

Silicon Carbide Schottky Barrier Diode

V_{RRM}	650 V	I_F	4 A
$V_{F(Typ.)}$	1.5 V	Q_C	6.4 nC

Features

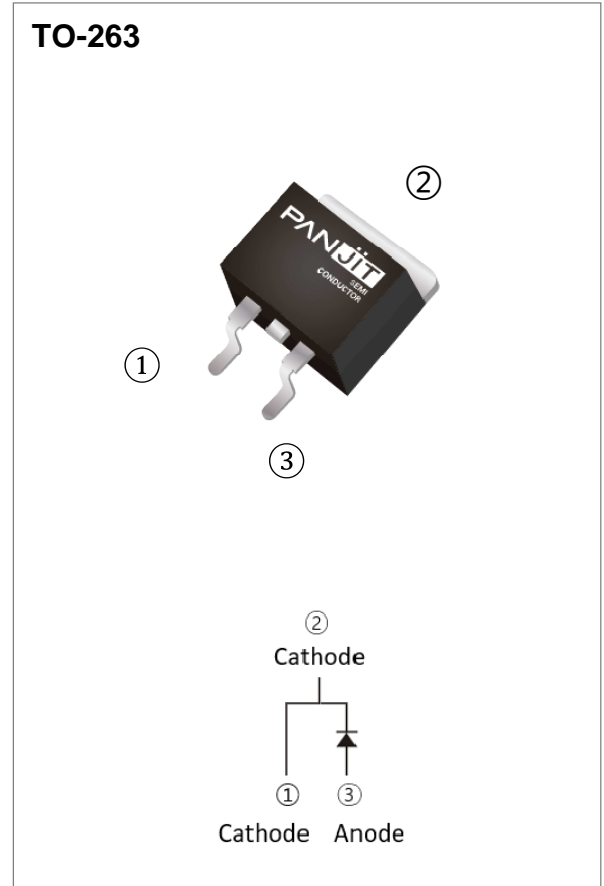
- Temperature Independent Switching Behavior
- High Surge Current Capability
- Positive Temperature Coefficient on V_F
- Low Conduction Loss
- Zero Reverse Recovery
- High junction temperature 175 °C
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

Mechanical Data

- Case: TO-263 molded plastic
- Terminals: Solderable per MIL-STD-750, Method 2026
- Approx. Weight: 0.0487 ounces, 1.38 grams

Application

- PFC, UPS, PV Inverter, 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	4	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}	20	A
	$T_C = 125\text{ }^\circ\text{C}$, $t_p = 10\text{ms}$		16	
Peak Forward Surge Current <i>Half Sine Wave</i>	$T_C = 25\text{ }^\circ\text{C}$, $t_p = 10\text{ms}$	I_{FSM}	20	A
	$T_C = 125\text{ }^\circ\text{C}$, $t_p = 10\text{ms}$		16	
Peak Forward Surge Current $t_p = 10\text{us}$, Pulse			280	
Maximum Power Dissipation		P_{total}	46	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	$I_F = 4\text{ A}, T_J = 25\text{ }^\circ\text{C}$	-	1.5	1.7	V
		$I_F = 4\text{ A}, T_J = 175\text{ }^\circ\text{C}$	-	1.8	-	
Reverse Leakage Current	I_R	$V_R = 650\text{ V}, T_J = 25\text{ }^\circ\text{C}$	-	2	40	μA
		$V_R = 650\text{ V}, T_J = 175\text{ }^\circ\text{C}$	-	0.02	-	mA
Total Capacitive Charge	Q_C	$I_F = 4\text{ A}, V_R = 400\text{V}$	-	6.4	-	nC
Total Capacitance	C	$V_R = 1\text{V}, f = 1\text{MHz}$	-	146	-	pF
		$V_R = 200\text{V}, f = 1\text{MHz}$	-	9.9	-	pF
		$V_R = 400\text{V}, f = 1\text{MHz}$	-	6.2	-	pF
Capacitance Stored Energy	E_C	$V_R = 400\text{V}$	-	0.8	-	μJ
Thermal Resistance	$R_{\theta JC}$		-	3.26	-	$^\circ\text{C/W}$

