

## 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

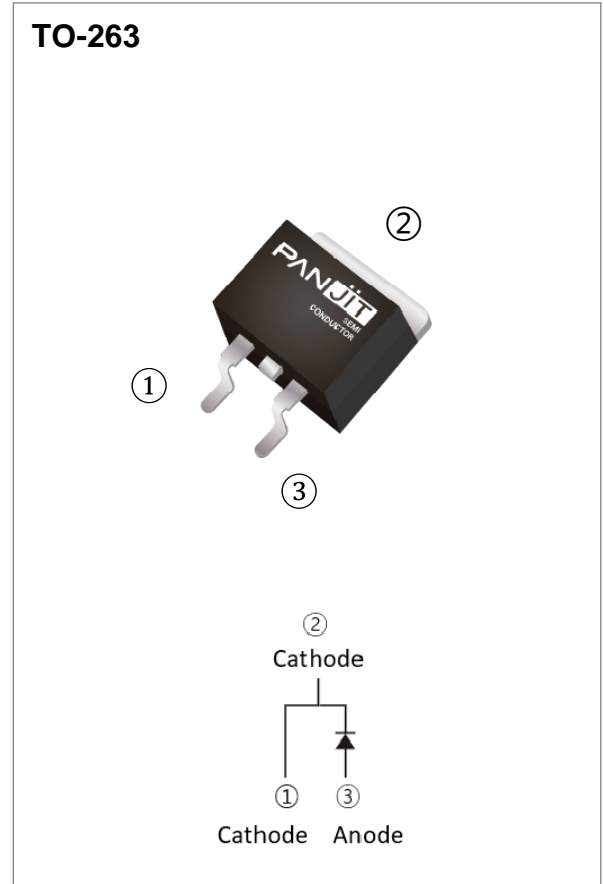
- Temperature Independent Switching Behavior
- High Surge Current Capability
- Positive Temperature Coefficient on  $V_F$
- Low Conduction Loss
- Zero Reverse Recovery
- High junction temperature 175 °C
- Lead free in compliance with EU RoHS 2.0
- Green molding compound as per IEC 61249 standard

### Mechanical Data

- Case: TO-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 ( $T_C = 25^\circ\text{C}$ 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	$T_C = 150^\circ\text{C}$	$I_F$	6	A
Repetitive Peak Surge Current <i>Half Sine Wave, D=0.1</i>	$T_C = 25^\circ\text{C}$ , $t_p = 10\text{ms}$	$I_{FRM}$	28	A
	$T_C = 125^\circ\text{C}$ , $t_p = 10\text{ms}$		24	
Peak Forward Surge Current <i>Half Sine Wave</i>	$T_C = 25^\circ\text{C}$ , $t_p = 10\text{ms}$	$I_{FSM}$	28	A
	$T_C = 125^\circ\text{C}$ , $t_p = 10\text{ms}$		24	
Peak Forward Surge Current $t_p = 10\mu\text{s}$ , Pulse		$I_{FSM}$	320	A
Maximum Power Dissipation		$P_{total}$	62.5	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	$\mu\text{A}$
		$V_R = 650\text{ V}, T_J = 175\text{ }^\circ\text{C}$	-	0.025	-	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	-	$\mu\text{J}$
Thermal Resistance	$R_{\theta JC}$		-	2.4	-	$^\circ\text{C/W}$

