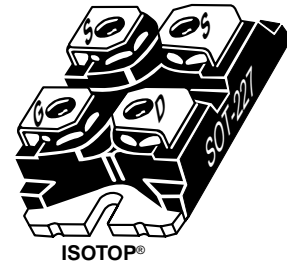
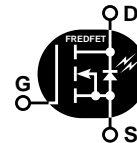


POWER MOS V™
FREDFET


Power MOS V™ is a new generation of high voltage N-Channel enhancement mode power MOSFETs. This new technology minimizes the JFET effect, increases packing density and reduces the on-resistance. Power MOS V™ also achieves faster switching speeds through optimized gate layout.

- Fast Recovery Body Diode
- Lower Leakage
- Faster Switching
- 100% Avalanche Tested
- Popular SOT-227 Package


MAXIMUM RATINGS

 All Ratings: $T_C = 25^\circ\text{C}$ unless otherwise specified.

Symbol	Parameter	APT20M22JVFR	UNIT
V_{DSS}	Drain-Source Voltage	200	Volts
I_D	Continuous Drain Current @ $T_C = 25^\circ\text{C}$	97	Amps
I_{DM}	Pulsed Drain Current ^①	388	
V_{GS}	Gate-Source Voltage Continuous	± 30	Volts
V_{GSM}	Gate-Source Voltage Transient	± 40	
P_D	Total Power Dissipation @ $T_C = 25^\circ\text{C}$	450	Watts
	Linear Derating Factor	3.6	W/ $^\circ\text{C}$
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 to 150	$^\circ\text{C}$
T_L	Lead Temperature: 0.063" from Case for 10 Sec.	300	
I_{AR}	Avalanche Current ^① (Repetitive and Non-Repetitive)	97	Amps
E_{AR}	Repetitive Avalanche Energy ^①	50	mJ
E_{AS}	Single Pulse Avalanche Energy ^④	2500	

STATIC ELECTRICAL CHARACTERISTICS

Symbol	Characteristic / Test Conditions	MIN	TYP	MAX	UNIT
BV_{DSS}	Drain-Source Breakdown Voltage ($V_{GS} = 0V, I_D = 250\mu\text{A}$)	200			Volts
$I_{D(on)}$	On State Drain Current ^② ($V_{DS} > I_{D(on)} \times R_{DS(on)}$ Max, $V_{GS} = 10V$)	97			Amps
$R_{DS(on)}$	Drain-Source On-State Resistance ^② ($V_{GS} = 10V, 0.5 I_{D(Cont.)}$)			0.022	Ohms
I_{DSS}	Zero Gate Voltage Drain Current ($V_{DS} = V_{DSS}, V_{GS} = 0V$)			25	μA
	Zero Gate Voltage Drain Current ($V_{DS} = 0.8 V_{DSS}, V_{GS} = 0V, T_C = 125^\circ\text{C}$)			250	
I_{GSS}	Gate-Source Leakage Current ($V_{GS} = \pm 30V, V_{DS} = 0V$)			± 100	nA
$V_{GS(th)}$	Gate Threshold Voltage ($V_{DS} = V_{GS}, I_D = 2.5\text{mA}$)	2		4	Volts


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

USA
 405 S.W. Columbia Street
EUROPE

Avenue J.F. Kennedy Bât B4 Parc Cadéra Nord

Bend, Oregon 97702-1035

F-33700 Merignac - France

Phone: (541) 382-8028

Phone: (33) 5 57 92 15 15

FAX: (541) 388-0364

FAX: (33) 5 56 47 97 61

DYNAMIC CHARACTERISTICS

APT20M22JVFR

Symbol	Characteristic	Test Conditions	MIN	TYP	MAX	UNIT
C _{iss}	Input Capacitance	V _{GS} = 0V V _{DS} = 25V f = 1 MHz		8500		pF
C _{oss}	Output Capacitance			1950		
C _{rss}	Reverse Transfer Capacitance			560		
Q _g	Total Gate Charge ③	V _{GS} = 10V V _{DD} = 0.5 V _{DSS} I _D = I _{D[Cont.]} @ 25°C		290		nC
Q _{gs}	Gate-Source Charge			66		
Q _{gd}	Gate-Drain ("Miller") Charge			120		
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		16		ns
t _r	Rise Time			25		
t _{d(off)}	Turn-off Delay Time			48		
t _f	Fall Time			5		

SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS

Symbol	Characteristic / Test Conditions	MIN	TYP	MAX	UNIT
I _S	Continuous Source Current (Body Diode)			97	Amps
I _{SM}	Pulsed Source Current ① (Body Diode)			388	
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/dt = 100A/μs)		380		ns
Q _{rr}	Reverse Recovery Charge (I _S = -I _{D[Cont.]} , di/dt = 100A/μs)		5.8		μC

THERMAL CHARACTERISTICS

Symbol	Characteristic	MIN	TYP	MAX	UNIT
R _{θJC}	Junction to Case			0.28	°C/W
R _{θJA}	Junction to Ambient			40	

- 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 = 531μH, R_G = 25Ω, Peak I_L = 97A

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

SOT-227 (ISOTOP®) Package Outline

