



APT2X100D120J 1200V 100A
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DUAL DIE ISOTOP® PACKAGE

ULTRAFAST SOFT RECOVERY DUAL RECTIFIER DIODES

PRODUCT APPLICATIONS	PRODUCT FEATURES	PRODUCT BENEFITS
<ul style="list-style-type: none"> • Anti-Parallel Diode <ul style="list-style-type: none"> -Switchmode Power Supply -Inverters • Free Wheeling Diode <ul style="list-style-type: none"> -Motor Controllers -Converters • Snubber Diode • Uninterruptible Power Supply (UPS) • Induction Heating • High Speed Rectifiers 	<ul style="list-style-type: none"> • Ultrafast Recovery Times • Soft Recovery Characteristics • Popular SOT-227 Package • Low Forward Voltage • High Blocking Voltage • Low Leakage Current 	<ul style="list-style-type: none"> • 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	APT2X100/2X101D120J	UNIT
V_R	Maximum D.C. Reverse Voltage	1200	Volts
V_{RRM}	Maximum Peak Repetitive Reverse Voltage		
V_{RWM}	Maximum Working Peak Reverse Voltage		
$I_F(AV)$	Maximum Average Forward Current ($T_C = 40^\circ\text{C}$, Duty Cycle = 0.5)	100	Amps
$I_F(RMS)$	RMS Forward Current	170	
I_{FSM}	Non-Repetitive Forward Surge Current ($T_J = 45^\circ\text{C}$, 8.3ms)	1000	
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			2.5	Volts
			$I_F = 200\text{A}$	2.5	
			$I_F = 100\text{A}, T_J = 150^\circ\text{C}$	2.0	
I_{RM}	Maximum Reverse Leakage Current			250	μA
				$V_R = V_R$ Rated, $T_J = 125^\circ\text{C}$	
C_T	Junction Capacitance, $V_R = 200\text{V}$		116		pF
L_S	Series Inductance (Lead to Lead 5mm from Base)		20		nH

DYNAMIC CHARACTERISTICS

APT2X100/2X101D120J

Symbol	Characteristic	MIN	TYP	MAX	UNIT
t_{rr1}	Reverse Recovery Time, $I_F = 1.0A$, $di_F/dt = -15A/\mu s$, $V_R = 30V$, $T_J = 25^\circ C$		80	95	ns
t_{rr2}	Reverse Recovery Time	$T_J = 25^\circ C$	130		
t_{rr3}	$I_F = 100A$, $di_F/dt = -800A/\mu s$, $V_R = 650V$	$T_J = 100^\circ C$	215		
t_{fr1}	Forward Recovery Time	$T_J = 25^\circ C$	220		Volts
t_{fr2}	$I_F = 100A$, $di_F/dt = 800A/\mu s$, $V_R = 650V$	$T_J = 100^\circ C$	220		
I_{RRM1}	Reverse Recovery Current	$T_J = 25^\circ C$	28	38	Amps
I_{RRM2}	$I_F = 100A$, $di_F/dt = -800A/\mu s$, $V_R = 650V$	$T_J = 100^\circ C$	52	65	
Q_{rr1}	Recovery Charge	$T_J = 25^\circ C$	2100		nC
Q_{rr2}	$I_F = 100A$, $di_F/dt = -800A/\mu s$, $V_R = 650V$	$T_J = 100^\circ C$	6100		
V_{fr1}	Forward Recovery Voltage	$T_J = 25^\circ C$	26		Volts
V_{fr2}	$I_F = 100A$, $di_F/dt = 800A/\mu s$, $V_R = 650V$	$T_J = 100^\circ C$	26		
diM/dt	Rate of Fall of Recovery Current	$T_J = 25^\circ C$	800		A/ μs
	$I_F = 100A$, $di_F/dt = -800A/\mu s$, $V_R = 650V$ (See Figure 10)	$T_J = 100^\circ C$	400		

THERMAL AND MECHANICAL CHARACTERISTICS

Symbol	Characteristic / Test Conditions	MIN	TYP	MAX	UNIT
$R_{\theta JC}$	Junction-to-Case Thermal Resistance			0.42	$^\circ C/W$
$R_{\theta JA}$	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

