

Silicon Carbide Schottky Barrier Diode

V_{RRM}	650 V	I_F	6 A
$V_{F(Typ.)}$	1.5 V	Q_C	11.3 nC

Features

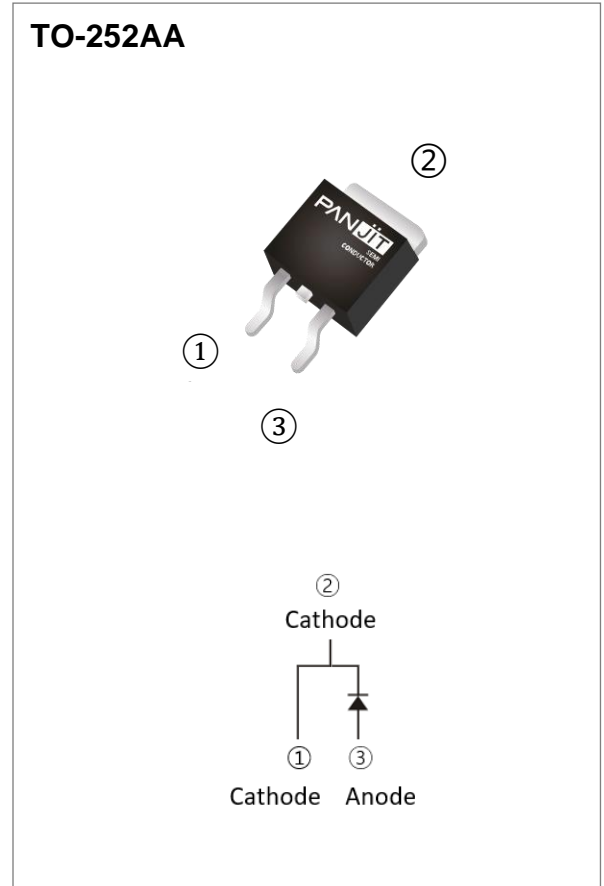
- Temperature Independent Switching Behavior
- High Surge Current Capability
- Positive Temperature Coefficient on V_F
- Low Conduction Loss
- Zero Reverse Recovery
- High junction temperature 175 °C
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

Mechanical Data

- Case: TO-252AA molded plastic
- Terminals: Solderable per MIL-STD-750, Method 2026
- Approx. Weight: 0.0113 ounces, 0.3217 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	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}	24	A
	$T_C = 125\text{ }^\circ\text{C}$, $t_p = 10\text{ms}$		20	
Peak Forward Surge Current <i>Half Sine Wave</i>	$T_C = 25\text{ }^\circ\text{C}$, $t_p = 10\text{ms}$	I_{FSM}	28	A
	$T_C = 125\text{ }^\circ\text{C}$, $t_p = 10\text{ms}$		24	
Peak Forward Surge Current $t_p = 10\text{us}$, Pulse			320	A
Maximum Power Dissipation		P_{total}	64.9	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	$I_F = 6\text{ A}, T_J = 25\text{ }^\circ\text{C}$	-	1.5	1.7	V
		$I_F = 6\text{ A}, T_J = 175\text{ }^\circ\text{C}$	-	1.8	-	
Reverse leakage current	I_R	$V_R = 650\text{ V}, T_J = 25\text{ }^\circ\text{C}$	-	2	50	μA
		$V_R = 650\text{ V}, T_J = 175\text{ }^\circ\text{C}$	-	0.03	-	mA
Total Capacitive Charge	Q_C	$I_F = 6\text{ A}, V_R = 400\text{V}$	-	11.3	-	nC
Total Capacitance	C	$V_R = 1\text{V}, f = 1\text{MHz}$	-	228	-	pF
		$V_R = 200\text{V}, f = 1\text{MHz}$	-	18.9	-	pF
		$V_R = 400\text{V}, f = 1\text{MHz}$	-	13.3	-	pF
Capacitance Stored Energy	E_C	$V_R = 400\text{V}$	-	1.59	-	μJ
Thermal Resistance	$R_{\theta JC}$		-	2.31	-	$^\circ\text{C/W}$

