



**THE DATASHEET OF
APT100DL60BG**



Ultrasoft Recovery Rectifier Diode

PRODUCT APPLICATIONS

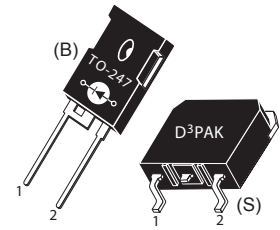
- Anti-Parallel Diode
 - Switchmode Power Supply
 - Inverters
- Applications
 - Induction Heating
- Resonant Mode Circuits
 - ZVS and ZCS Topologies
 - Phase Shifted Bridge

PRODUCT FEATURES

- Ultrasoft Recovery Times (t_{rr})
- Popular TO-247 Package or Surface Mount D³PAK Package
- Ultra Low Forward Voltage
- Low Leakage Current

PRODUCT BENEFITS

- Soft Switching - High Q_{rr}
- Low Noise Switching
 - Reduced Ringing
- Higher Reliability Systems
- Minimizes or eliminates snubber



1 - Cathode
 2 - Anode
 Back of Case - Cathode

MAXIMUM RATINGS

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

Symbol	Characteristic / Test Conditions	Ratings	Unit
V_R	Maximum D.C. Reverse Voltage	600	Volts
V_{RRM}	Maximum Peak Repetitive Reverse Voltage		
V_{RWM}	Maximum Working Peak Reverse Voltage		
$I_{F(AV)}$	Maximum Average Forward current ^① ($T_C = 124^\circ\text{C}$, Duty Cycle = 0.5)	100	Amps
$I_{F(RMS)}$	RMS Forward Current (Square wave, 50% duty)	131	
I_{FSM}	Non-Repetitive Forward Surge Current ($T_J = 45^\circ\text{C}$, 8.3 ms)	600	
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 to 175	$^\circ\text{C}$
T_L	Lead Temperature for 10 Seconds	300	

STATIC ELECTRICAL CHARACTERISTICS

Symbol	Characteristic / Test Conditions	Min	Typ	Max	Unit	
V_F	Forward Voltage		$I_F = 100\text{A}$	1.25	1.6	Volts
			$I_F = 200\text{A}$	2.0		
			$I_F = 100\text{A}, T_J = 125^\circ\text{C}$	1.28		
I_{RM}	Maximum Reverse Leakage Current		$V_R = 600\text{V}$		25	μA
			$V_R = 600\text{V}, T_J = 125^\circ\text{C}$		250	
C_T	Junction Capacitance, $V_R = 200\text{V}$		97		pF	

DYNAMIC CHARACTERISTICS

APT100DL60B_S(G)

Symbol	Characteristic / Test Conditions	Min	Typ	Max	Unit
t_{rr}	Reverse Recovery Time $I_F = 1A, di_F/dt = -100A/\mu s, V_R = 30V, T_J = 25^\circ C$		45		ns
t_{rr}	Reverse Recovery Time		487		
Q_{rr}	Reverse Recovery Charge		2328		nC
I_{RRM}	Maximum Reverse Recovery Current		11		
t_{rr}	Reverse Recovery Time		716		ns
Q_{rr}	Reverse Recovery Charge		5954		
I_{RRM}	Maximum Reverse Recovery Current		18		Amps
t_{rr}	Reverse Recovery Time		333		ns
Q_{rr}	Reverse Recovery Charge		10002		
I_{RRM}	Maximum Reverse Recovery Current		49		Amps

THERMAL AND MECHANICAL CHARACTERISTICS

Symbol	Characteristic / Test Conditions	Min	Typ	Max	Unit
$R_{\theta JC}$	Junction-to-Case Thermal Resistance			0.34	$^\circ C/W$
W_T	Package Weight		0.22		oz
			5.9		g
Torque	Maximum Mounting Torque			10	lb·in
				1.1	N·m

① Continuous current limited by package lead temperature.

