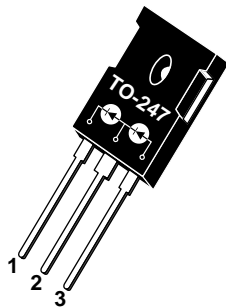


- 1 - Cathode 1
- 2 - Anode 1  
Cathode 2
- 3 - Anode 2



**APT30D60BHB 600V 2x30A**

## ULTRAFAST SOFT RECOVERY RECTIFIER DIODES

### PRODUCT APPLICATIONS

- Output Rectifiers for Switchmode Power Supply

### PRODUCT FEATURES

- Ultrafast Recovery Times
- Soft Recovery Characteristics
- Popular TO-247 Package
- Low Forward Voltage
- High Blocking Voltage
- Low Leakage Current

### PRODUCT BENEFITS

- Low Losses
- Low Noise Switching
- Cooler Operation
- Higher Reliability Systems
- Increased System Power Density

### MAXIMUM RATINGS

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

Symbol	Characteristic / Test Conditions	APT30D60BHB	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 ( $T_C = 90^\circ\text{C}$ , Duty Cycle = 0.5)	30	Amps
$I_F(RMS)$	RMS Forward Current	70	
$I_{FSM}$	Non-Repetitive Forward Surge Current ( $T_J = 45^\circ\text{C}$ , 8.3ms)	320	
$T_J, T_{STG}$	Operating and Storage Temperature Range	-55 to 150	$^\circ\text{C}$
$T_L$	Lead Temperature: 0.063" from Case for 10 Sec.	300	

### STATIC ELECTRICAL CHARACTERISTICS

Symbol	Characteristic / Test Conditions	MIN	TYP	MAX	UNIT
$V_F$	Maximum Forward Voltage	$I_F = 30\text{A}$		1.8	Volts
		$I_F = 60\text{A}$		1.5	
		$I_F = 30\text{A}, T_J = 150^\circ\text{C}$		1.6	
$I_{RM}$	Maximum Reverse Leakage Current	$V_R = V_R$ Rated		250	$\mu\text{A}$
		$V_R = V_R$ Rated, $T_J = 125^\circ\text{C}$		500	
$C_T$	Junction Capacitance, $V_R = 200\text{V}$		40		pF
$L_S$	Series Inductance (Lead to Lead 5mm from Base)		10		nH

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**DYNAMIC CHARACTERISTICS**

**APT30D60BHB**

Symbol	Characteristic	MIN	TYP	MAX	UNIT
$t_{rr1}$	Reverse Recovery Time, $I_F = 1.0A$ , $di_F/dt = -15A/\mu s$ , $V_R = 30V$ , $T_J = 25^\circ C$		50	65	ns
$t_{rr2}$	Reverse Recovery Time		50		
$t_{rr3}$	$I_F = 30A$ , $di_F/dt = -240A/\mu s$ , $V_R = 350V$		80		
$t_{fr1}$	Forward Recovery Time		155		
$t_{fr2}$	$I_F = 30A$ , $di_F/dt = -240A/\mu s$ , $V_R = 350V$		155		
$I_{RRM1}$	Reverse Recovery Current		4.0	10	Amps
$I_{RRM2}$	$I_F = 30A$ , $di_F/dt = -240A/\mu s$ , $V_R = 350V$		7.5	15	
$Q_{rr1}$	Recovery Charge		100		nC
$Q_{rr2}$	$I_F = 30A$ , $di_F/dt = -240A/\mu s$ , $V_R = 350V$		300		
$V_{fr1}$	Forward Recovery Voltage		5.0		Volts
$V_{fr2}$	$I_F = 30A$ , $di_F/dt = -240A/\mu s$ , $V_R = 350V$		5.0		
$diM/dt$	Rate of Fall of Recovery Current		400		A/ $\mu s$
	$I_F = 30A$ , $di_F/dt = -240A/\mu s$ , $V_R = 350V$ (See Figure 10)		200		

