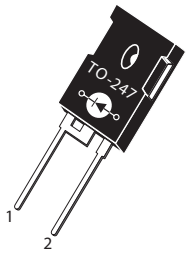
SiC Microsemi

Microsemi

APT10SCE170B

1700V 10A

Zero Recovery Silicon Carbide Schottky Diode



1 - Cathode
2 - Anode
Back of Case - Cathode

PRODUCT APPLICATIONS

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

PRODUCT FEATURES

- **Zero Recovery Times (t_{rr})**
- **Popular TO-247 Package**
- **Low Forward Voltage**
- **Low Leakage Current**

PRODUCT BENEFITS

- **Higher Reliability Systems**
- **Minimizes or eliminates snubber**

MAXIMUM RATINGS

All Ratings: T_C = 25°C unless otherwise specified.

Symbol	Characteristic / Test Conditions		Ratings	Unit
V_R	Maximum D.C. Reverse Voltage		1700	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°C	23	Amps
		T_C = 110°C	15	
I_{FSM}	Non-Repetitive Forward Surge Current (t_p = 10ms, Half Sine)	T_C = 25°C	55	
		T_C = 110°C	50	
P_{tot}	Power Dissipation	T_C = 25°C	214	W
		T_C = 110°C	92	
T_J, T_{STG}	Operating and Storage Junction Temperature Range		-55 to 175	°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 = 10A T_J = 25°C		1.5	1.8	Volts
		I_F = 10A, T_J = 175°C		2.25		
I_{RM}	Maximum Reverse Leakage Current	V_R = 1700V T_J = 25°C		10	200	µA
		V_R = 1700V, T_J = 175°C		500		
Q_c	Total Capactive Charge V_R = 800V, I_F = 10A, di/dt = -500A/µs, T_J = 25°C			88		nC
C_T	Junction Capacitance V_R = 0V, T_J = 25°C, f = 1MHz			1120		pF
	Junction Capacitance V_R = 300V, T_J = 25°C, f = 1MHz			93		
	Junction Capacitance V_R = 600V, T_J = 25°C, f = 1MHz			68		

THERMAL AND MECHANICAL CHARACTERISTICS

Symbol	Characteristic / Test Conditions	Min	Typ	Max	Unit
$R_{\theta JC}$	Junction-to-Case Thermal Resistance			0.7	°C/W
W_T	Package Weight		0.22		oz
			5.9		g
Torque	Maximum Mounting Torque			10	lb·in
				1.1	N·m

