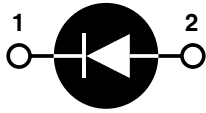


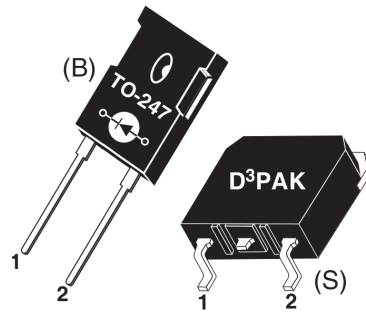


**THE DATASHEET OF
APT60S20BG**





1 - Cathode
2 - Anode
Back of Case - Cathode



a MICROCHIP company

APT60S20BG 200V 75A
APT60S20SG 200V 75A

HIGH VOLTAGE SCHOTTKY DIODE

PRODUCT APPLICATIONS	PRODUCT FEATURES	PRODUCT BENEFITS
<ul style="list-style-type: none"> Parallel Diode <ul style="list-style-type: none"> -Switchmode Power Supply -Inverters Free Wheeling Diode <ul style="list-style-type: none"> -Motor Controllers -Converters Snubber Diode Uninterruptible Power Supply (UPS) 48 Volt Output Rectifiers High Speed Rectifiers 	<ul style="list-style-type: none"> Ultrafast Recovery Times Soft Recovery Characteristics Popular TO-247 Package or Surface Mount D³PAK Package Low Forward Voltage High Blocking Voltage Low Leakage Current 	<ul style="list-style-type: none"> Low Losses Low Noise Switching Cooler Operation Higher Reliability Systems Increased System Power Density

MAXIMUM RATINGS

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

Symbol	Characteristic / Test Conditions	APT60S20(B/S)G	UNIT
V_R	Maximum D.C. Reverse Voltage	200	Volts
V_{RRM}	Maximum Peak Repetitive Reverse Voltage		
V_{RWM}	Maximum Working Peak Reverse Voltage		
$I_F(AV)$	Maximum Average Forward Current ($T_C = 123^\circ\text{C}$, Duty Cycle = 0.5)	75	Amps
$I_F(RMS)$	RMS Forward Current (Square wave, 50% duty)	208	
I_{FSM}	Non-Repetitive Forward Surge Current ($T_J = 45^\circ\text{C}$, 8.3ms)	600	
T_J, T_{STG}	Operating and Storage Temperature Range	-55 to 150	$^\circ\text{C}$
T_L	Lead Temperature for 10 Sec.	300	
E_{VAL}	Avalanche Energy (2A, 30mH)	60	

STATIC ELECTRICAL CHARACTERISTICS

Symbol		MIN	TYP	MAX	UNIT
V_F	Forward Voltage	$I_F = 60\text{A}$.83	.90	Volts
		$I_F = 120\text{A}$.98		
		$I_F = 60\text{A}, T_J = 125^\circ\text{C}$.72		
I_{RM}	Maximum Reverse Leakage Current	$V_R = 200\text{V}$		1	mA
		$V_R = 200\text{V}, T_J = 125^\circ\text{C}$		25	
C_T	Junction Capacitance, $V_R = 200\text{V}$		300		pF

Microsemi Website - <http://www.microsemi.com>

DYNAMIC CHARACTERISTICS

APT60S20(B/S)G

Symbol	Characteristic	Test Conditions	MIN	TYP	MAX	UNIT
t_{rr}	Reverse Recovery Time	$I_F = 60A, di_F/dt = -200A/\mu s$ $V_R = 133V, T_C = 25^\circ C$	-	55		ns
Q_{rr}	Reverse Recovery Charge		-	160		nC
I_{RRM}	Maximum Reverse Recovery Current		-	5	-	Amps
t_{rr}	Reverse Recovery Time	$I_F = 60A, di_F/dt = -200A/\mu s$ $V_R = 133V, T_C = 125^\circ C$	-	100		ns
Q_{rr}	Reverse Recovery Charge		-	490		nC
I_{RRM}	Maximum Reverse Recovery Current		-	10	-	Amps
t_{rr}	Reverse Recovery Time	$I_F = 60A, di_F/dt = -700A/\mu s$ $V_R = 133V, T_C = 125^\circ C$	-	80		ns
Q_{rr}	Reverse Recovery Charge		-	1100		nC
I_{RRM}	Maximum Reverse Recovery Current		-	27		Amps

THERMAL AND MECHANICAL CHARACTERISTICS

Symbol	Characteristic / Test Conditions	MIN	TYP	MAX	UNIT
$R_{\theta JC}$	Junction-to-Case Thermal Resistance			.30	$^\circ C/W$
$R_{\theta JA}$	Junction-to-Ambient Thermal Resistance			40	
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.