**THERMAL AND MECHANICAL CHARACTERISTICS**

Symbol	Characteristic / Test Conditions	MIN	TYP	MAX	UNIT
$R_{\theta JC}$	Junction-to-Case Thermal Resistance			1.32	$^\circ C/W$
$R_{\theta JA}$	Junction-to-Ambient Thermal Resistance			80	
$W_T$	Package Weight		0.07		oz
			1.9		gm
Torque	Maximum Mounting Torque (Screw Type = 6-32 or 3.5mm Machine)			6.4	lb•in
				0.7	N•m

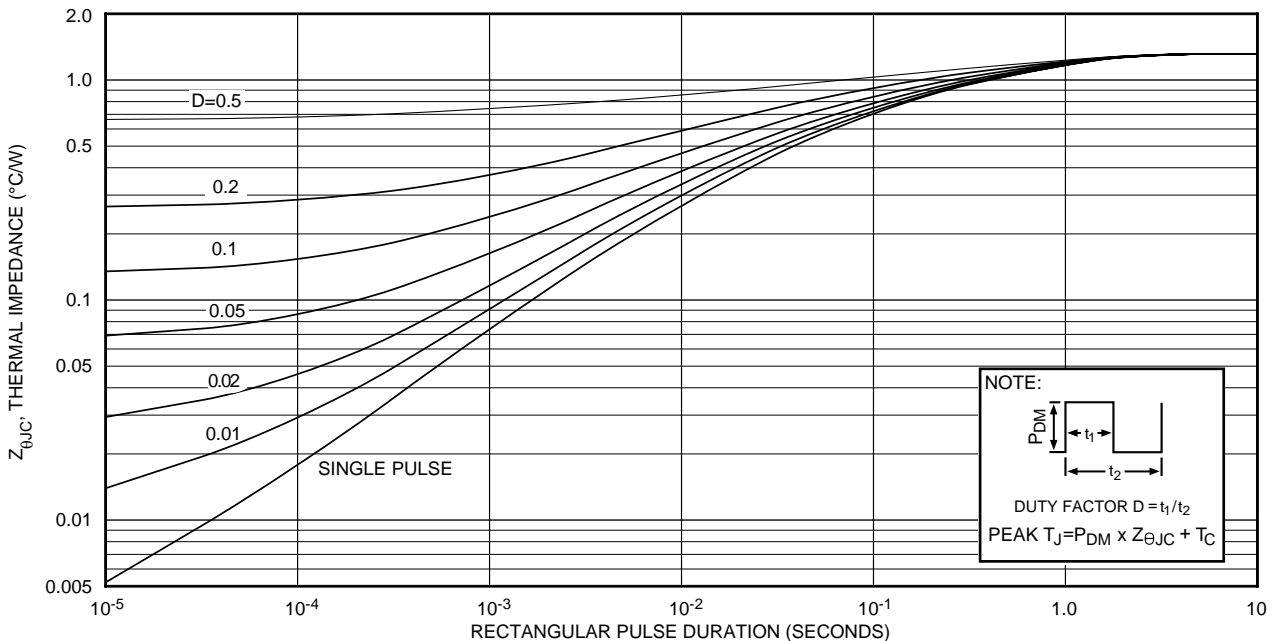
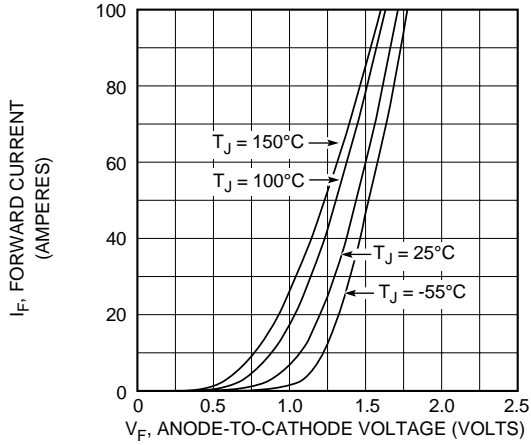
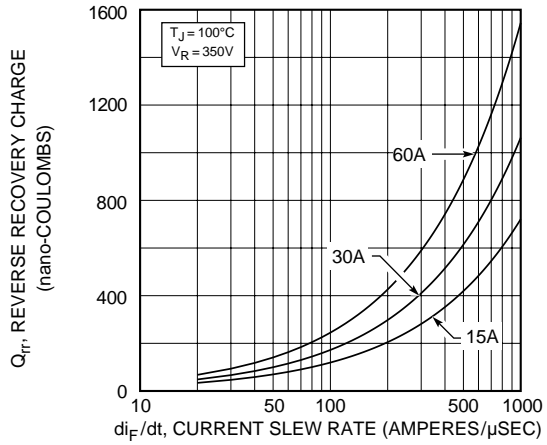


