

## Zero Recovery Silicon Carbide Schottky Diode

### PRODUCT APPLICATIONS

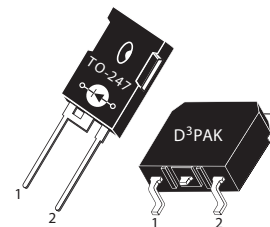
- Anti-Parallel Diode  
- Switchmode Power Supply  
- Inverters
- Power Factor Correction (PFC)

### PRODUCT FEATURES

- Zero Recovery Times ( $t_{rr}$ )
- Popular TO-247 Package or surface mount D<sup>3</sup>PAK 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

$T_C = 25^\circ\text{C}$  unless otherwise specified.

Symbol	Characteristic / Test Conditions		Ratings	Unit
V <sub>R</sub>	Maximum D.C. Reverse Voltage		1200	Volts
V <sub>RRM</sub>	Maximum Peak Repetitive Reverse Voltage			
V <sub>RWM</sub>	Maximum Working Peak Reverse Voltage			
I <sub>F</sub>	Maximum D.C. Forward current	T <sub>c</sub> = 25°C	68	Amps
		T <sub>c</sub> = 135°C	20	
I <sub>FRM</sub>	Repetitive Peak Forward Suge Current (T <sub>J</sub> = 45°C, t <sub>p</sub> = 10ms, Half Sine Wave)		100	
I <sub>FSM</sub>	Non-Repetitive Forward Surge Current (T <sub>J</sub> = 25°C, t <sub>p</sub> = 10ms, Half Sine)		220	
P <sub>tot</sub>	Power Dissipation	T <sub>c</sub> = 25°C	208	W
		T <sub>c</sub> = 110°C	66	
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		300	

### STATIC ELECTRICAL CHARACTERISTICS

Symbol	Characteristic / Test Conditions		Min	Typ	Max	Unit
$V_F$	Forward Voltage	$I_F = 20\text{A}$ , $T_J = 25^\circ\text{C}$		1.5	1.8	Volts
		$I_F = 20\text{A}$ , $T_J = 150^\circ\text{C}$		2.2		
$I_{RM}$	Maximum Reverse Leakage Current	$V_R = 1200\text{V}$ , $T_J = 25^\circ\text{C}$			400	$\mu\text{A}$
		$V_R = 1200\text{V}$ , $T_J = 150^\circ\text{C}$			2000	
$Q_c$	Total Capacitive Charge $V_R = 800\text{V}$ , $I_F = 20\text{A}$ , $di/dt = -100\text{A}/\mu\text{s}$ , $T_J = 25^\circ\text{C}$			66		nC
$C_T$	Junction Capacitance $V_R = 0\text{V}$ , $T_J = 25^\circ\text{C}$ , $f = 1\text{MHz}$			1135		pF
	Junction Capacitance $V_R = 200\text{V}$ , $T_J = 25^\circ\text{C}$ , $f = 1\text{MHz}$			160		
	Junction Capacitance $V_R = 400\text{V}$ , $T_J = 25^\circ\text{C}$ , $f = 1\text{MHz}$			100		

Symbol	Characteristic / Test Conditions	Min	Typ	Max	Unit
$R_{\theta JC}$	Junction-to-Case Thermal Resistance			0.6	°C/W
$W_T$	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

