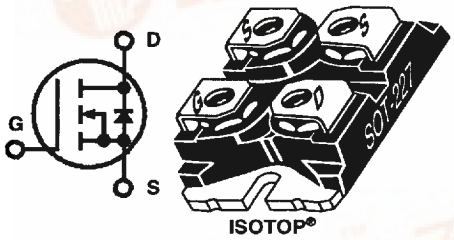

ADVANCED POWER TECHNOLOGY®

APT10026JNR 1000V 33A 0.26Ω

"UL Recognized" File No. E145592 (S)

POWER MOS IV® — **AVALANCHE RATED ISOTOP® PACKAGE**

N-CHANNEL ENHANCEMENT MODE LOW VOLTAGE POWER MOSFETS

MAXIMUM RATINGS

All Ratings: T_C = 25°C unless otherwise specified.

Symbol	Parameter	APT10026JNR	UNIT
V_{DSS}	Drain-Source Voltage	1000	Volts
I_D	Continuous Drain Current @ T_C = 25°C	33	Amps
I_{DM}	Pulsed Drain Current ①	132	
V_{GS}	Gate-Source Voltage Continuous	±20	Volts
V_{GSM}	Gate-Source Voltage Transient	±30	
P_D	Total Power Dissipation @ T_C = 25°C	690	Watts
	Linear Derating Factor	5.52	W/°C
T_J,T_{STG}	Operating and Storage Junction Temperature Range	-55 to 150	°C
T_L	Lead Temperature: 0.063" from Case for 10 Sec.	300	
I_{AR}	Avalanche Current ① (Repetitive and Non-Repetitive)	33	Amps
E_{AR}	Repetitive Avalanche Energy ①	30	mJ
E_{AS}	Single Pulse Avalanche Energy ④	3600	

STATIC ELECTRICAL CHARACTERISTICS

Symbol	Characteristic / Test Conditions / Part Number		MIN	TYP	MAX	UNIT
BV_{DSS}	Drain-Source Breakdown Voltage (V_{GS} = 0V, I_D = 250μA)		1000			Volts
$I_{D(ON)}$	On State Drain Current ②	APT10026JNR	33			Amps
	(V_{DS} > $I_{D(ON)}$ x $R_{DS(ON)}$ Max, V_{GS} = 10V)					
$R_{DS(ON)}$	Drain-Source On-State Resistance ②	APT10026JNR			0.26	Ohms
	(V_{GS} = 10V, 0.5 I_D [Cont.])					
I_{DSS}	Zero Gate Voltage Drain Current (V_{DS} = 0.8 V_{DSS}, V_{GS} = 0V)				250	μA
	Zero Gate Voltage Drain Current (V_{DS} = 0.8 V_{DSS}, V_{GS} = 0V, T_C = 125°C)				1000	
I_{GSS}	Gate-Source Leakage Current (V_{GS} = ±20V, V_{DS} = 0V)				±100	nA
$V_{GS(TH)}$	Gate Threshold Voltage (V_{DS} = V_{GS}, I_D = 5.0mA)		2		4	Volts

THERMAL CHARACTERISTICS

Symbol	Characteristic	MIN	TYP	MAX	UNIT
$R_{\theta JC}$	Junction to Case			0.18	°C/W
$R_{\theta CS}$	Case to Sink (Use High Efficiency Thermal Joint Compound and Planer Heat Sink Surface.)		0.08		

CAUTION: These Devices are Sensitive to Electrostatic Discharge. Proper Handling Procedures Should Be Followed.

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DYNAMIC CHARACTERISTICS

APT10026JNR

Symbol	Characteristic	Test Conditions	MIN	TYP	MAX	UNIT
C_{iss}	Input Capacitance	V_{GS} = 0V V_{DS} = 25V f = 1 MHz		20000	24000	pF
C_{oss}	Output Capacitance			1600	2240	
C_{rss}	Reverse Transfer Capacitance			500	750	
Q_g	Total Gate Charge ③	V_{GS} = 10V V_{DD} = 0.5 V_{DSS} I_D = I_D [Cont.] @ 25°C		650	975	nC
Q_{gs}	Gate-Source Charge			70	105	
Q_{gd}	Gate-Drain ("Miller") Charge			250	375	
$t_d(on)$	Turn-on Delay Time	V_{GS} = 15V V_{DD} = 0.5 V_{DSS} I_D = I_D [Cont.] @ 25°C R_G = 0.6Ω		25	38	ns
t_r	Rise Time			20	30	
$t_d(off)$	Turn-off Delay Time			110	220	
t_f	Fall Time			20	40	

SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS

Symbol	Characteristic / Test Conditions / Part Number		MIN	TYP	MAX	UNIT
I_S	Continuous Source Current (Body Diode)	APT10026JNR			33	Amps
I_{SM}	Pulsed Source Current ① (Body Diode)	APT10026JNR			132	
V_{SD}	Diode Forward Voltage ② (V_{GS} = 0V, I_S = -I_D [Cont.])				1.3	Volts
t_{rr}	Reverse Recovery Time (I_S = -I_D [Cont.], dI_S/dt = 100A/µs)			1300	2600	ns
Q_{rr}	Reverse Recovery Charge (I_S = -I_D [Cont.], dI_S/dt = 100A/µs)			29	58	µC

PACKAGE CHARACTERISTICS

Symbol	Characteristic / Test Conditions	MIN	TYP	MAX	UNIT
L_D	Internal Drain Inductance (Measured From Drain Terminal to Center of Die.)		3		nH
L_S	Internal Source Inductance (Measured From Source Terminals to Source Bond Pads)		5		
$V_{Isolation}$	RMS Voltage (50-60 Hz Sinusoidal Waveform From Terminals to Mounting Base for 1 Min.)	2500			Volts
$C_{Isolation}$	Drain-to-Mounting Base Capacitance (f = 1MHz)		38		pF
Torque	Maximum Torque for Device Mounting Screws and Electrical Terminations.			13	lb•in.

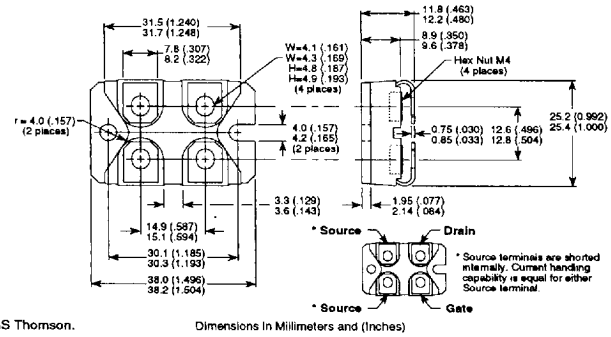
① Repetitive Rating: Pulse width limited by maximum junction temperature.

② Pulse Test: Pulse width < 380 µS, Duty Cycle < 2%

③ See MIL-STD-750 Method 3471

④ Starting T_j = 25°C, L = 6.6mH, R_G = 25Ω, Peak I_L = 33A

SOT-227 (ISOTOP®) Package Outline



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Dimensions in Millimeters and (Inches)

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