

**APT2X60D40J 400V 60A**  
**APT2X61D40J 400V 60A**

## DUAL DIE ISOTOP® PACKAGE

## ULTRAFAST SOFT RECOVERY DUAL RECTIFIER DIODES

### PRODUCT APPLICATIONS

- Anti-Parallel Diode
  - Switchmode Power Supply
  - Inverters
- Free Wheeling Diode
  - Motor Controllers
  - Converters
- Snubber Diode
- Uninterruptible Power Supply (UPS)
- Induction Heating
- High Speed Rectifiers

### PRODUCT FEATURES

- Ultrafast Recovery Times
- Soft Recovery Characteristics
- Popular SOT-227 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:  $T_C = 25^\circ\text{C}$  unless otherwise specified.

Symbol	Characteristic / Test Conditions	APT2X60/2X61D40J	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 ( $T_C = 70^\circ\text{C}$ , Duty Cycle = 0.5)	60	Amps
$I_F(RMS)$	RMS Forward Current	100	
$I_{FSM}$	Non-Repetitive Forward Surge Current ( $T_J = 45^\circ\text{C}$ , 8.3ms)	600	
$T_J, T_{STG}$	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	$I_F = 60\text{A}$		1.5	Volts
		$I_F = 120\text{A}$		1.5	
		$I_F = 60\text{A}, T_J = 150^\circ\text{C}$		1.3	
$I_{RM}$	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, $V_R = 200\text{V}$		110		pF
$L_S$	Series Inductance (Lead to Lead 5mm from Base)		10		nH

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**DYNAMIC CHARACTERISTICS**

**APT2X60/2X61D40J**

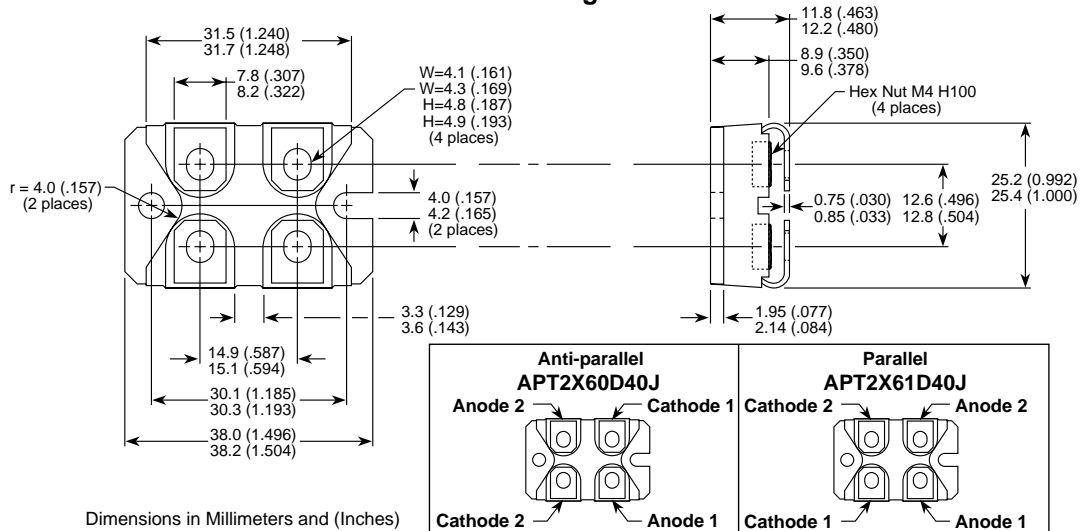
Symbol	Characteristic	MIN	TYP	MAX	UNIT
$t_{rr1}$	Reverse Recovery Time, $I_F = 1.0A$ , $di_F/dt = -15A/\mu s$ , $V_R = 30V$ , $T_J = 25^\circ C$		55	70	ns
$t_{rr2}$	Reverse Recovery Time	$T_J = 25^\circ C$	70		
$t_{rr3}$	$I_F = 60A$ , $di_F/dt = -480A/\mu s$ , $V_R = 240V$	$T_J = 100^\circ C$	90		
$t_{fr1}$	Forward Recovery Time	$T_J = 25^\circ C$	175		
$t_{fr2}$	$I_F = 60A$ , $di_F/dt = 480A/\mu s$ , $V_R = 240V$	$T_J = 100^\circ C$	175		
$I_{RRM1}$	Reverse Recovery Current	$T_J = 25^\circ C$	10	21	Amps
$I_{RRM2}$	$I_F = 60A$ , $di_F/dt = -480A/\mu s$ , $V_R = 240V$	$T_J = 100^\circ C$	20	36	
$Q_{rr1}$	Recovery Charge	$T_J = 25^\circ C$	350		nC
$Q_{rr2}$	$I_F = 60A$ , $di_F/dt = -480A/\mu s$ , $V_R = 240V$	$T_J = 100^\circ C$	900		
$V_{fr1}$	Forward Recovery Voltage	$T_J = 25^\circ C$	6.5		Volts
$V_{fr2}$	$I_F = 60A$ , $di_F/dt = 480A/\mu s$ , $V_R = 240V$	$T_J = 100^\circ C$	6.5		
$diM/dt$	Rate of Fall of Recovery Current	$T_J = 25^\circ C$	800		A/ $\mu s$
	$I_F = 60A$ , $di_F/dt = -480A/\mu s$ , $V_R = 240V$ (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			0.66	$^\circ C/W$
$R_{\theta JA}$	Junction-to-Ambient Thermal Resistance			20	
$V_{Isolation}$	RMS Voltage (50-60 Hz Sinusoidal Waveform from Terminals to Mounting Base for 1 Min.)	2500			Volts
$W_T$	Package Weight		1.03		oz
			29.2		gm
Torque	Maximum Torque (Mounting = 8-32 or 4mm Machine and Terminals = 4mm Machine)			13.6	lb•in
				1.5	N•m

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

**SOT-227 Package Outline**



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