

## Silicon Carbide Schottky Barrier Diode

<b>V<sub>RRM</sub></b>	<b>650 V</b>	<b>I<sub>F</sub></b>	<b>8 A</b>
<b>V<sub>F(Typ.)</sub></b>	<b>1.5 V</b>	<b>Q<sub>c</sub></b>	<b>15.7 nC</b>

### Features

- Temperature Independent Switching Behavior
- High Surge Current Capability
- Positive Temperature Coefficient on V<sub>F</sub>
- 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

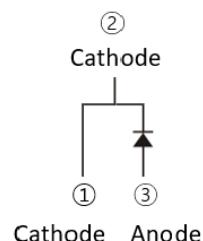
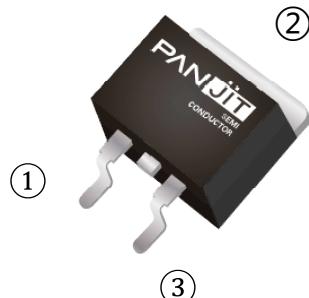
### Mechanical Data

- 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, EV Charging Station, Welder

**TO-263**



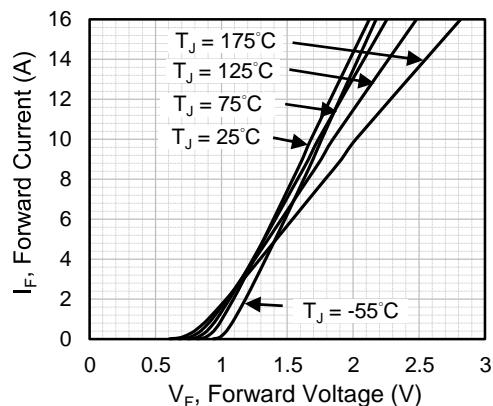
### Maximum Ratings and Thermal Characteristics (T<sub>C</sub> = 25 °C unless otherwise specified)

PARAMETER	SYMBOL	LIMIT	UNITS
Repetitive Peak Reverse Voltage	V <sub>RRM</sub>	650	V
DC Blocking Voltage	V <sub>DC</sub>	650	V
Continuous Forward Current	I <sub>F</sub>	8	A
Repetitive Peak Surge Current <i>Half Sine Wave, D=0.1</i>	I <sub>FRM</sub>	32 24	A
Peak Forward Surge Current <i>Half Sine Wave</i>	I <sub>FSM</sub>	36 32	A
Peak Forward Surge Current <i>t<sub>p</sub> = 10us, Pulse</i>		480	A
Maximum Power Dissipation	P <sub>total</sub>	78.5	W
Operating Junction Temperature Range	T <sub>J</sub>	-55~175	°C
Storage Temperature Range	T <sub>STG</sub>	-55~175	°C

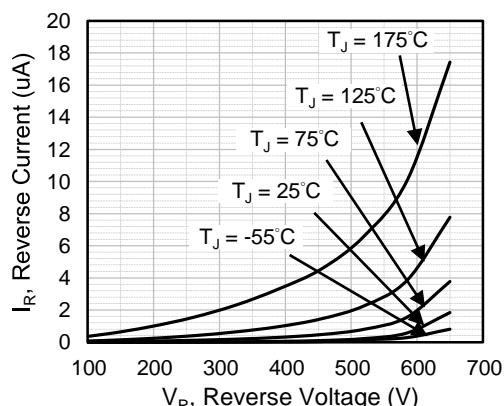
**Electrical Characteristics** ( $T_C = 25^\circ\text{C}$  unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNITS
Forward Voltage Drop	$V_F$	$I_F = 8 \text{ A}, T_J = 25^\circ\text{C}$	-	1.5	1.7	V
		$I_F = 8 \text{ A}, T_J = 175^\circ\text{C}$	-	1.8	-	
Reverse Leakage Current	$I_R$	$V_R = 650 \text{ V}, T_J = 25^\circ\text{C}$	-	3	60	$\mu\text{A}$
		$V_R = 650 \text{ V}, T_J = 175^\circ\text{C}$	-	0.03	-	mA
Total Capacitive Charge	$Q_C$	$I_F = 8 \text{ A}, V_R = 400\text{V}$	-	15.7	-	nC
Total Capacitance	C	$V_R = 1\text{V}, f = 1\text{MHz}$	-	296	-	pF
		$V_R = 200\text{V}, f = 1\text{MHz}$	-	27.2	-	pF
		$V_R = 400\text{V}, f = 1\text{MHz}$	-	19.1	-	pF
Capacitance Stored Energy	$E_C$	$V_R = 400\text{V}$	-	2.3	-	$\mu\text{J}$
Thermal Resistance	$R_{\thetaJC}$		-	1.91	-	$^\circ\text{C}/\text{W}$