Figure 1, Maximum Effective Transient Thermal Impedance, Junction-To-Case vs Pulse Duration

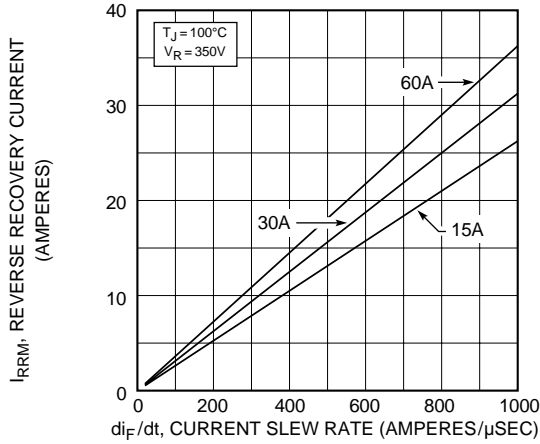
**APT30D60BHB**



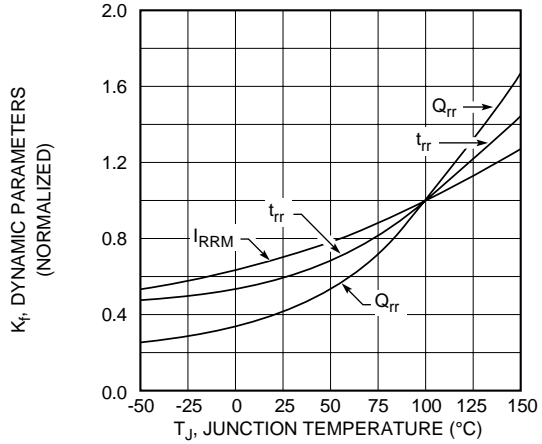
**Figure 2, Forward Voltage Drop vs Forward Current**



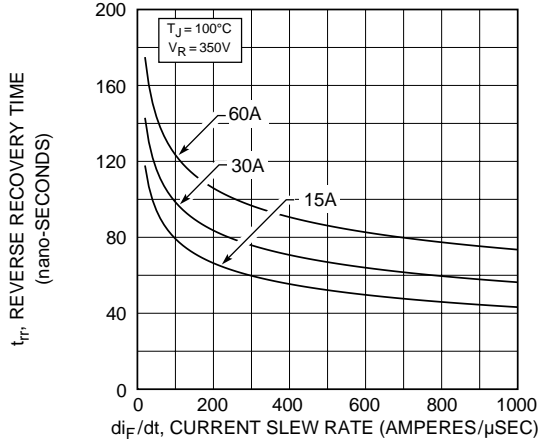
**Figure 3, Reverse Recovery Charge vs Current Slew Rate**



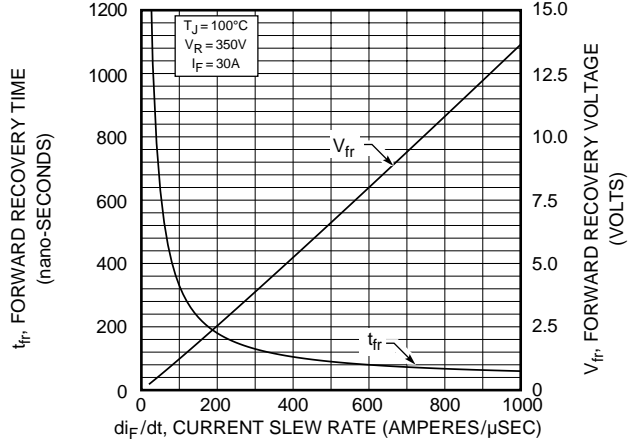
**Figure 4, Reverse Recovery Current vs Current Slew Rate**



