

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 | $I_F = 100\text{A}$ | | 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 | $V_R = V_R$ Rated | | 250 | μA |
| | | $V_R = V_R$ Rated, $T_J = 125^\circ\text{C}$ | | 500 | |
| C_T | Junction Capacitance, $V_R = 200\text{V}$ | | 116 | | pF |
| L_S | Series Inductance (Lead to Lead 5mm from Base) | | 20 | | nH |

APT Website - <http://www.advancedpower.com>

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DYNAMIC CHARACTERISTICS

APT2X100/2X101D120J

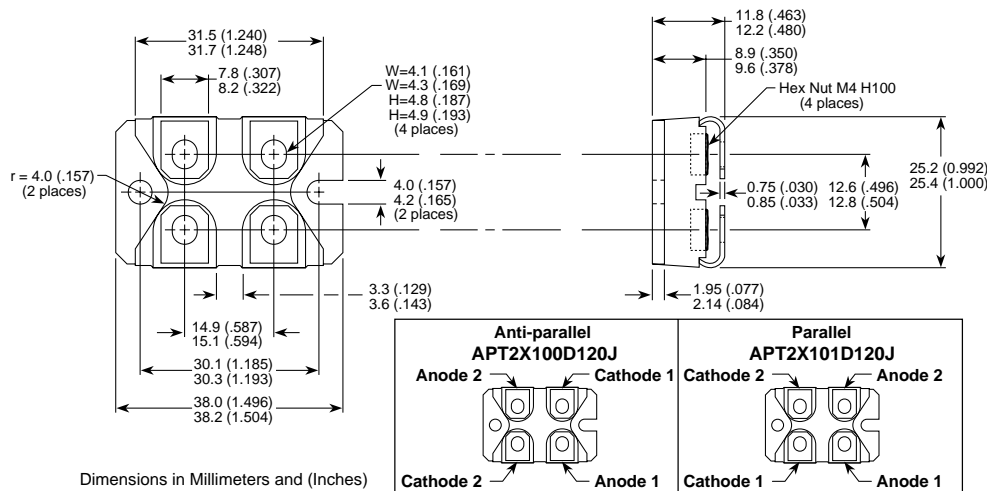
| Symbol | Characteristic | MIN | TYP | MAX | UNIT |
|------------|---|---------------------|------|-----|------------|
| t_{rr1} | Reverse Recovery Time, $I_F = 1.0A$, $di_F/dt = -15A/\mu s$, $V_R = 30V$, $T_J = 25^\circ C$ | | 80 | 95 | ns |
| t_{rr2} | Reverse Recovery Time | $T_J = 25^\circ C$ | 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 | | |
| 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



Dimensions in Millimeters and (Inches)