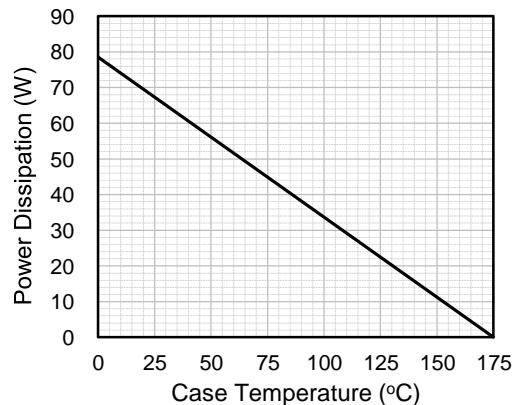
**TYPICAL CHARACTERISTIC CURVES**



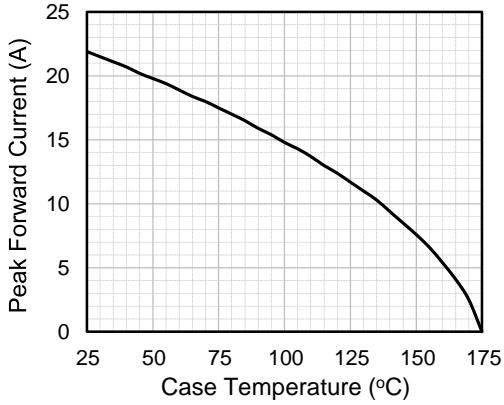
**Fig.1 Forward Characteristics**



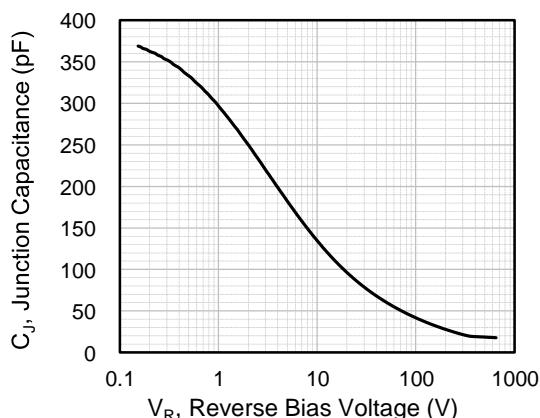
**Fig.2 Reverse Characteristics**



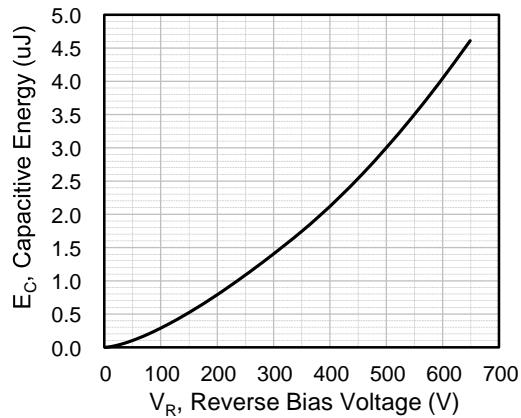
**Fig.3 Power Derating Curve**



**Fig.4 Current Derating Curve**



**Fig.5 Typical Junction Capacitance**

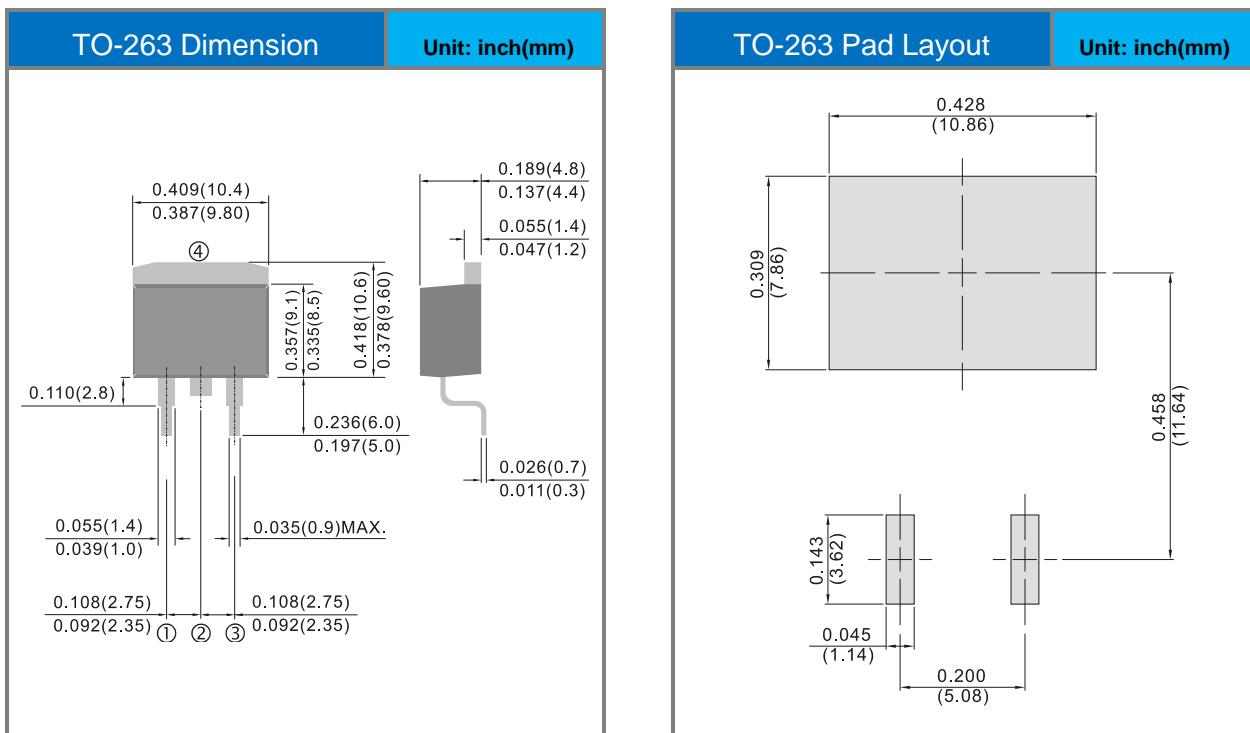


**Fig.6 Capacitance Stored Energy**

## Product and Packing Information

Part No.	Package Type	Packing Type	Marking
PCDB0865G1	TO-263	50pcs / Tube 800pcs / Reel	CDB0865G1

## Packaging Information & Mounting Pad Layout



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