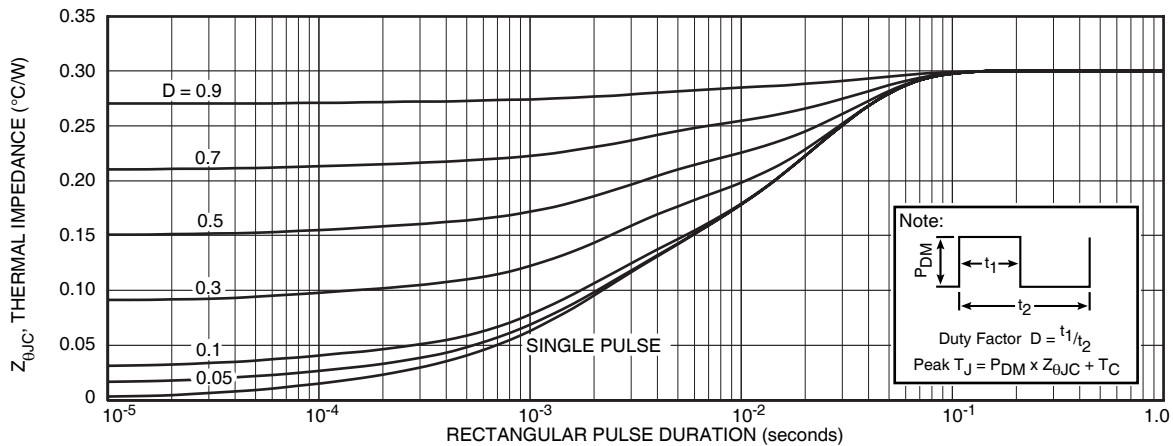
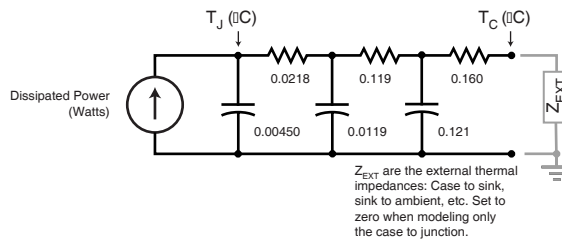


FIGURE 1a. MAXIMUM EFFECTIVE TRANSIENT THERMAL IMPEDANCE, JUNCTION-TO-CASE vs. PULSE DURATION



Z_{EXT} are the external thermal impedances: Case to sink, sink to ambient, etc. Set to zero when modeling only the case to junction.

