



# **Zero Recovery Silicon Carbide Schottky Diode**

### **PRODUCT APPLICATIONS**

- Anti-Parallel Diode

   Switchmode Power Supply
   Inverters
- Power Factor Correction (PFC)

#### **PRODUCT FEATURES**

- Zero Recovery Times (t<sub>rr</sub>)
- Popular TO-247 Package or surface mount D³PAK package
- · Low Forward Voltage
- · Low Leakage Current

#### **PRODUCT BENEFITS**

- · Higher Reliability Systems
- Minimizes or eliminates snubber



1 - Cathode 2 - Anode Back of Case - Cathode

#### **MAXIMUM RATINGS**

 $T_C = 25$ °C unless otherwise specified.

Symbol	Characteristic / Test Conditions		Ratings	Unit	
V <sub>R</sub>	Maximum D.C. Reverse Voltage				
$V_{RRM}$	Maximum Peak Repetitive Reverse Voltage		1200	Volts	
$V_{RWM}$	Maximum Working Peak Reverse Voltage				
	Maximum D.C. Forward current	T <sub>c</sub> = 25°C	99		
I <sub>F</sub>		T <sub>c</sub> = 135°C	29	7	
I <sub>FRM</sub>	Repetitive Peak Forward Suge Current (T <sub>J</sub> = 45°C, t <sub>p</sub> = 10ms, Half Sine Wave)		150	Amps	
I <sub>FSM</sub>	Non-Repetitive Forward Surge Current (T <sub>J</sub> = 25°C, t <sub>p</sub> = 10ms, Half Sine)		330		
P <sub>tot</sub>	Power Dissipation	T <sub>C</sub> = 25°C	291	w	
		T <sub>C</sub> = 125°C	93	VV	
T <sub>J</sub> , T <sub>STG</sub>	Operating and Storage Junction Temperature Range		-55 to 150	°C	
T <sub>L</sub>	Lead Temperature for 10 Seconds	emperature for 10 Seconds			

#### STATIC ELECTRICAL CHARACTERISTICS

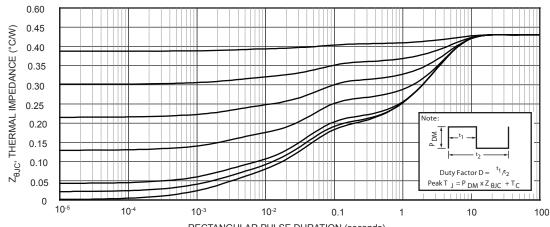
Symbol	Characteristic / Test Conditions		Min	Тур	Max	Unit
V <sub>F</sub>	Forward Voltage	I <sub>F</sub> = 30A T <sub>J</sub> = 25°C		1.5	1.8	Volts
		I <sub>F</sub> = 30A, T <sub>J</sub> = 150°C		2.1		
I <sub>RM</sub>	Maximum Reverse Leakage Current	V <sub>R</sub> = 1200V T <sub>J</sub> = 25°C			600	μА
		V <sub>R</sub> = 1200V, T <sub>J</sub> = 150°C			3000	
Q <sub>c</sub>	Total Capactive Charge $V_R = 800V$ , $I_F = 30A$ , di/dt = -100A/ $\mu$ s, $T_J = 25$ °C			200		nC
C <sub>T</sub>	Junction Capacitance $V_R = 0V$ , $T_J = 25$ °C, $f = 1MHz$			2100		pF
	Junction Capacitance $V_R = 200V$ , $T_J = 25^{\circ}C$ , $f = 1MHz$			228		
	Junction Capacitance V <sub>R</sub> = 400V, T <sub>J</sub> = 25°C, f = 1MHz			167		

#### THERMAL AND MECHANICAL CHARACTERISTICS

Symbol	Characteristic / Test Conditions	Min	Тур	Max	Unit
R <sub>eJC</sub>	Junction-to-Case Thermal Resistance			0.43	°C/W
W <sub>T</sub>	Package Weight		0.22		OZ
			5.9		g
Torque	Maximum Mounting Torque			10	lb∙in
				1.1	N·m

Microsemi reserves the right to change, without notice, the specifications and information contained herein.

#### **TYPICAL PERFORMANCE CURVES**



RECTANGULAR PULSE DURATION (seconds)
FIGURE 1. MAXIMUM EFFECTIVE TRANSIENT THERMAL IMPEDANCE, JUNCTION-TO-CASE vs. PULSE DURATION

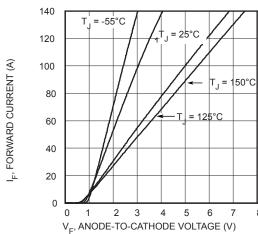


FIGURE 2, Forward Current vs. Forward Voltage

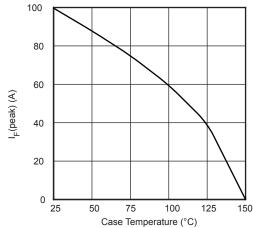


FIGURE 3, Maximum Forward Current vs. Case Temperature

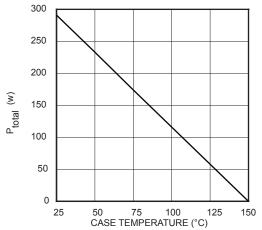
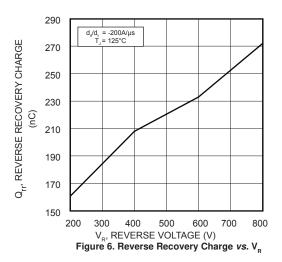


Figure 4. Maximum Power Dissipation vs. Case Temperature



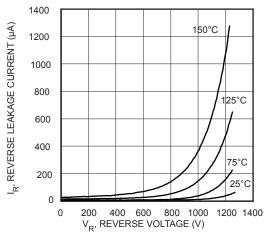
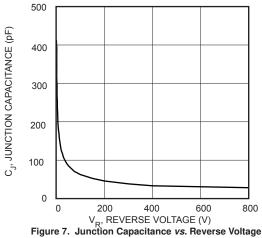
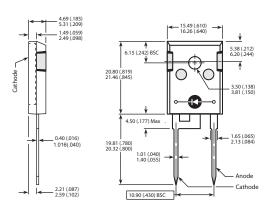


Figure 5. Reverse Leakage Currents vs. Reverse Voltage

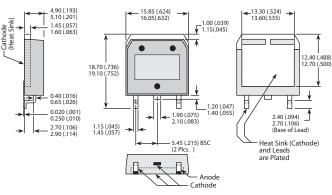


#### **TO-247 Package Outline**



Dimensions in Millimeters and (Inches)

## D³PAK Package Outline



Dimensions in Millimeters and (Inches)

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