TYPICAL CHARACTERISTIC CURVES

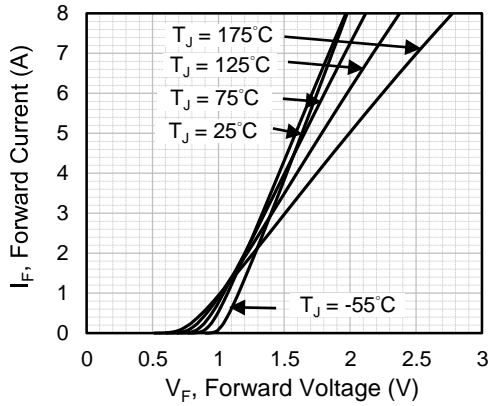


Fig.1 Forward Characteristics

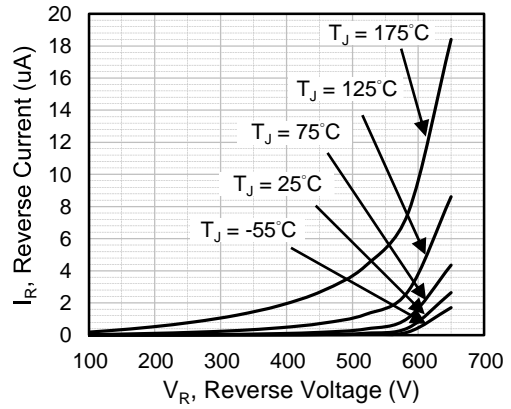


Fig.2 Reverse Characteristics

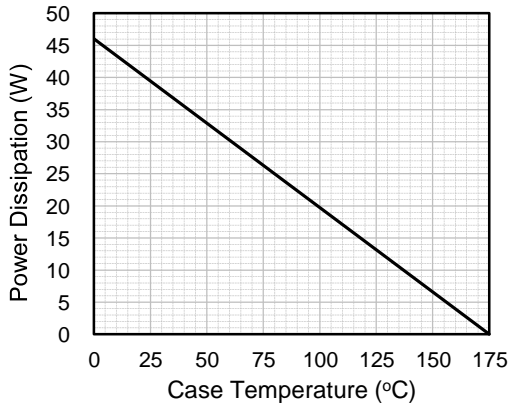


Fig.3 Power Derating Curve

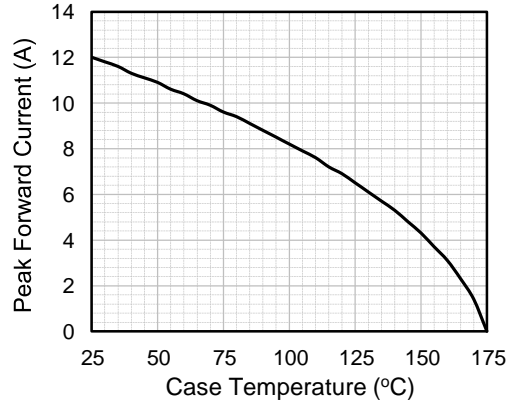


Fig.4 Current Derating Curve

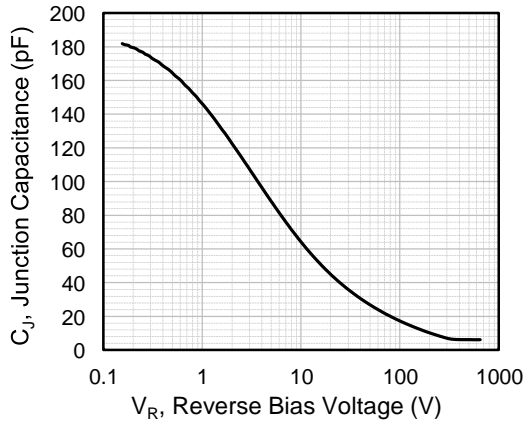


Fig.5 Typical Junction Capacitance

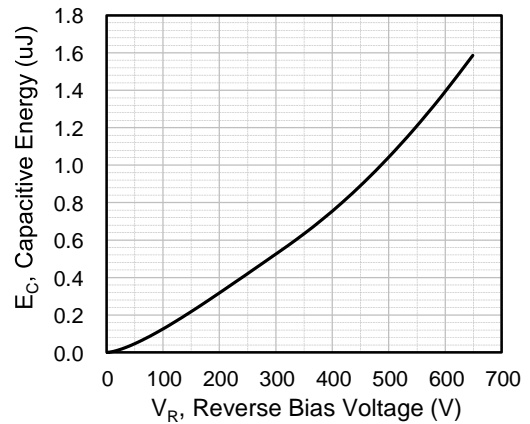


Fig.6 Capacitance Stored Energy

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