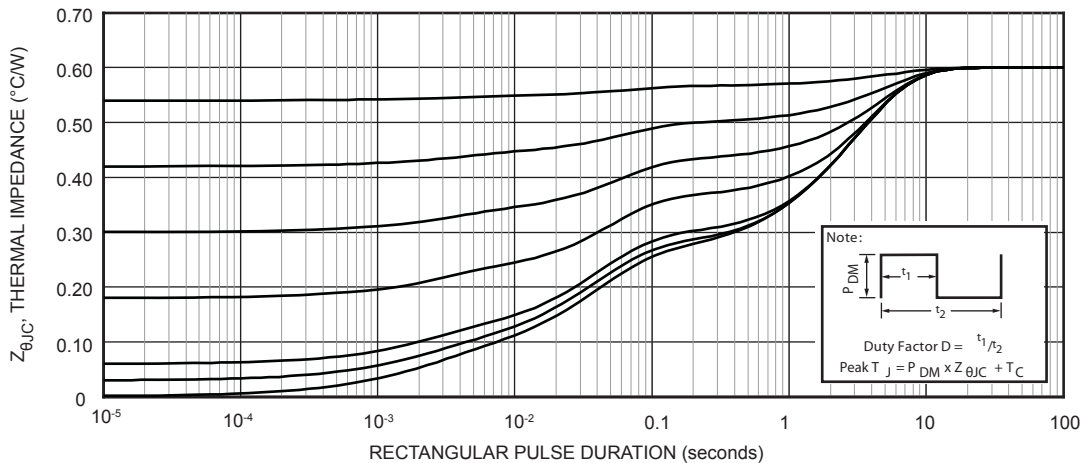


FIGURE 1. MAXIMUM EFFECTIVE TRANSIENT THERMAL IMPEDANCE, JUNCTION-TO-CASE vs. PULSE DURATION

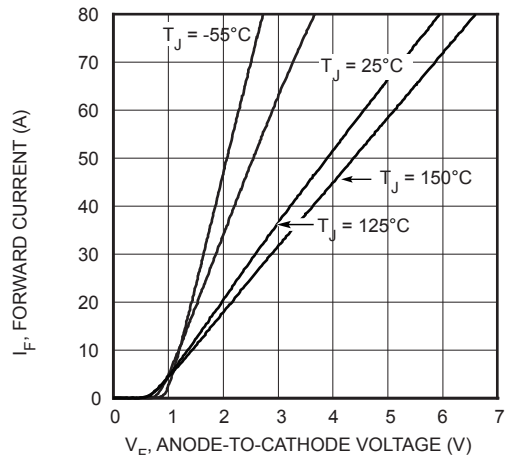


FIGURE 2. Forward Current vs. Forward Voltage

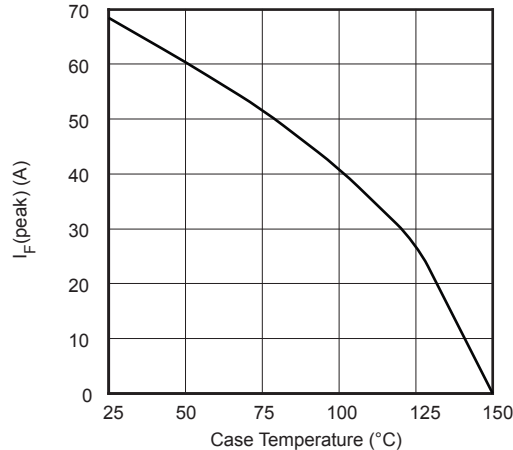


FIGURE 3. Maximum Forward Current vs. Case Temperature

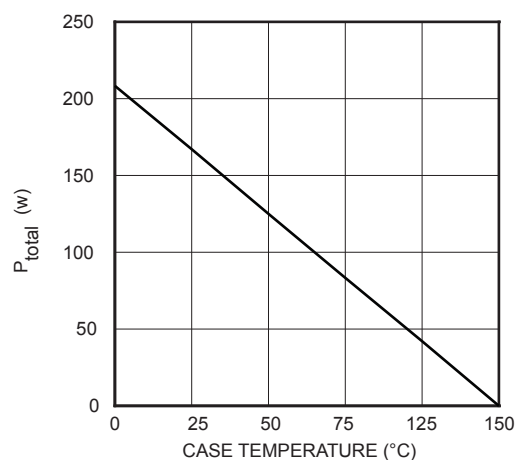


Figure 4. Maximum Power Dissipation vs. Case Temperature

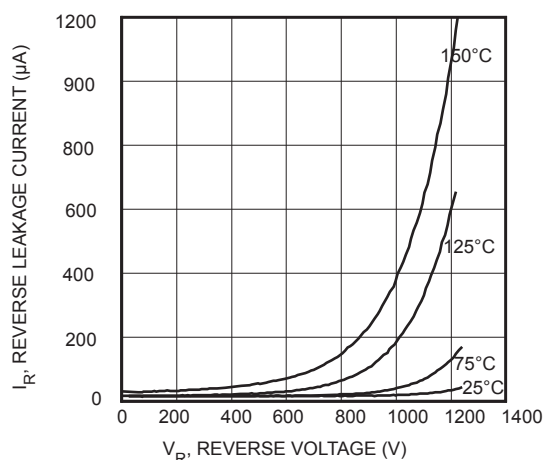