FIGURE 1b. TRANSIENT THERMAL IMPEDANCE MODEL

TYPICAL PERFORMANCE CURVES

APT60S20(B/S)G

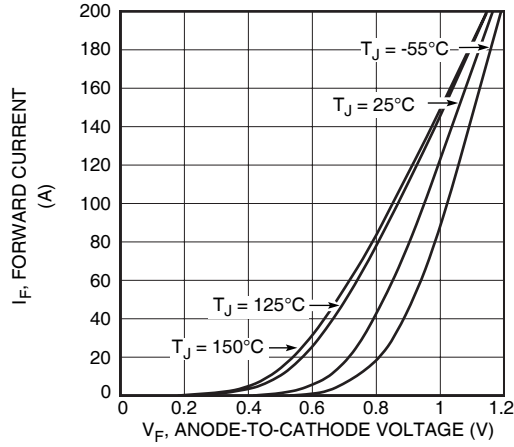


Figure 2. Forward Current vs. Forward Voltage

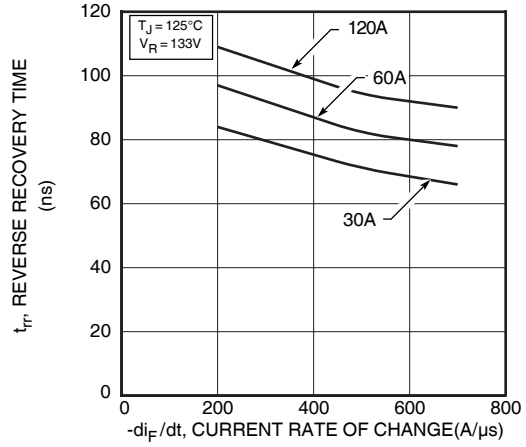


Figure 3. Reverse Recovery Time vs. Current Rate of Change

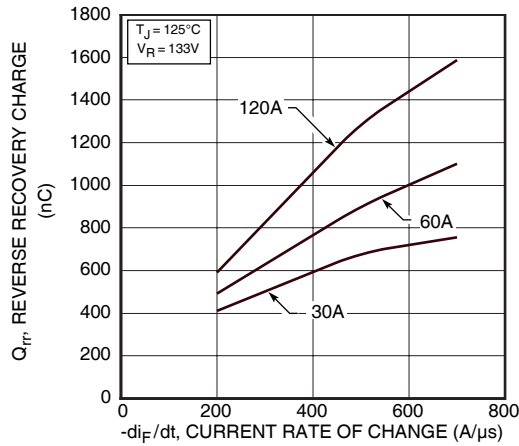


Figure 4. Reverse Recovery Charge vs. Current Rate of Change

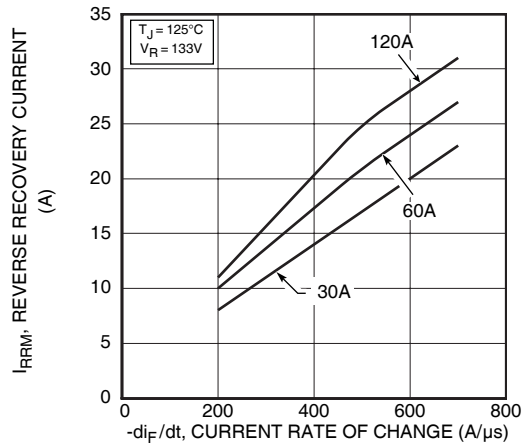


Figure 5. Reverse Recovery Current vs. Current Rate of Change

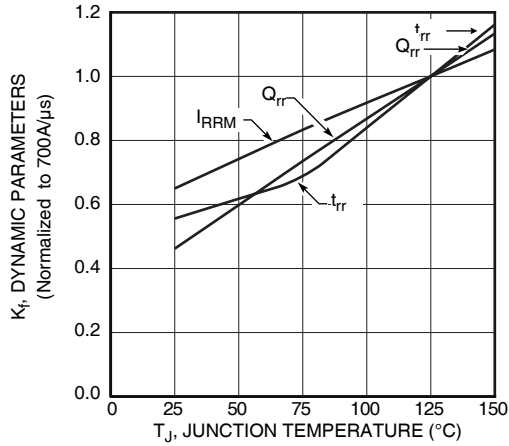


Figure 6. Dynamic Parameters vs. Junction Temperature

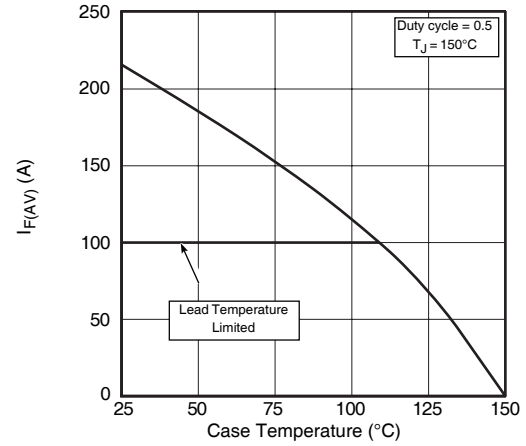


Figure 7. Maximum Average Forward Current vs. Case Temperature