TYPICAL PERFORMANCE CURVES

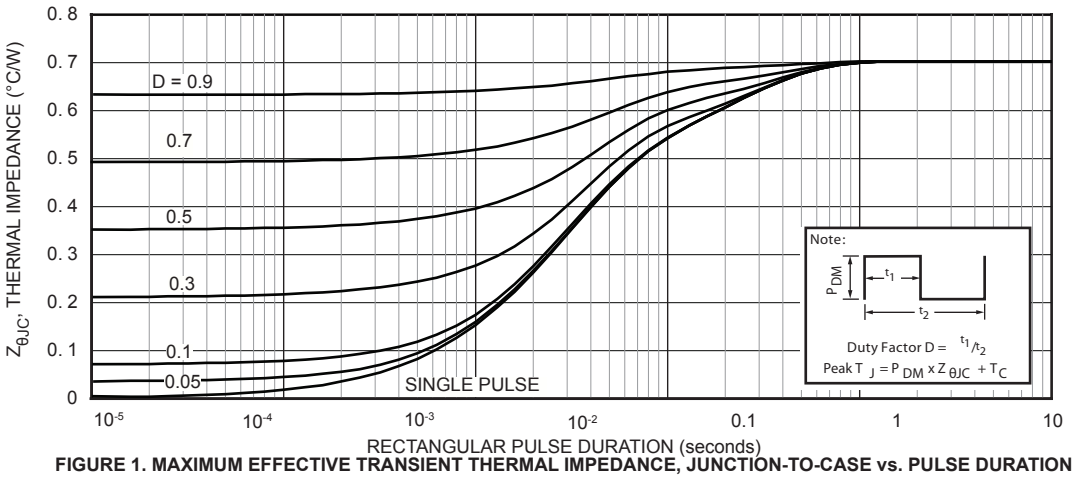


FIGURE 1. MAXIMUM EFFECTIVE TRANSIENT THERMAL IMPEDANCE, JUNCTION-TO-CASE vs. PULSE DURATION

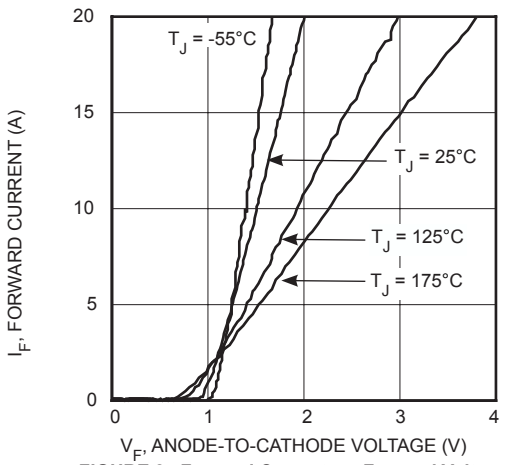


FIGURE 2, Forward Current vs. Forward Voltage

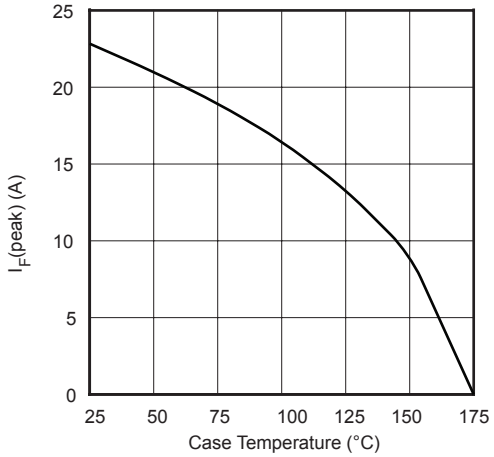


FIGURE 3, Maximum Forward Current vs. Case Temperature

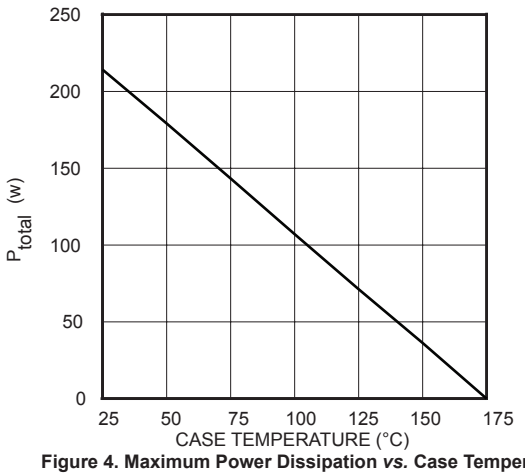


Figure 4. Maximum Power Dissipation *vs.* Case Temperature

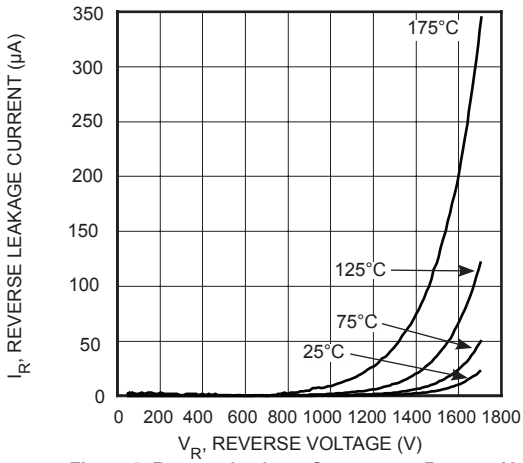


Figure 5. Reverse Leakage Currents *vs.* Reverse Voltage

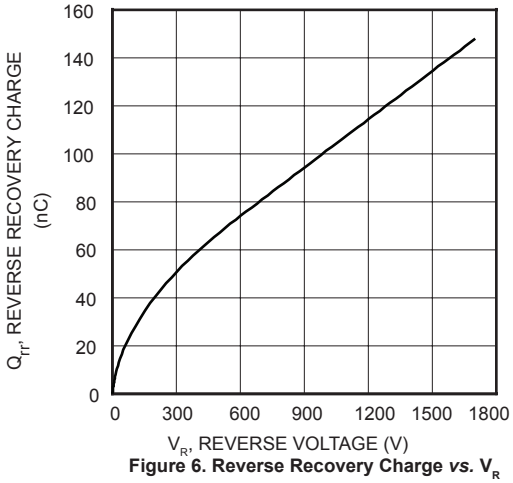


Figure 6. Reverse Recovery Charge *vs.* V_R

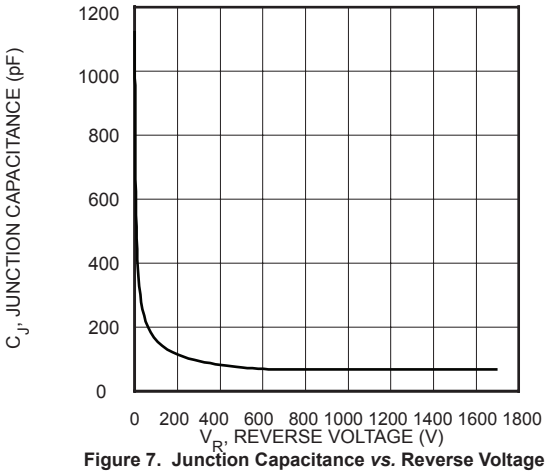
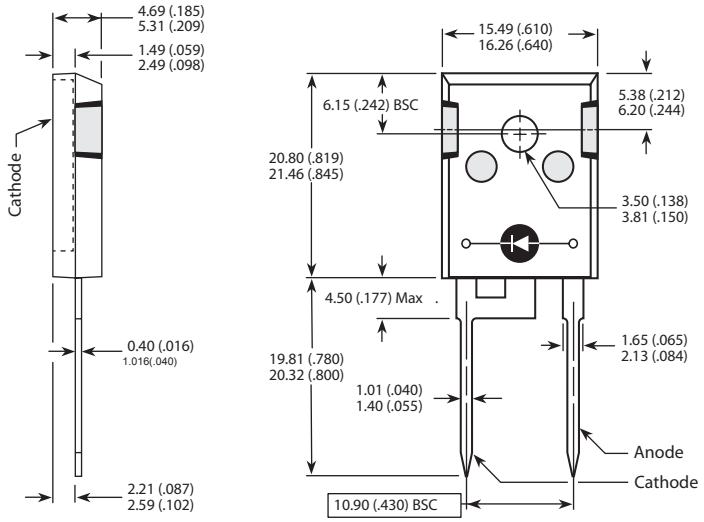


Figure 7. Junction Capacitance *vs.* Reverse Voltage

TO-247 Package Outline



Dimensions in Millimeters and (Inches)

Disclaimer:

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