Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

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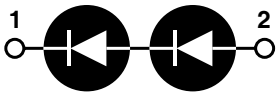
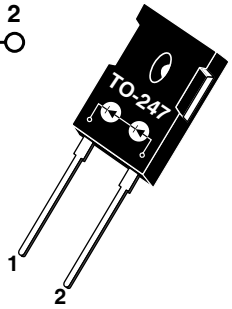
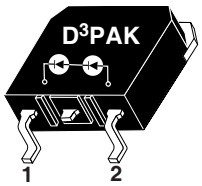


1 - Cathode 2
2 - Anode 1





Microsemi
POWER PRODUCTS GROUP

APT15DS60BG 600V 13A
APT15DS60SG 600V 13A

*G Denotes RoHS Compliant, Pb Free Terminal Finish.

2-300V HIGH FREQUENCY SOFT RECOVERY RECTIFIER DIODES IN SERIES

PRODUCT APPLICATIONS	PRODUCT FEATURES	PRODUCT BENEFITS
• Anti-Parallel Diode -Switchmode Power Supply -Inverters	• Ultrafast Recovery Times	• Low Losses
• Free Wheeling Diode -Motor Controllers -Converters	• Soft Recovery Characteristics	• Low Noise Switching
• Snubber Diode	• Popular TO-247 Package or Surface Mount D³PAK Package	• Cooler Operation
• Uninterruptible Power Supply (UPS)	• Low Forward Voltage	• Higher Reliability Systems
• Induction Heating	• High Blocking Voltage	• Increased System Power Density
• High Speed Rectifiers	• Low Leakage Current	

MAXIMUM RATINGS

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

Symbol	Characteristic / Test Conditions	APT15DS60B_SG	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 (T_C = 77°C, Duty Cycle = 0.5)	13	Amps
$I_F(RMS)$	RMS Forward Current (Square wave, 50% duty)	17	
I_{FSM}	Non-Repetitive Forward Surge Current (T_J = 45°C, 8.3ms)	110	
T_J,T_{STG}	Operating and StorageTemperature Range	-55 to 150	°C
T_L	Lead Temperature for 10 Sec.	300	

STATIC ELECTRICAL CHARACTERISTICS

Symbol			MIN	TYP	MAX	UNIT
V_F	Forward Voltage	I_F = 15A		3.2	4.0	Volts
		I_F = 30A		4.2		
		I_F = 15A, T_J = 125°C		2.4		
I_{RM}	Maximum Reverse Leakage Current	V_R = 600V			150	µA
		V_R = 600V, T_J = 125°C			500	
C_T	Junction Capacitance, V_R = 200V			24		pF

053-3006 Rev C 2-2007

DYNAMIC CHARACTERISTICS

APT15DS60B_SG

Symbol	Characteristic	Test Conditions	MIN	TYP	MAX	UNIT
t_{rr}	Reverse Recovery Time	I_F = 1A, di_F/dt = -100A/µs, V_R = 30V, T_J = 25°C	-	13		ns
t_{rr}	Reverse Recovery Time	I_F = 15A, di_F/dt = -200A/µs V_R = 400V, T_C = 25°C	-	14		ns
Q_{rr}	Reverse Recovery Charge		-	12		nC
I_{RRM}	Maximum Reverse Recovery Current		-	1.5	-	Amps
t_{rr}	Reverse Recovery Time	I_F = 15A, di_F/dt = -200A/µs V_R = 400V, T_C = 125°C	-	31		ns
Q_{rr}	Reverse Recovery Charge		-	85		nC
I_{RRM}	Maximum Reverse Recovery Current		-	4.7	-	Amps
t_{rr}	Reverse Recovery Time	I_F = 15A, di_F/dt = -1000A/µs V_R = 400V, T_C = 125°C	-	20		ns
Q_{rr}	Reverse Recovery Charge		-	160		nC
I_{RRM}	Maximum Reverse Recovery Current		-	18		Amps

THERMAL AND MECHANICAL CHARACTERISTICS

Symbol	Characteristic / Test Conditions	MIN	TYP	MAX	UNIT
$R_{\theta JC}$	Junction-to-Case Thermal Resistance			1.5	°C/W
$R_{\theta JA}$	Junction-to-Ambient Thermal Resistance			40	°C/W
W_T	Package Weight		0.22		oz
			5.9		g
Torque	Maximum Mounting Torque			10	lb•in
				1.1	N•m

APT Reserves the right to change, without notice, the specifications and information contained herein.

