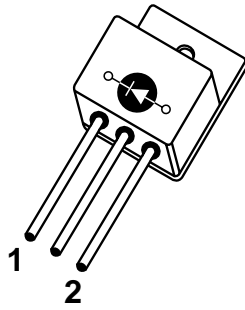


1 - Cathode  
2 - Anode  
Case Isolated



**ADVANCED  
POWER  
TECHNOLOGY®**  
APT30D40H 400V 30A

## 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-258 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:  $T_C = 25^\circ\text{C}$  unless otherwise specified.

Symbol	Characteristic / Test Conditions	APT30D40H	UNIT
$V_R$	Maximum D.C. Reverse Voltage	400	Volts
$V_{RRM}$	Maximum Peak Repetitive Reverse Voltage		
$V_{RWM}$	Maximum Working Peak Reverse Voltage		
$I_F(AV)$	Maximum Average Forward Current ( $T_C = 105^\circ\text{C}$ , 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			1.75	Volts
				$I_F = 30\text{A}$	
				$I_F = 60\text{A}$	
$I_{RM}$	Maximum Reverse Leakage Current			250	$\mu\text{A}$
				$V_R = V_R$ Rated	
				$V_R = V_R$ Rated, $T_J = 125^\circ\text{C}$	
$C_T$	Junction Capacitance, $V_R = 200\text{V}$		52		pF
$L_S$	Series Inductance (Lead to Lead 5mm from Base)		10		nH

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F-33700 Merignac - France Phone: (33) 5 57 92 15 15 FAX: (33) 5 56 47 97 61

## DYNAMIC CHARACTERISTICS

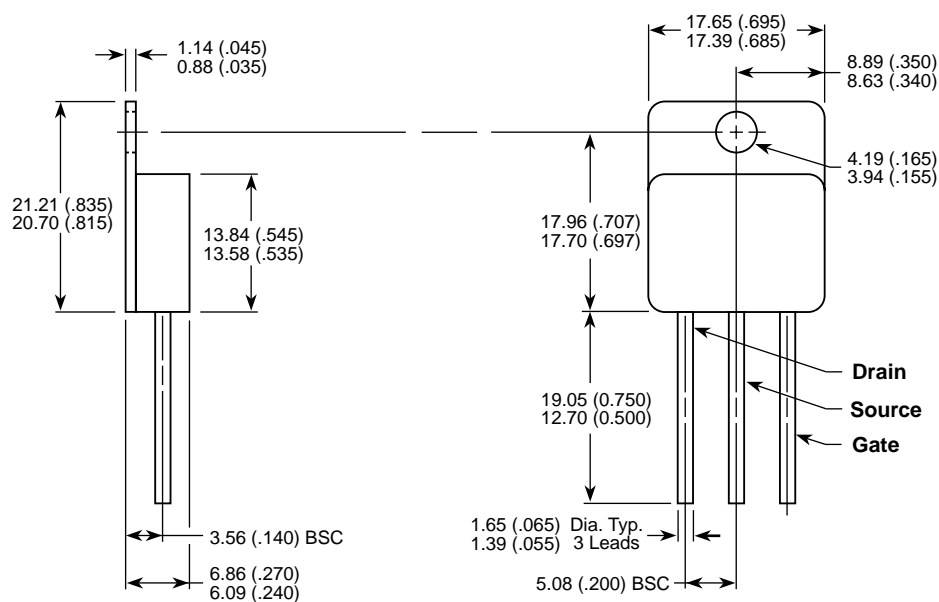
APT30D40H

Symbol	Characteristic	MIN	TYP	MAX	UNIT
$t_{rr1}$	Reverse Recovery Time, $I_F = 1.0A$ , $di_F/dt = -15A/\mu s$ , $V_R = 30V$ , $T_J = 25^\circ C$		45	65	ns
$t_{rr2}$	Reverse Recovery Time	$T_J = 25^\circ C$	45		
$t_{rr3}$	$I_F = 30A$ , $di_F/dt = -240A/\mu s$ , $V_R = 240V$	$T_J = 100^\circ C$	70		
$t_{fr1}$	Forward Recovery Time	$T_J = 25^\circ C$	150		
$t_{fr2}$	$I_F = 30A$ , $di_F/dt = 240A/\mu s$ , $V_R = 240V$	$T_J = 100^\circ C$	150		
$I_{RRM1}$	Reverse Recovery Current	$T_J = 25^\circ C$	6	10	Amps
$I_{RRM2}$	$I_F = 30A$ , $di_F/dt = -240A/\mu s$ , $V_R = 240V$	$T_J = 100^\circ C$	10	18	
$Q_{rr1}$	Recovery Charge	$T_J = 25^\circ C$	135		nC
$Q_{rr2}$	$I_F = 30A$ , $di_F/dt = -240A/\mu s$ , $V_R = 240V$	$T_J = 100^\circ C$	350		
$V_{fr1}$	Forward Recovery Voltage	$T_J = 25^\circ C$	3.2		Volts
$V_{fr2}$	$I_F = 30A$ , $di_F/dt = 240A/\mu s$ , $V_R = 240V$	$T_J = 100^\circ C$	3.2		
$diM/dt$	Rate of Fall of Recovery Current	$T_J = 25^\circ C$	500		A/ $\mu s$
	$I_F = 30A$ , $di_F/dt = -240A/\mu s$ , $V_R = 240V$ (See Figure 10)	$T_J = 100^\circ C$	500		

## THERMAL AND MECHANICAL CHARACTERISTICS

Symbol	Characteristic / Test Conditions	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

### TO-258 Package Outline



Dimensions in Millimeters and (Inches)



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