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

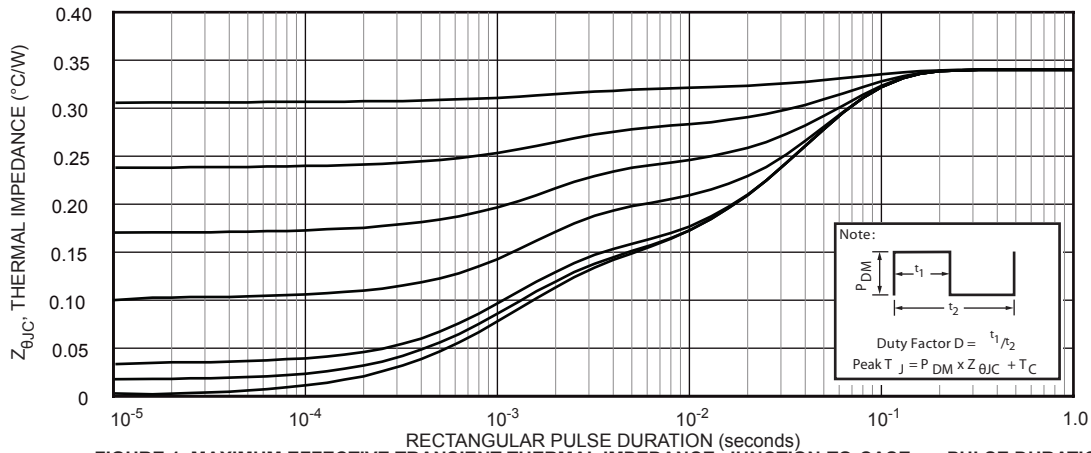


FIGURE 1. MAXIMUM EFFECTIVE TRANSIENT THERMAL IMPEDANCE, JUNCTION-TO-CASE vs. PULSE DURATION

TYPICAL PERFORMANCE CURVES

APT100DL60B_S(G)