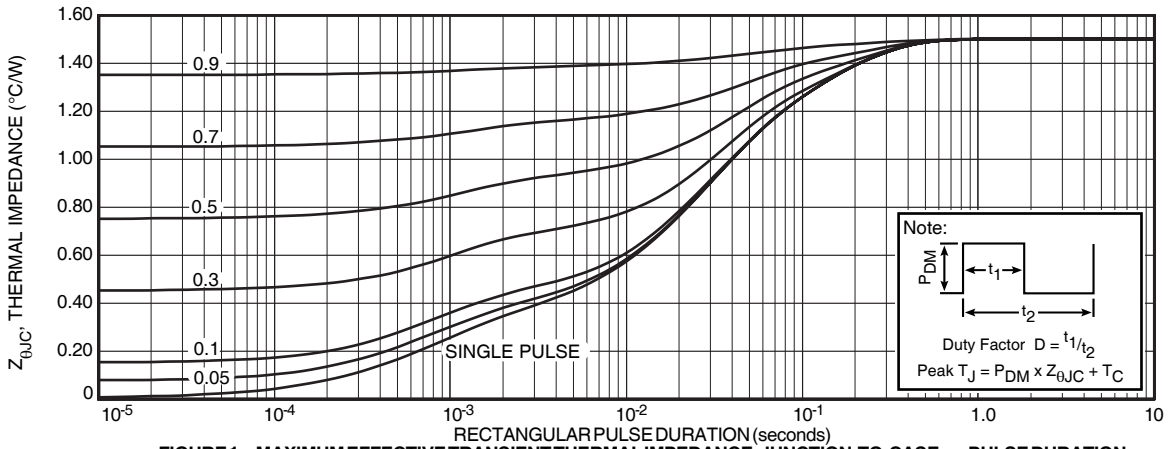


FIGURE 1a. MAXIMUM EFFECTIVE TRANSIENT THERMAL IMPEDANCE, JUNCTION-TO-CASE vs. PULSE DURATION

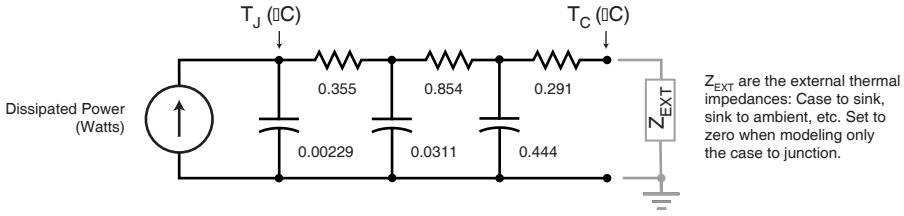


FIGURE 1b, TRANSIENT THERMAL IMPEDANCE MODEL

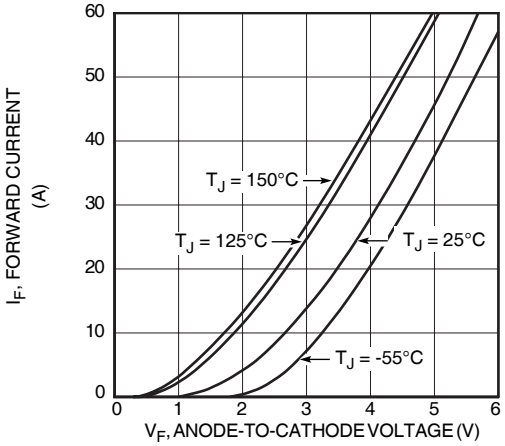


Figure 2. Forward Current *vs.* Forward Voltage

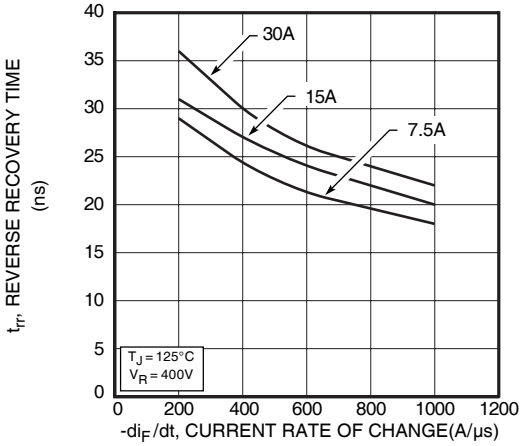


Figure 3. Reverse Recovery Time *vs.* Current Rate of Change

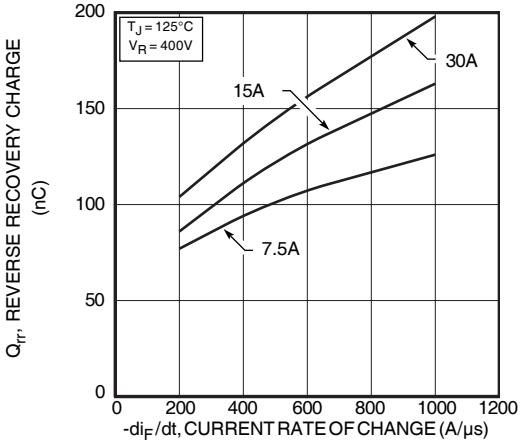


Figure 4. Reverse Recovery Charge *vs.* Current Rate of Change

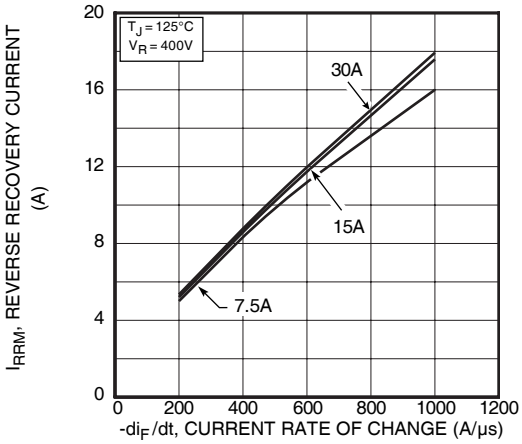