Figure 5. Reverse Leakage Currents vs. Reverse Voltage

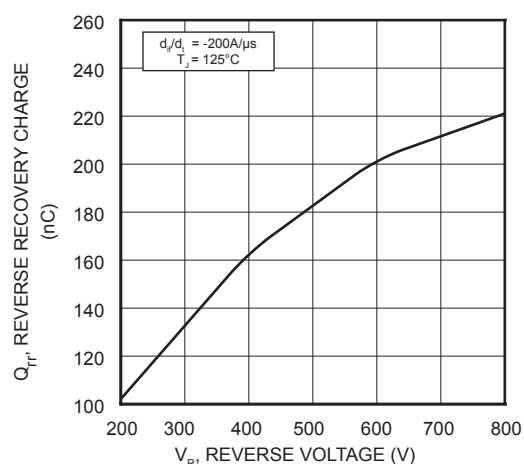
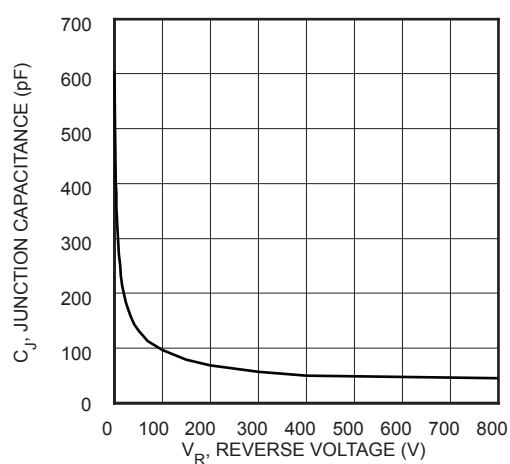
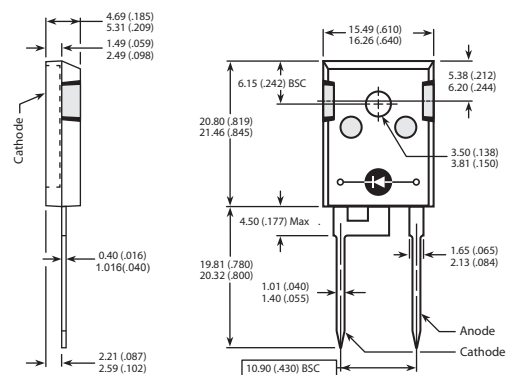
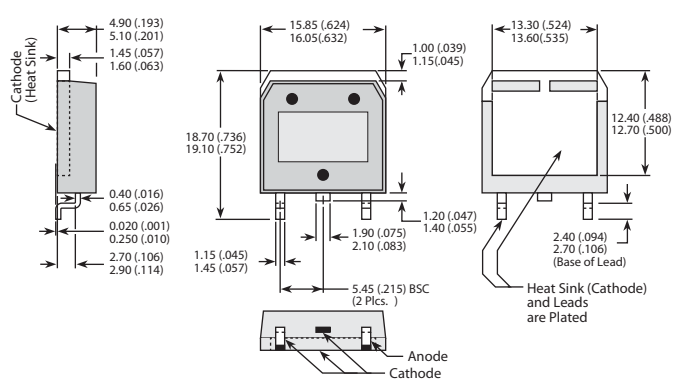
Figure 6. Reverse Recovery Charge vs.  $V_R$ 

Figure 7. Junction Capacitance vs. Reverse Voltage

## TO-247 Package Outline



Dimensions in Millimeters and (Inches)

D<sup>3</sup>PAK Package Outline

Dimensions in Millimeters and (Inches)

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