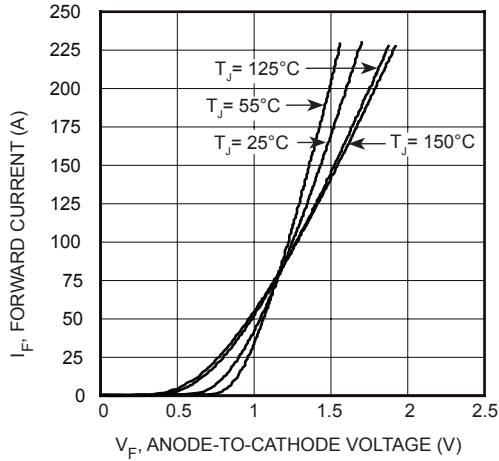


FIGURE 2, Forward Current vs. Forward Voltage

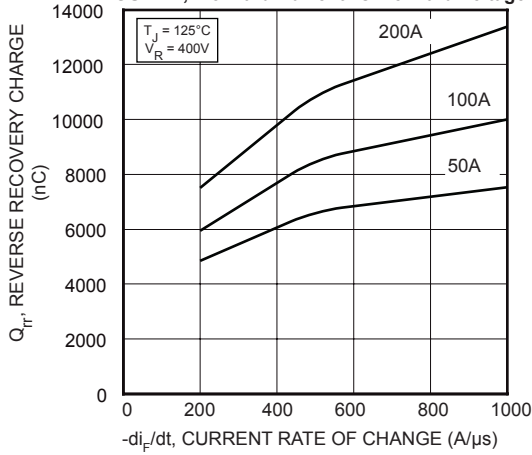


FIGURE 4, Reverse Recovery Charge vs. Current Rate of Change

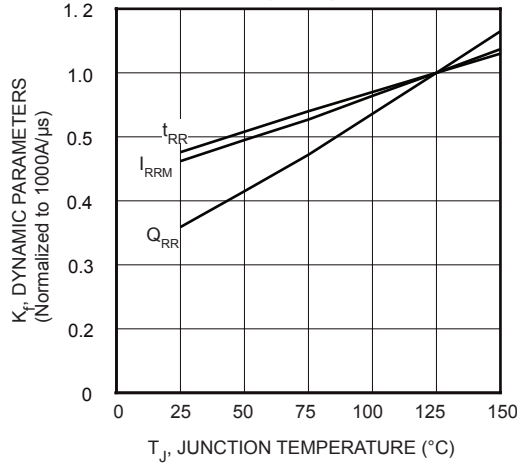


FIGURE 6, Dynamic Parameters vs. Junction Temperature

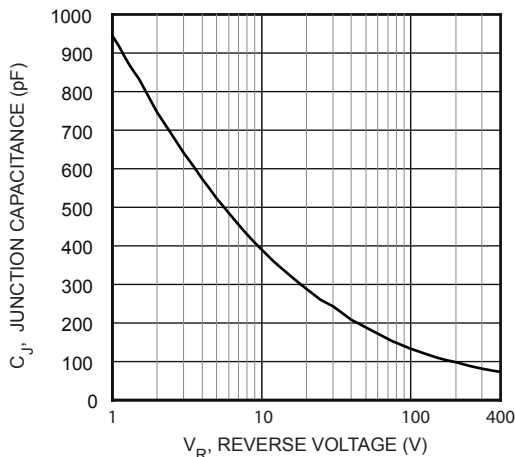


FIGURE 8, Junction Capacitance vs. Reverse Voltage

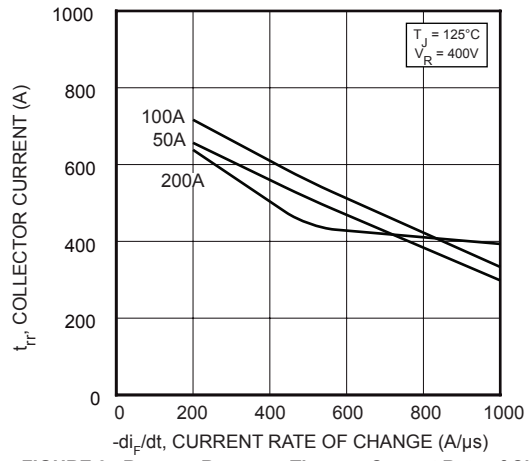


FIGURE 3, Reverse Recovery Time vs. Current Rate of Change

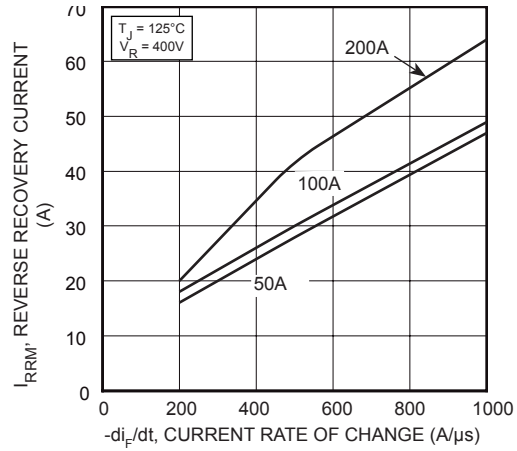


FIGURE 5, Reverse Recovery Current vs. Current Rate of Change

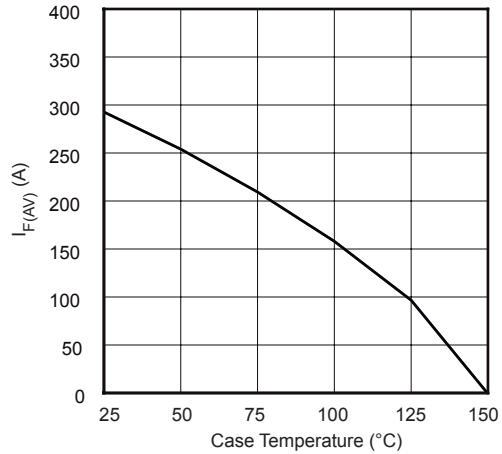


FIGURE 7, Maximum Average Forward Current vs. Case Temperature

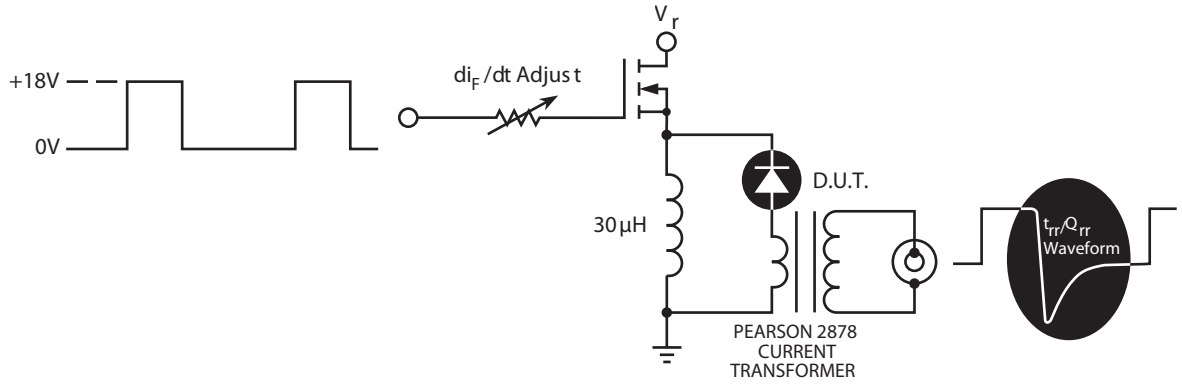


Figure 9. Diode Test Circuit

- 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 $0.25 I_{RRM}$ passes through zero.
- 5 Q_{rr} - Area Under the Curve Defined by I_{RRM} and t_{RR} .