Figure 5. Reverse Recovery Current *vs.* Current Rate of Change

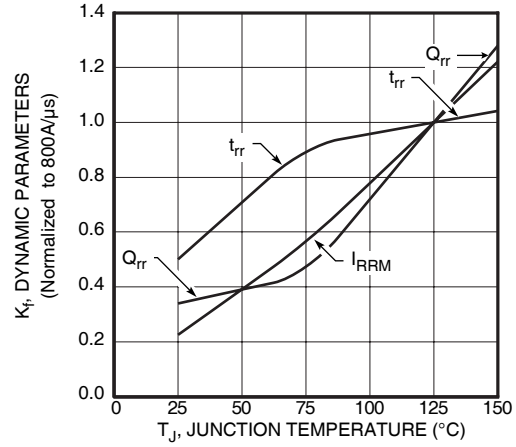


Figure 6. Dynamic Parameters *vs.* Junction Temperature

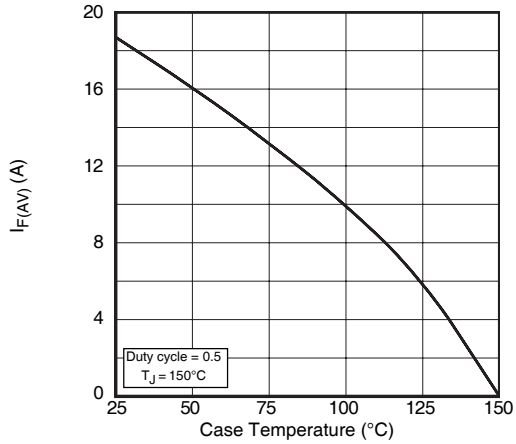


Figure 7. Maximum Average Forward Current *vs.* CaseTemperature

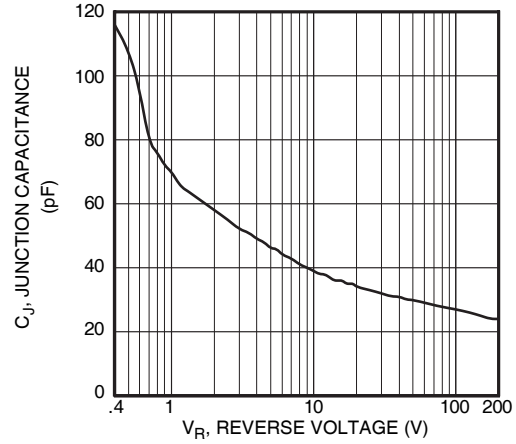


Figure 8. Junction Capacitance *vs.* Reverse Voltage

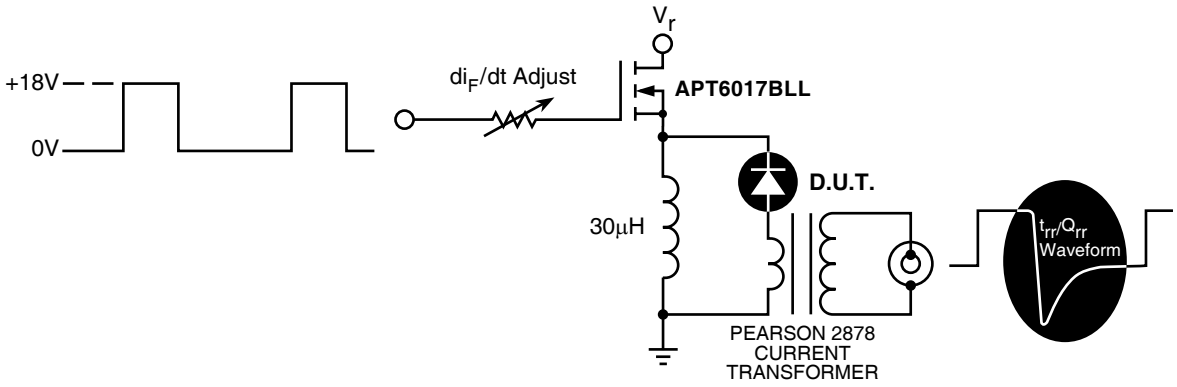
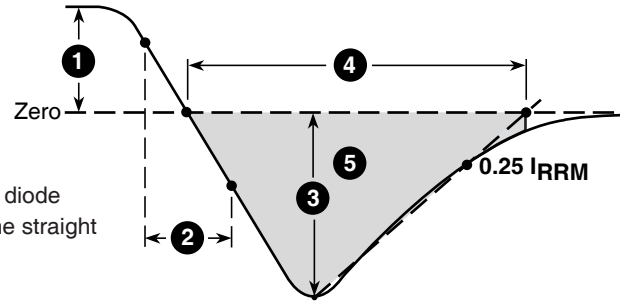


Figure 9. Diode Test Circuit

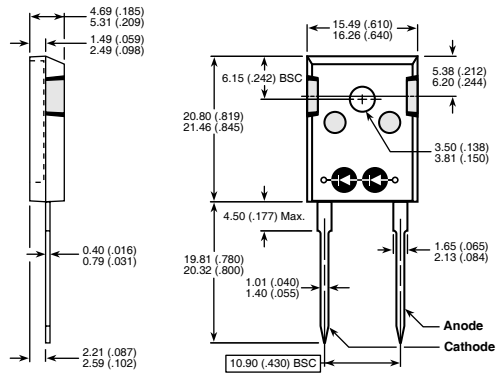