TYPICAL CHARACTERISTIC CURVES

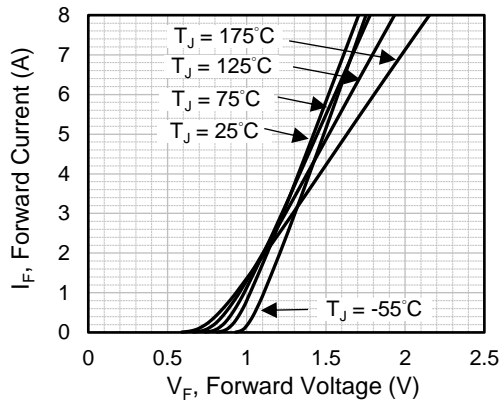


Fig.1 Forward Characteristics

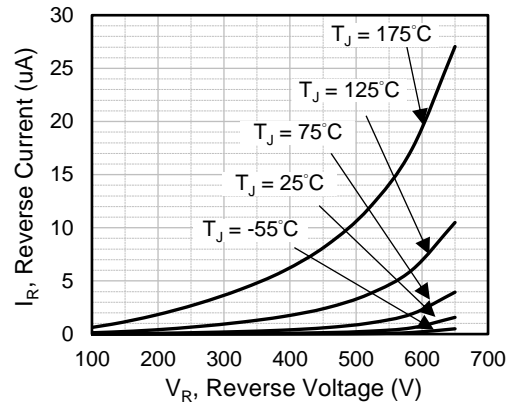


Fig.2 Reverse Characteristics

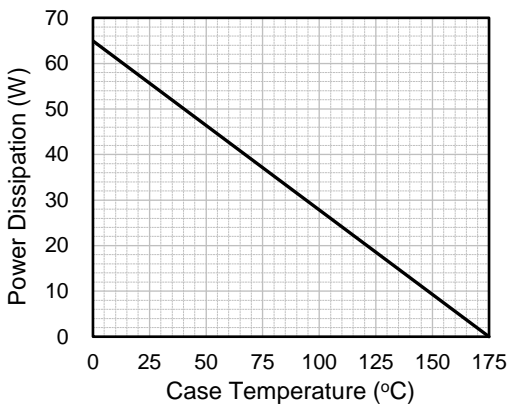


Fig.3 Power Derating Curve

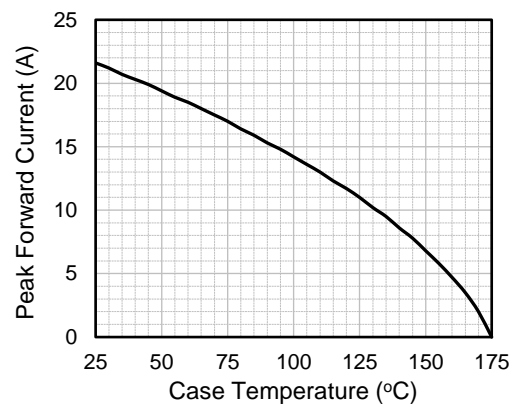


Fig.4 Current Derating Curve

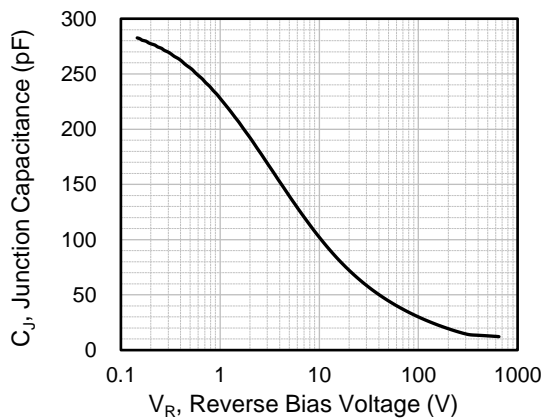


Fig.5 Typical Junction Capacitance

