

Zero Recovery Silicon Carbide Schottky Diode

PRODUCT APPLICATIONS

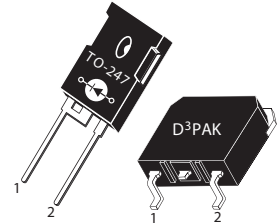
- Anti-Parallel Diode
 - Switchmode Power Supply
 - Inverters
- Power Factor Correction (PFC)

PRODUCT FEATURES

- Zero Recovery Times (t_{rr})
- Popular TO-247 Package or surface mount 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

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

Symbol	Characteristic / Test Conditions	Ratings	Unit
V_R	Maximum D.C. Reverse Voltage	1200	Volts
V_{RRM}	Maximum Peak Repetitive Reverse Voltage		
V_{RWM}	Maximum Working Peak Reverse Voltage		
I_F	Maximum D.C. Forward current	$T_C = 25^\circ\text{C}$	99
		$T_C = 135^\circ\text{C}$	29
I_{FRM}	Repetitive Peak Forward Surge Current ($T_J = 45^\circ\text{C}$, $t_p = 10\text{ms}$, Half Sine Wave)	150	Amps
I_{FSM}	Non-Repetitive Forward Surge Current ($T_J = 25^\circ\text{C}$, $t_p = 10\text{ms}$, Half Sine)	330	
P_{tot}	Power Dissipation	$T_C = 25^\circ\text{C}$	291
		$T_C = 125^\circ\text{C}$	93
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 to 150	$^\circ\text{C}$
T_L	Lead Temperature for 10 Seconds	300	

STATIC ELECTRICAL CHARACTERISTICS

Symbol	Characteristic / Test Conditions	Min	Typ	Max	Unit
V_F	Forward Voltage		$I_F = 30\text{A}$, $T_J = 25^\circ\text{C}$	1.5	1.8
			$I_F = 30\text{A}$, $T_J = 150^\circ\text{C}$	2.1	
I_{RM}	Maximum Reverse Leakage Current		$V_R = 1200\text{V}$, $T_J = 25^\circ\text{C}$		600
			$V_R = 1200\text{V}$, $T_J = 150^\circ\text{C}$		3000
Q_c	Total Capacitive Charge $V_R = 800\text{V}$, $I_F = 30\text{A}$, $di/dt = -100\text{A}/\mu\text{s}$, $T_J = 25^\circ\text{C}$		200		nC
C_T	Junction Capacitance $V_R = 0\text{V}$, $T_J = 25^\circ\text{C}$, $f = 1\text{MHz}$		2100		pF
	Junction Capacitance $V_R = 200\text{V}$, $T_J = 25^\circ\text{C}$, $f = 1\text{MHz}$		228		
	Junction Capacitance $V_R = 400\text{V}$, $T_J = 25^\circ\text{C}$, $f = 1\text{MHz}$		167		

Symbol	Characteristic / Test Conditions	Min	Typ	Max	Unit
$R_{\theta JC}$	Junction-to-Case Thermal Resistance			0.43	°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

