = 800\text{ V}$	-	32.5	-	μJ
Thermal Resistance	$R_{\theta JC}$		-	0.43	0.56	$^{\circ}\text{C/W}$

TYPICAL CHARACTERISTIC CURVES

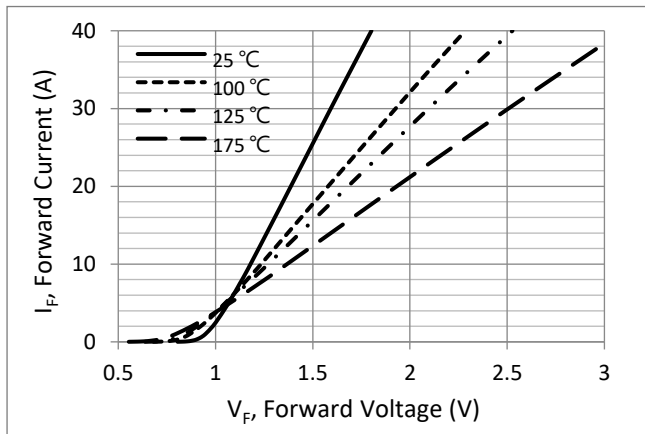


Fig.1 Forward Characteristics

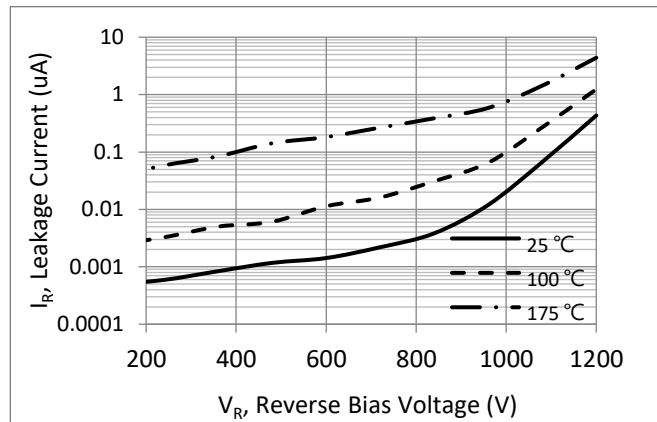


Fig.2 Reverse Characteristics