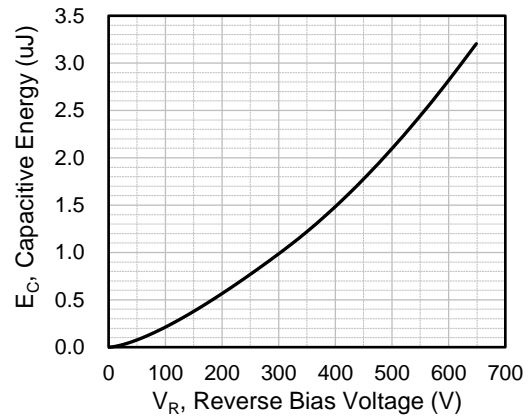
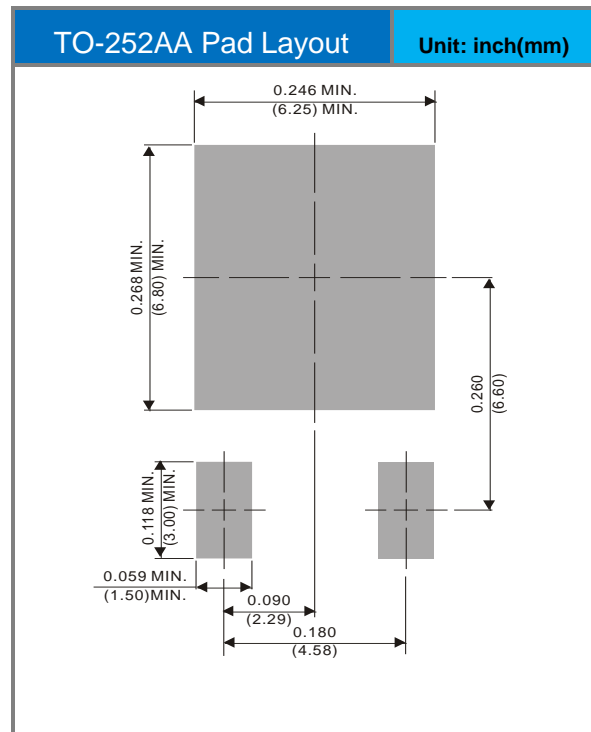
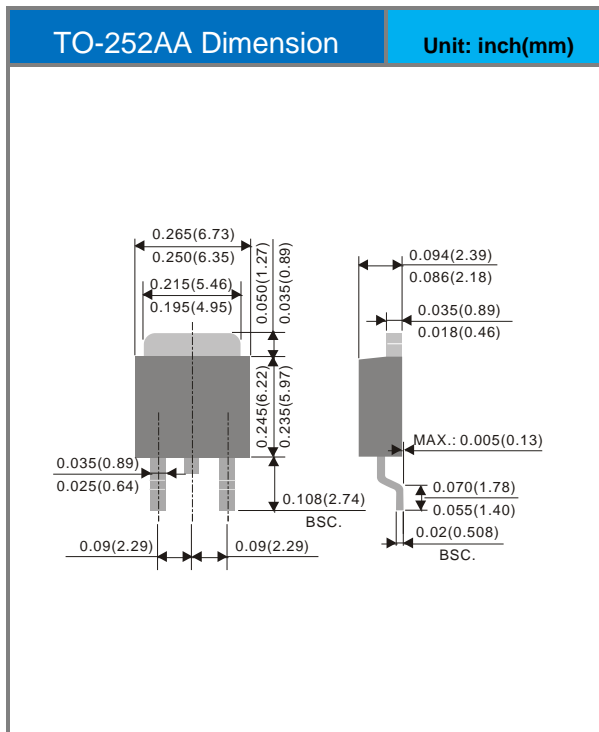


Fig.6 Capacitance Stored Energy

Product and Packing Information

Part No.	Package Type	Packing Type	Marking
PCDD0665G1	TO-252AA	3,000pcs / Reel	CDD0665

Packaging Information & Mounting Pad Layout



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