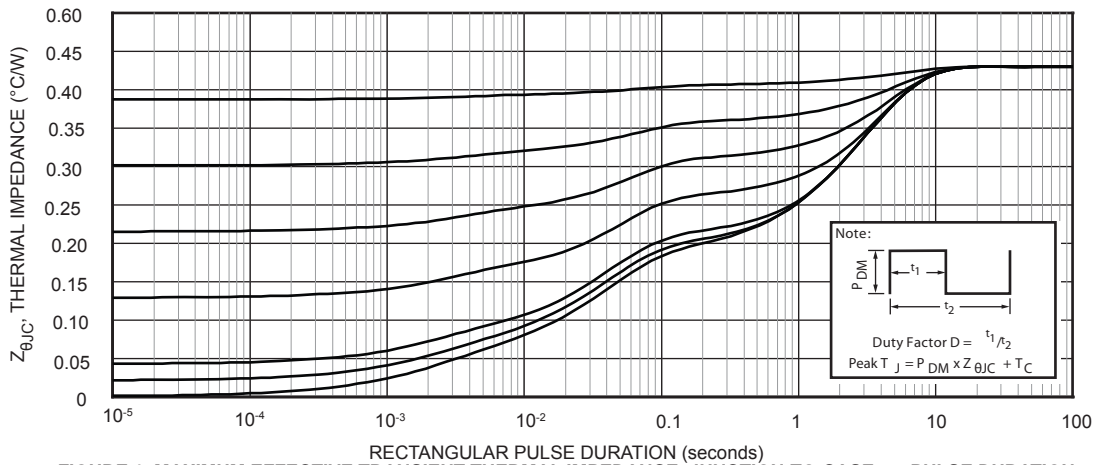


FIGURE 1. MAXIMUM EFFECTIVE TRANSIENT THERMAL IMPEDANCE, JUNCTION-TO-CASE vs. PULSE DURATION

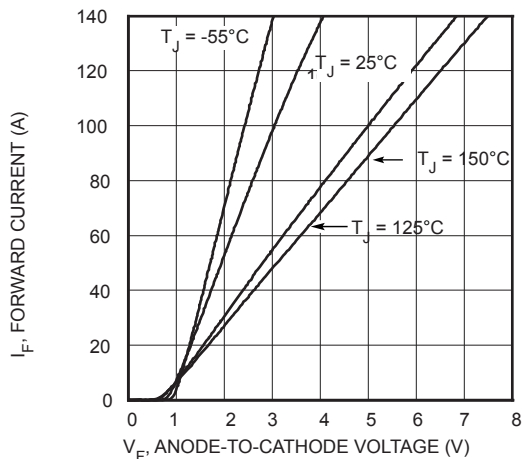


FIGURE 2, Forward Current vs. Forward Voltage

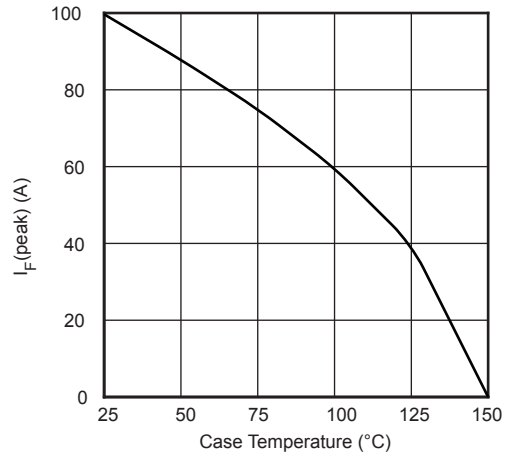


FIGURE 3, Maximum Forward Current vs. Case Temperature

TYPICAL PERFORMANCE CURVES

APT30SCD120B_S

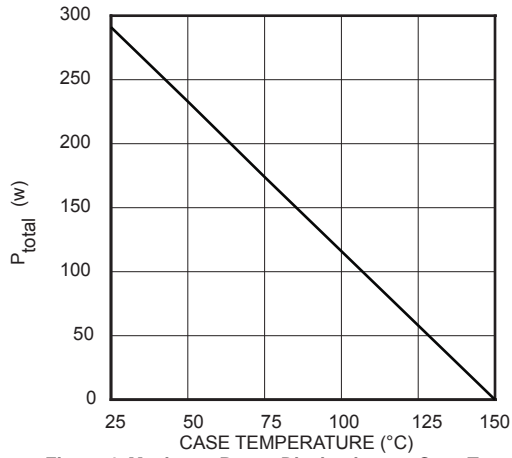


Figure 4. Maximum Power Dissipation vs. Case Temperature

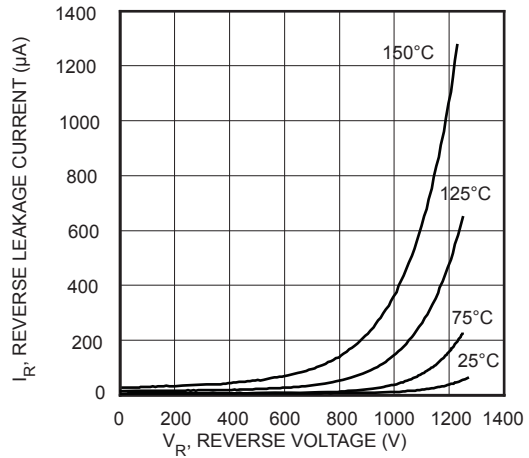