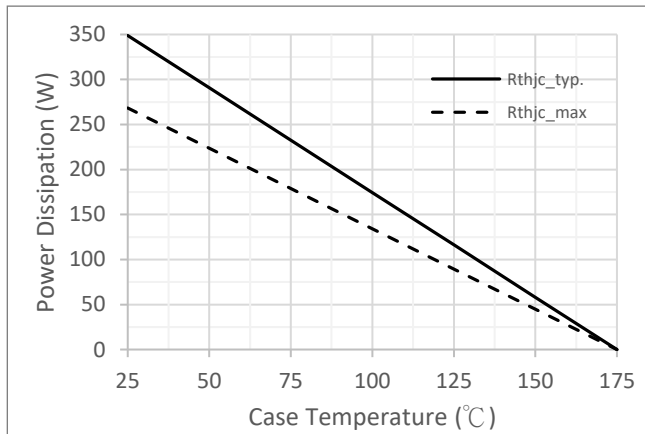


Fig.3 Power Derating Curve

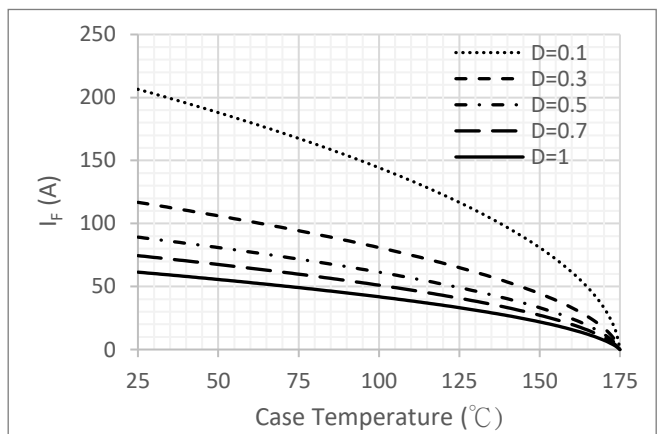


Fig.4 Current Derating Curve

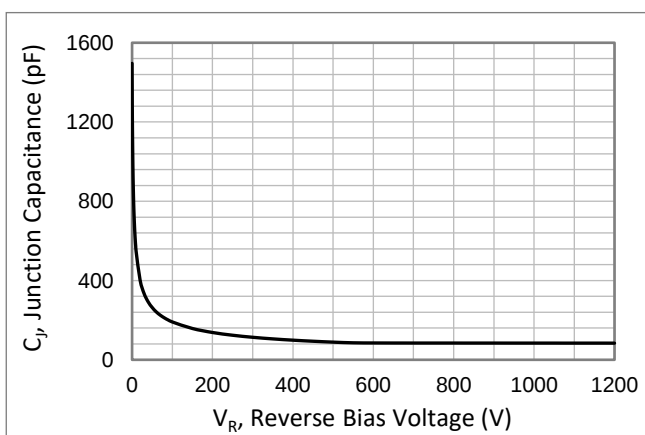


Fig.5 Typical Junction Capacitance

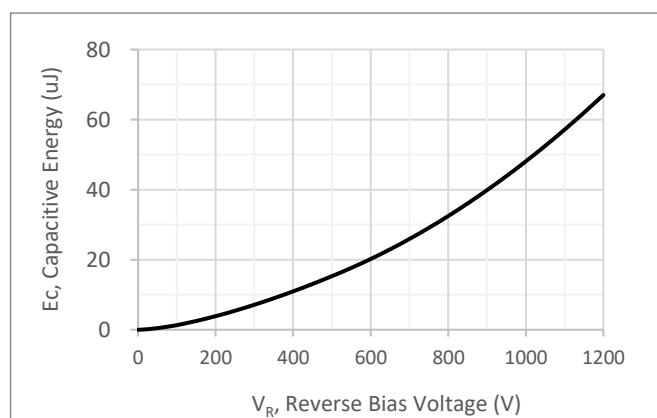
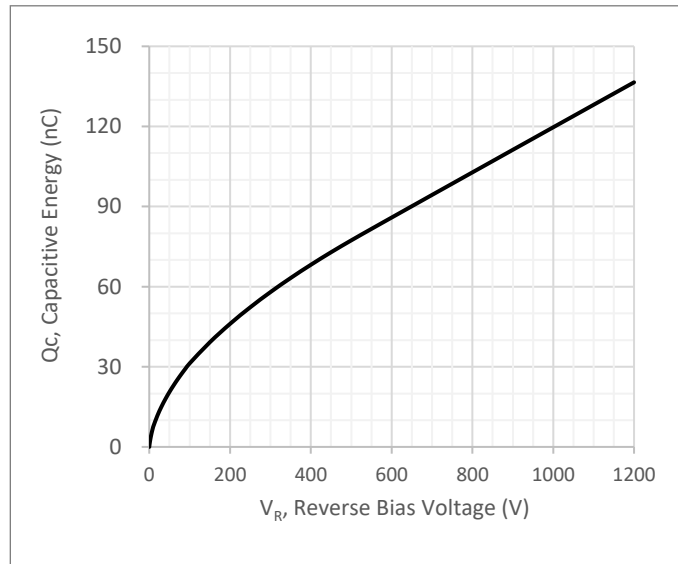