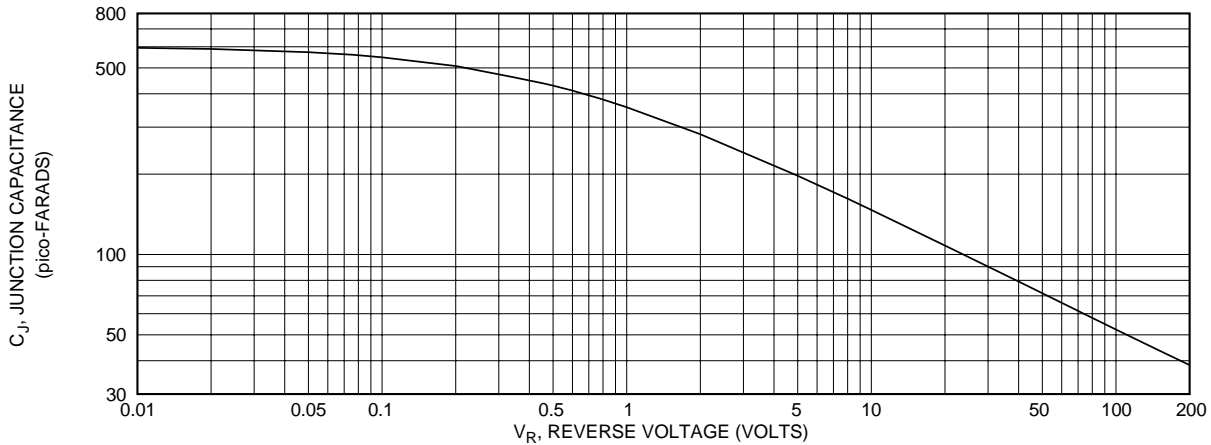
**Figure 5, Dynamic Parameters vs Junction Temperature**