1. I_F - Forward Conduction Current
2. di_F/dt - Rate of Diode Current Change Through Zero Crossing.
3. I_{RRM} - Maximum Reverse Recovery Current.
4. t_{rr} - Reverse Recovery Time, measured from zero crossing where diode current goes from positive to negative, to the point at which the straight line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

e1 SAC: Tin, Silver, Copper

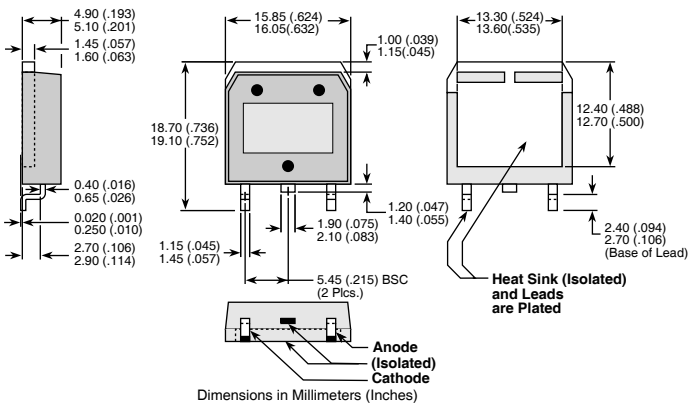
TO-247 Package Outline



Dimensions in Millimeters and (Inches)

e3 100% Sn

D^3PAK Package Outline



Dimensions in Millimeters (Inches)