Figure 5. Reverse Leakage Currents vs. Reverse Voltage

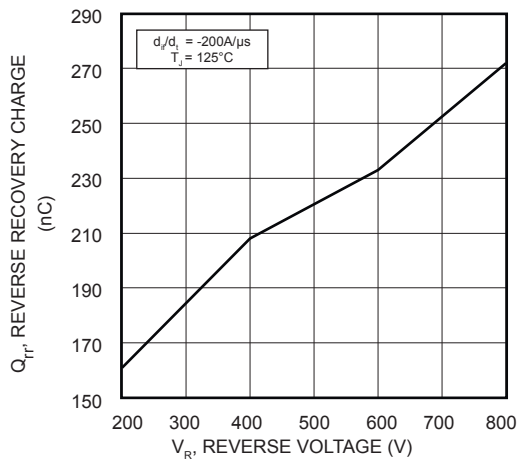


Figure 6. Reverse Recovery Charge vs. V_R

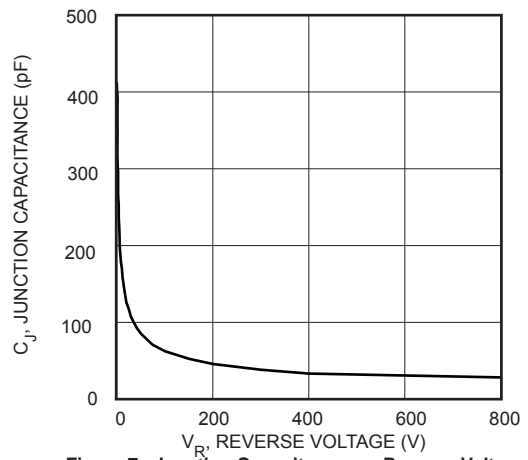
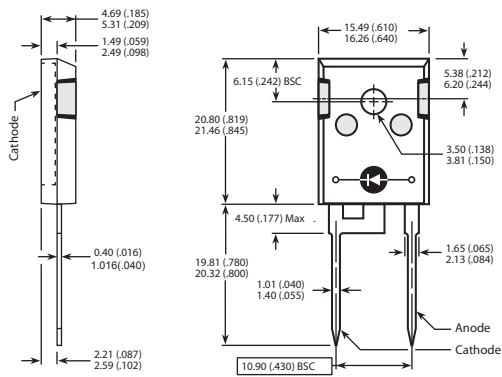


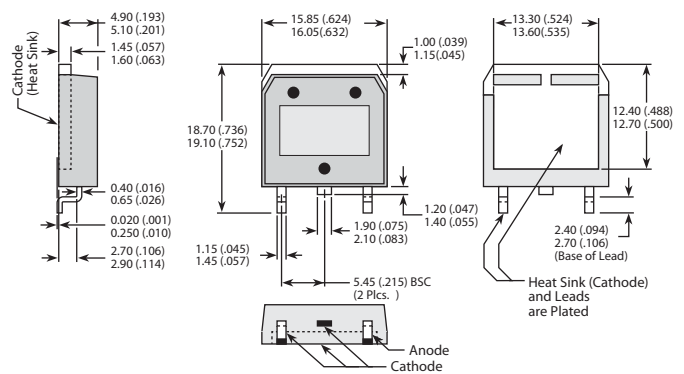
Figure 7. Junction Capacitance vs. Reverse Voltage

TO-247 Package Outline



Dimensions in Millimeters and (Inches)

D³PAK Package Outline



Dimensions in Millimeters and (Inches)

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