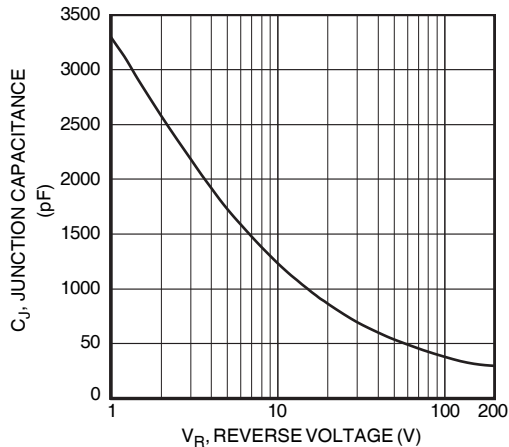


Figure 8. Junction Capacitance vs. Reverse Voltage

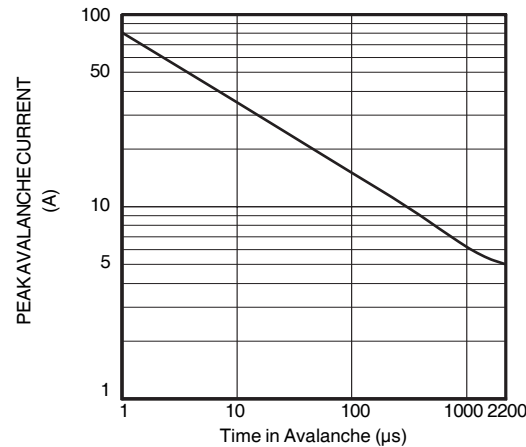


Figure 9. Single Pulse UIS SOA

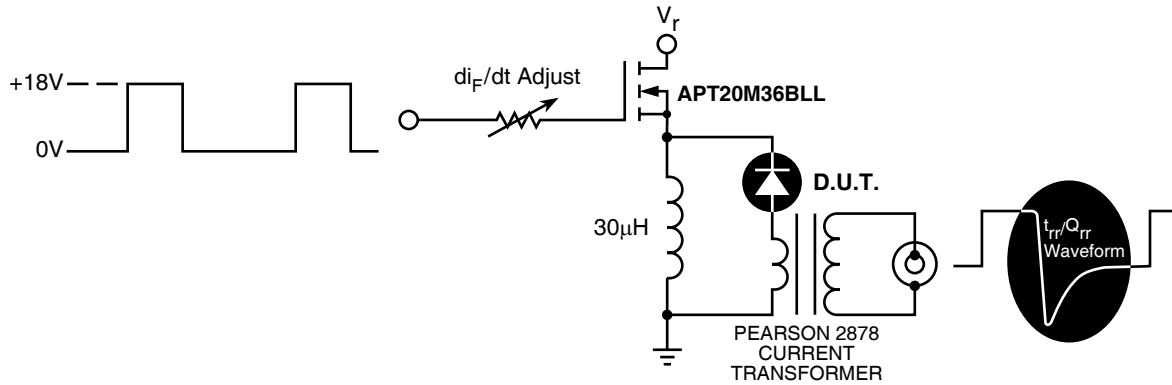


Figure 9. Diode Test Circuit

- 1 I_F - Forward Conduction Current
- 2 di_F/dt - Rate of Diode Current Change Through Zero Crossing.
- 3 I_{RRM} - Maximum Reverse Recovery Current.
- 4 t_{rr} - Reverse Recovery Time, measured from zero crossing where diode current goes from positive to negative, to the point at which the straight line through I_{RRM} and $0.25 \cdot I_{RRM}$ passes through zero.
- 5 Q_{rr} - Area Under the Curve Defined by I_{RRM} and t_{rr} .