TYPICAL CHARACTERISTIC CURVES

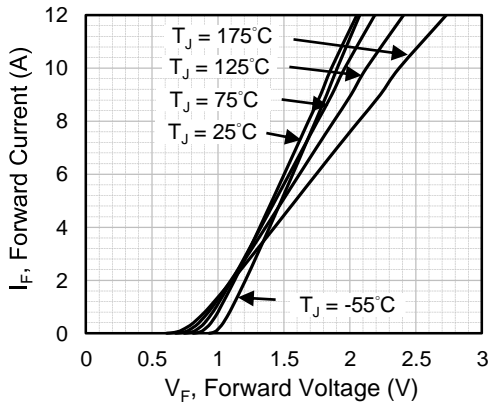


Fig.1 Forward Characteristics

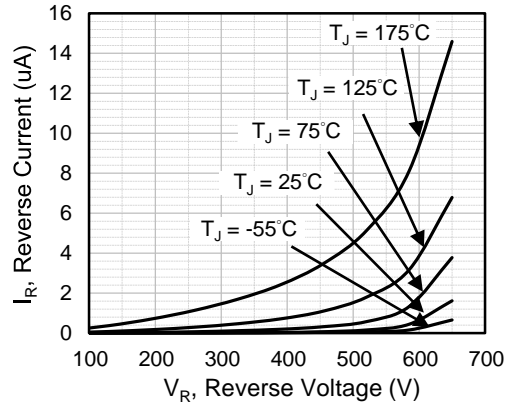


Fig.2 Reverse Characteristics

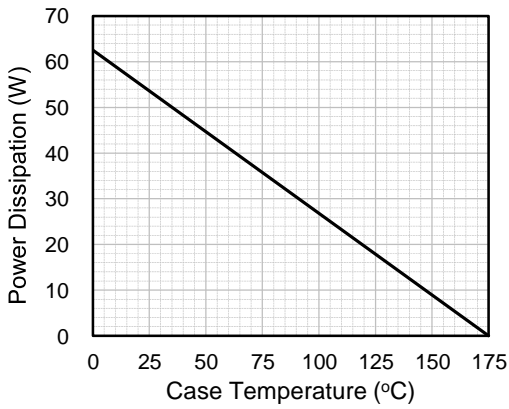


Fig.3 Power Derating Curve

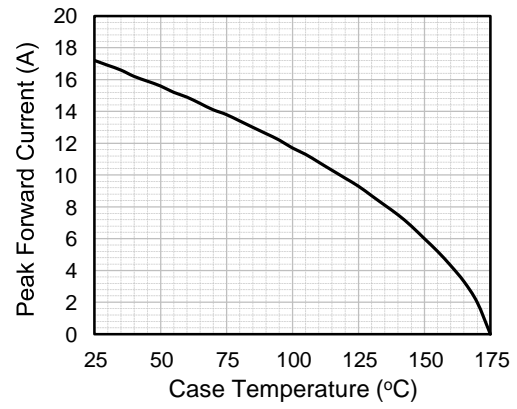


Fig.4 Current Derating Curve

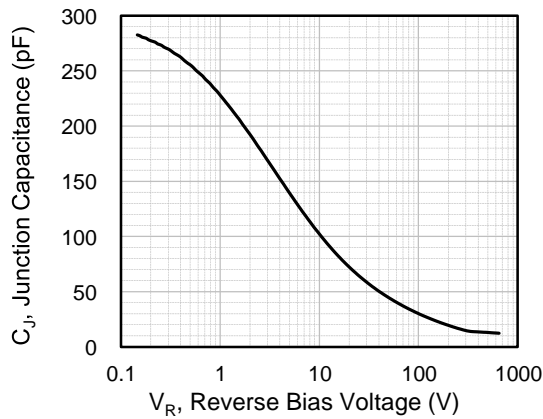


Fig.5 Typical Junction Capacitance

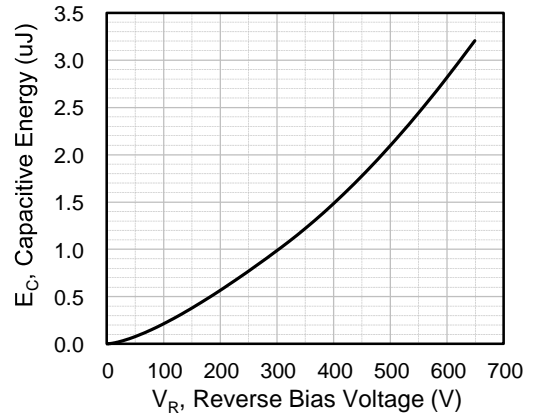
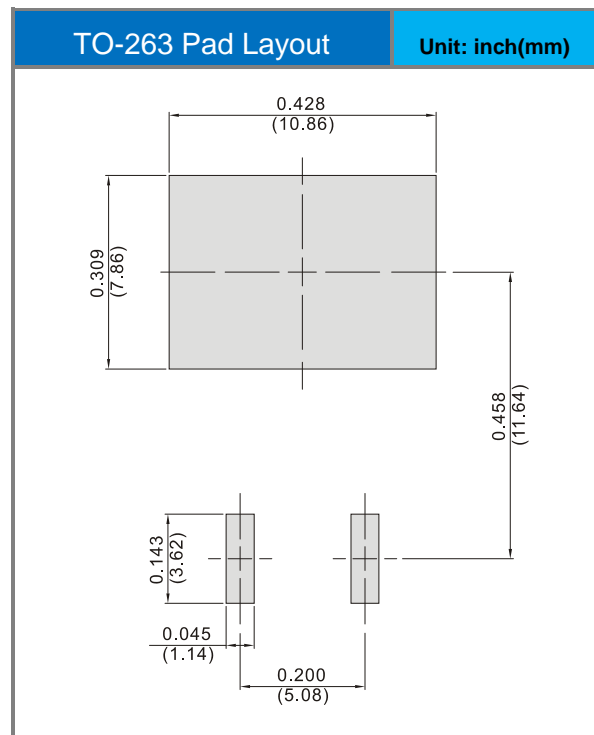
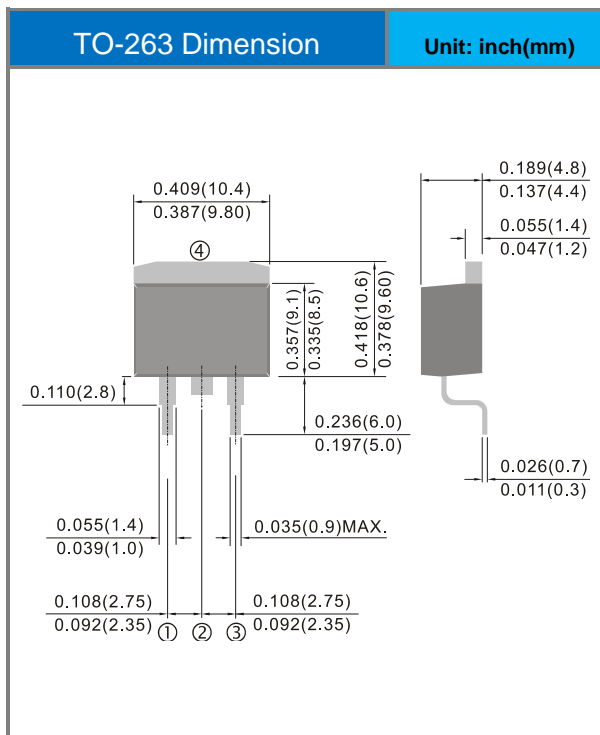


Fig.6 Capacitance Stored Energy

**Product and Packing Information**

Part No.	Package Type	Packing Type	Marking
PCDB0665G1	TO-263	50pcs / Tube 800pcs / Reel	CDB0665G1

**Packaging Information & Mounting Pad Layout**



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