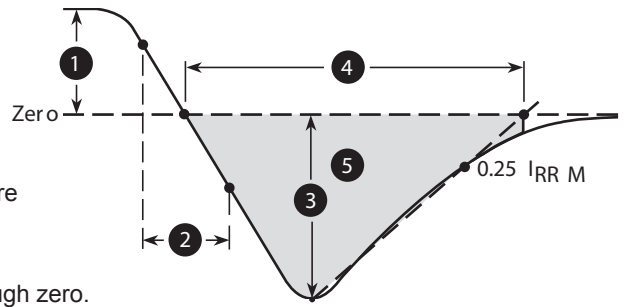
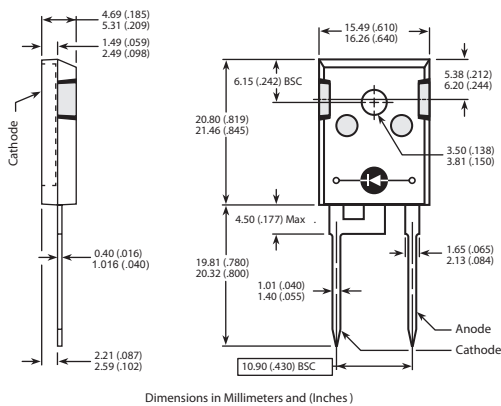


Figure 10. Diode Reverse Recovery Waveform Definition

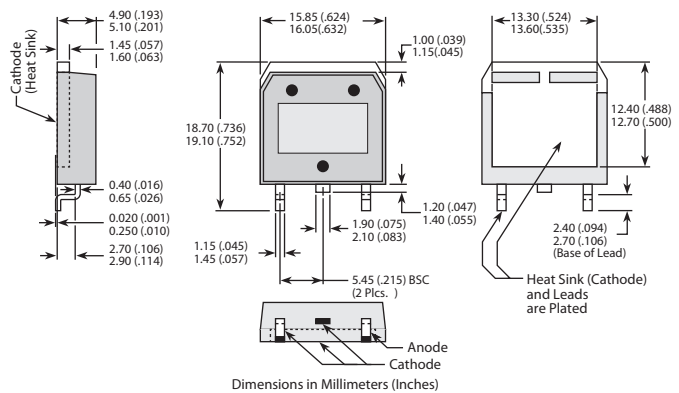
TO-247 Package Outline

e1 SAC: Tin, Silver, Copper



D³PAK Package Outline

e3 100% Sn



Disclaimer:

The information contained in the document (unless it is publicly available on the Web without access restrictions) is PROPRIETARY AND CONFIDENTIAL information of Microsemi and cannot be copied, published, uploaded, posted, transmitted, distributed or disclosed or used without the express duly signed written consent of Microsemi. If the recipient of this document has entered into a disclosure agreement with Microsemi, then the terms of such Agreement will also apply. This document and the information contained herein may not be modified, by any person other than authorized personnel of Microsemi. No license under any patent, copyright, trade secret or other intellectual property right is granted to or conferred upon you by disclosure or delivery of the information, either expressly, by implication, inducement, estoppels or otherwise. Any license under such intellectual property rights must be approved by Microsemi in writing signed by an officer of Microsemi.

Microsemi reserves the right to change the configuration, functionality and performance of its products at anytime without any notice. This product has been subject to limited testing and should not be used in conjunction with life-support or other mission-critical equipment or applications. Microsemi assumes no liability whatsoever, and Microsemi disclaims any express or implied warranty, relating to sale and/or use of Microsemi products including liability or warranties relating to fitness for a particular purpose, merchantability, or infringement of any patent, copyright or other intellectual property right. Any performance specifications believed to be reliable but are not verified and customer or user must conduct and complete all performance and other testing of this product as well as any user or customers final application. User or customer shall not rely on any data and performance specifications or parameters provided by Microsemi. It is the customer's and user's responsibility to independently determine suitability of any Microsemi product and to test and verify the same. The information contained herein is provided "AS IS, WHERE IS" and with all faults, and the entire risk associated with such information is entirely with the User. Microsemi specifically disclaims any liability of any kind including for consequential, incidental and punitive damages as well as lost profit. The product is subject to other terms and conditions which can be located on the web at <http://www.microsemi.com/legal/tnc.asp>

Looking for pricing, stock, or lifecycle information?

Click below to explore more details on WIN SOURCE:

 [View APT100DL60BG on WIN SOURCE](#)

 [Microsemi Corporation](#) Information

Optimize Your Supply Chain with WIN SOURCE Solutions

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