**Figure 6, Reverse Recovery Time vs Current Slew Rate**



**Figure 7, Forward Recovery Voltage/Time vs Current Slew Rate**



**Figure 8, Junction Capacitance vs Reverse Voltage**

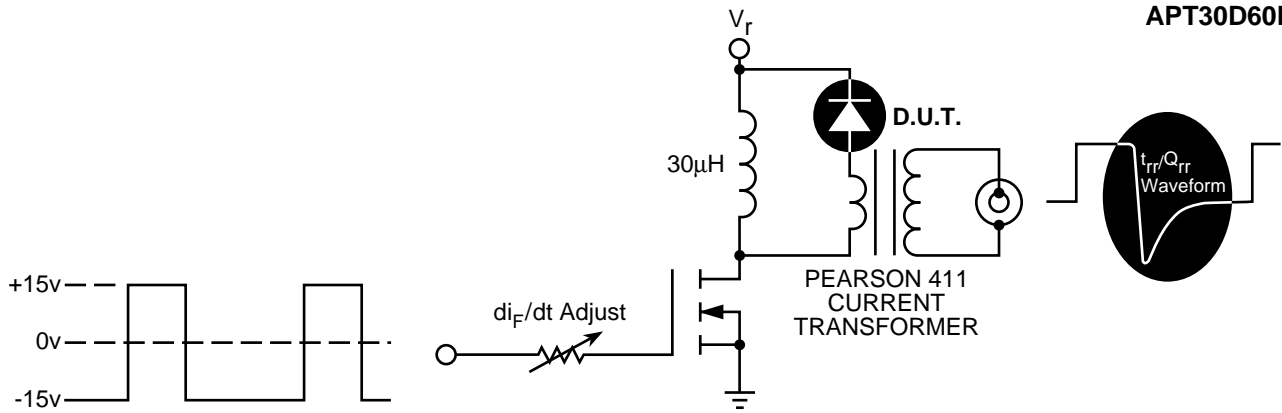


Figure 9, Diode Reverse Recovery Test Circuit and Waveforms

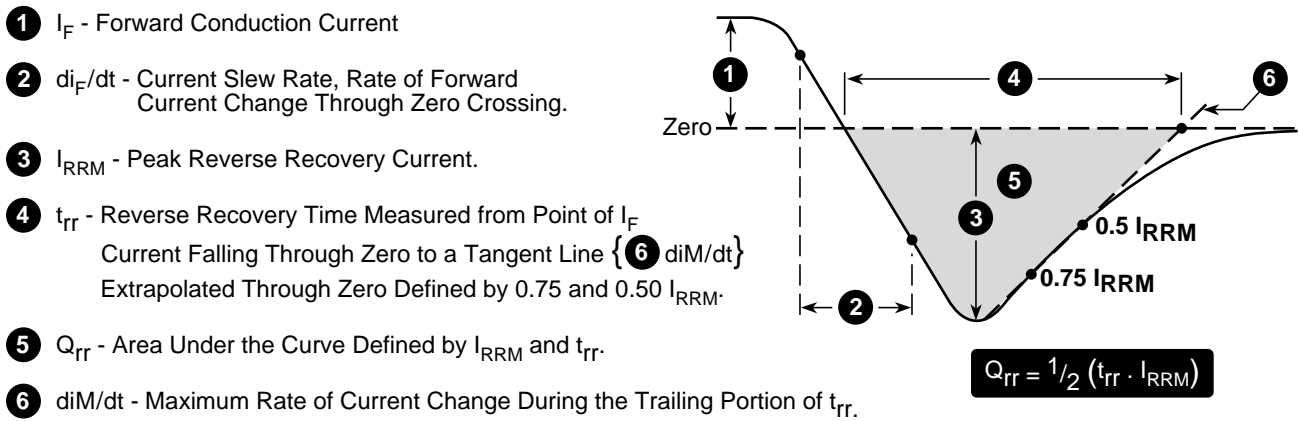
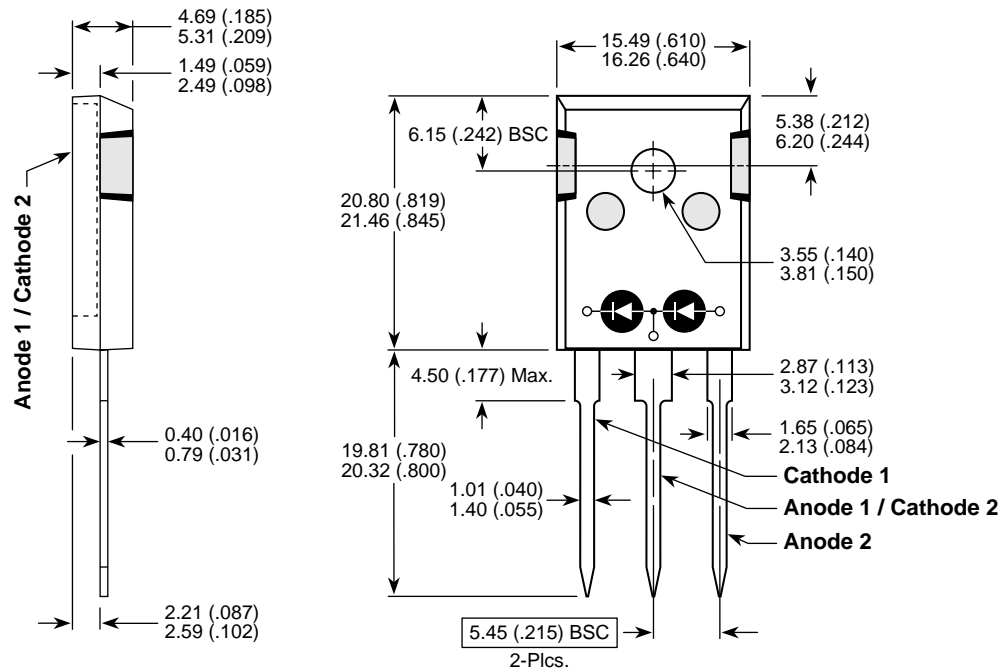


Figure 10, Diode Reverse Recovery Waveform and Definitions

TO-247 Package Outline



Dimensions in Millimeters and (Inches)



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