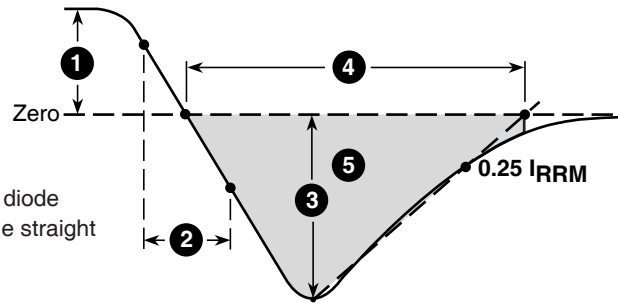
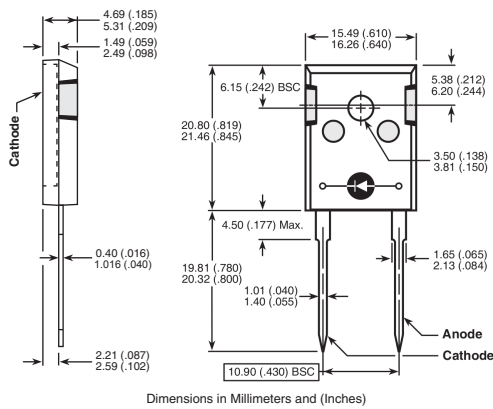
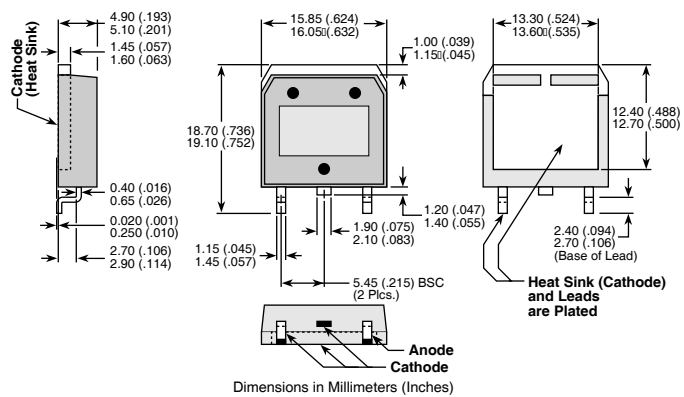


Figure 10, Diode Reverse Recovery Waveform and Definitions

TO-247 Package Outline



D³PAK Package Outline



Microsemi Headquarters
 One Enterprise, Aliso Viejo,
 CA 92656 USA
 Within the USA: +1 (800) 713-4113
 Outside the USA: +1 (949) 380-6100
 Sales: +1 (949) 380-6136
 Fax: +1 (949) 215-4996
 Email: sales.support@microsemi.com
 www.microsemi.com

© 2019 Microsemi. All rights reserved. Microsemi and the Microsemi logo are trademarks of Microsemi Corporation. All other trademarks and service marks are the property of their respective owners.

Microsemi makes no warranty, representation, or guarantee regarding the information contained herein or the suitability of its products and services for any particular purpose, nor does Microsemi assume any liability whatsoever arising out of the application or use of any product or circuit. The products sold hereunder and any other products sold by Microsemi have been subject to limited testing and should not be used in conjunction with mission-critical equipment or applications. Any performance specifications are believed to be reliable but are not verified, and Buyer must conduct and complete all performance and other testing of the products, alone and together with, or installed in, any end-products. Buyer shall not rely on any data and performance specifications or parameters provided by Microsemi. It is the Buyer's responsibility to independently determine suitability of any products and to test and verify the same. The information provided by Microsemi hereunder is provided "as is, where is" and with all faults, and the entire risk associated with such information is entirely with the Buyer. Microsemi does not grant, explicitly or implicitly, to any party any patent rights, licenses, or any other IP rights, whether with regard to such information itself or anything described by such information. Information provided in this document is proprietary to Microsemi, and Microsemi reserves the right to make any changes to the information in this document or to any products and services at any time without notice.

Microsemi, a wholly owned subsidiary of Microchip Technology Inc. (Nasdaq: MCHP), offers a comprehensive portfolio of semiconductor and system solutions for aerospace & defense, communications, data center and industrial markets. Products include high-performance and radiation-hardened analog mixed-signal integrated circuits, FPGAs, SoCs and ASICs; power management products; timing and synchronization devices and precise time solutions, setting the world's standard for time; voice processing devices; RF solutions; discrete components; enterprise storage and communication solutions; security technologies and scalable anti-tamper products; Ethernet solutions; Power-over-Ethernet ICs and midspans; as well as custom design capabilities and services. Microsemi is headquartered in Aliso Viejo, California, and has approximately 4,800 employees globally. Learn more at www.microsemi.com.

Looking for pricing, stock, or lifecycle information?

Click below to explore more details on WIN SOURCE:

- ⊖ [View APT60S20BG](#) on WIN SOURCE
- ⊖ [Microchip Technology](#) Information

Optimize Your Supply Chain with WIN SOURCE Solutions

- ✓ Global Sourcing Solution
- ✓ Obsolete Management
- ✓ Cost Control Management
- ✓ Shortage Management
- ✓ Alternative Solution
- ✓ Excess Inventory Management