Fig.6 Capacitance Stored Energy



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

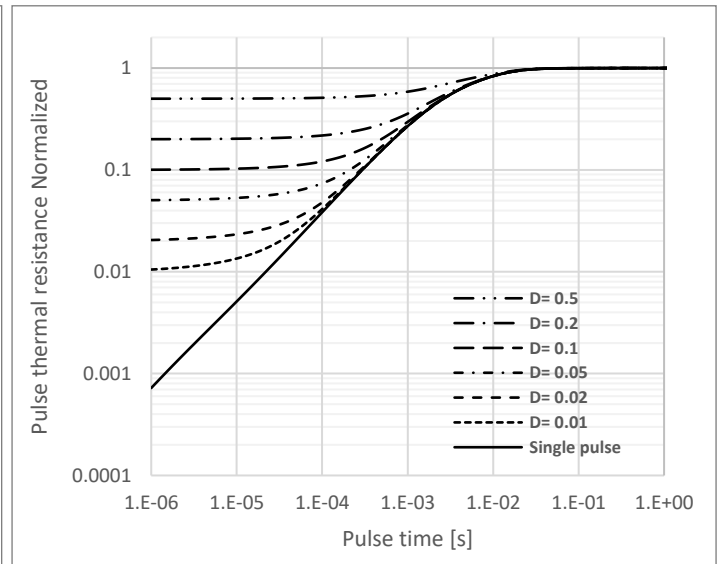
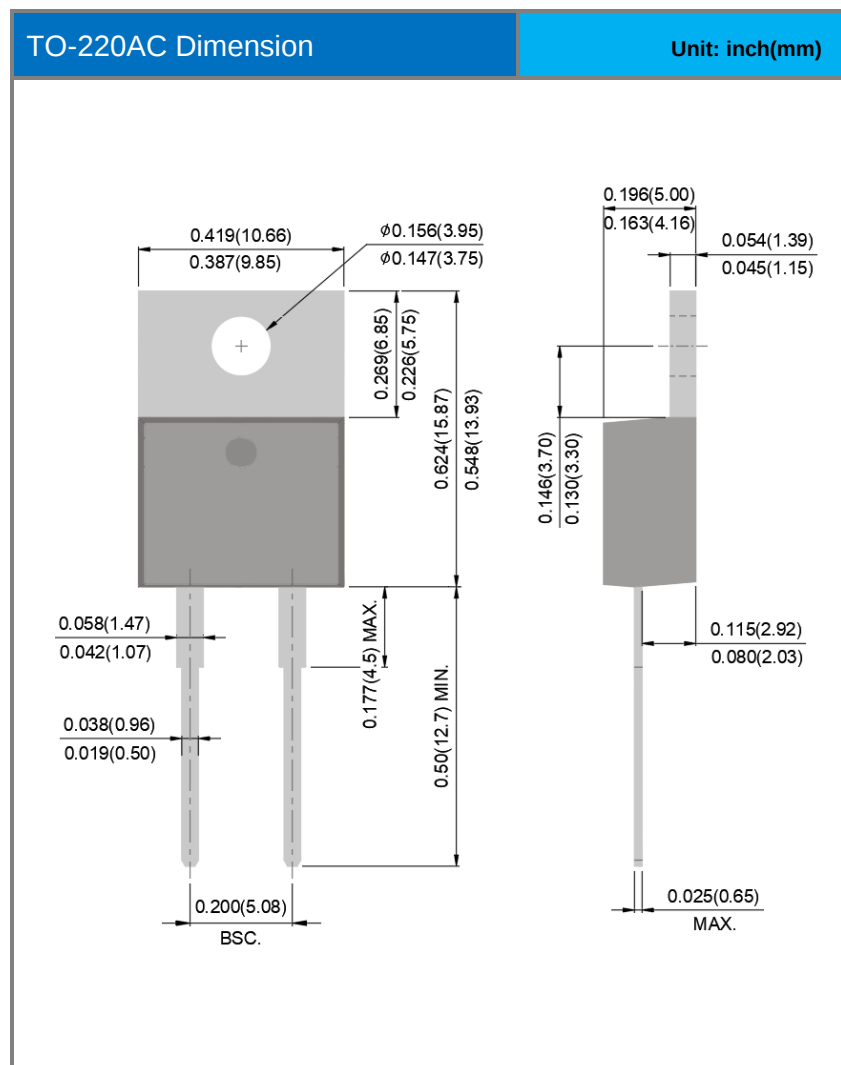


Fig.8 Max. Transient thermal impedance

Product and Packing Information

Part No.	Package Type	Packing Type	Marking
PCDP20120G3	TO-220AC	50pcs / Tube	CDP20120G3

Packaging Information



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