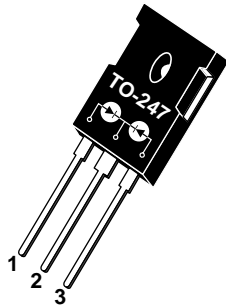


- 1 - Anode 1
- 2 - Common Cathode
- Back of Case - Cathode
- 3 - Anode 2



## ULTRAFast SOFT RECOVERY RECTIFIER DIODE

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

### MAXIMUM RATINGS

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

Symbol	Characteristic / Test Conditions (Single Diode)	APT30D30BCT	UNIT
$V_R$	Maximum D.C. Reverse Voltage	300	Volts
$V_{RRM}$	Maximum Peak Repetitive Reverse Voltage		
$V_{RWM}$	Maximum Working Peak Reverse Voltage		
$I_F(AV)$	Maximum Average Forward Current ( $T_C = 110^\circ\text{C}$ , 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 (Single Diode)	MIN	TYP	MAX	UNIT
$V_F$	Maximum Forward Voltage			1.4	Volts
				$I_F = 30\text{A}$	
				$I_F = 60\text{A}$	
$I_{RM}$	Maximum Reverse Leakage Current			250	$\mu\text{A}$
				$V_R = V_R \text{ Rated}$	
				$V_R = V_R \text{ Rated}, T_J = 125^\circ\text{C}$	
$C_T$	Junction Capacitance, $V_R = 150\text{V}$		70		pF
$L_S$	Series Inductance (Lead to Lead 5mm from Base)		10		nH

## DYNAMIC CHARACTERISTICS

APT30D30BCT

Symbol	Characteristic (Single Diode)	MIN	TYP	MAX	UNIT
$t_{rr1}$	Reverse Recovery Time, $I_F = 1.0A$ , $di_F/dt = -15A/\mu s$ , $V_R = 30V$ , $T_J = 25^\circ C$		35	TBD	ns
$t_{rr2}$	Reverse Recovery Time	$T_J = 25^\circ C$	40		
$t_{rr3}$	$I_F = 30A$ , $di_F/dt = -240A/\mu s$ , $V_R = 180V$	$T_J = 100^\circ C$	60		
$t_{fr1}$	Forward Recovery Time	$T_J = 25^\circ C$	162		
$t_{fr2}$	$I_F = 30A$ , $di_F/dt = 240A/\mu s$ , $V_R = 180V$	$T_J = 100^\circ C$	150		
$I_{RRM1}$	Reverse Recovery Current	$T_J = 25^\circ C$	5	9	Amps
$I_{RRM2}$	$I_F = 30A$ , $di_F/dt = -240A/\mu s$ , $V_R = 180V$	$T_J = 100^\circ C$	8	16	
$Q_{rr1}$	Recovery Charge	$T_J = 25^\circ C$	110		nC
$Q_{rr2}$	$I_F = 30A$ , $di_F/dt = -240A/\mu s$ , $V_R = 180V$	$T_J = 100^\circ C$	280		
$V_{fr1}$	Forward Recovery Voltage	$T_J = 25^\circ C$	2.9		Volts
$V_{fr2}$	$I_F = 30A$ , $di_F/dt = 240A/\mu s$ , $V_R = 180V$	$T_J = 100^\circ C$	2.9		
$diM/dt$	Rate of Fall of Recovery Current	$T_J = 25^\circ C$	400		A/ $\mu s$
	$I_F = 30A$ , $di_F/dt = -240A/\mu s$ , $V_R = 180V$	$T_J = 100^\circ C$	700		

## THERMAL AND MECHANICAL CHARACTERISTICS

Symbol	Characteristic / Test Conditions (Single Diode)	MIN	TYP	MAX	UNIT
$R_{\theta JC}$	Junction-to-Case Thermal Resistance			0.90	$^\circ C/W$
$R_{\theta JA}$	Junction-to-Ambient Thermal Resistance			40	
$W_T$	Package Weight		0.22		oz
			6.1		gm
Torque	Maximum Mounting Torque (Screw Type = 6-32 or 3mm Machine)			10	lb•in
				1.1	N•m

### TO-247AD Package Outline

