

APT30M19JVFR

300V 130A **0.019**Ω

POWER MOS V®

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
- 100% Avalanche Tested

- Lower Leakage
- Faster Switching

FREDFET

• Popular SOT-227 Package





MAXIMUM RATINGS

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

Symbol	Parameter	APT30M19JVFR	UNIT	
V _{DSS}	Drain-Source Voltage	300	Volts	
I _D	Continuous Drain Current @ $T_C = 25^{\circ}C$	130	Amps	
I _{DM}	Pulsed Drain Current ^①	520		
V _{GS}	Gate-Source Voltage Continuous	±30	Volts	
V _{GSM}	Gate-Source Voltage Transient	±40		
P _D	Total Power Dissipation @ $T_C = 25^{\circ}C$	700	Watts	
	Linear Derating Factor	5.6	W/°C	
T_{J},T_{STG}	Operating and Storage Junction Temperature Range	-55 to 150		
Τ _L	Lead Temperature: 0.063" from Case for 10 Sec.	300	-] °C	
I _{AR}	Avalanche Current $^{\textcircled{1}}$ (Repetitive and Non-Repetitive)	130	Amps	
E _{AR}	Repetitive Avalanche Energy ^①	50		
E _{AS}	Single Pulse Avalanche Energy ^④	3600	- mJ	

STATIC ELECTRICAL CHARACTERISTICS

Symbol	Characteristic / Test Conditions	MIN	TYP	МАХ	UNIT
BV _{DSS}	Drain-Source Breakdown Voltage ($V_{GS} = 0V, I_{D} = 250\mu A$)	300			Volts
I _{D(on)}	On State Drain Current ⁽²⁾ $(V_{DS} > I_{D(on)} \times R_{DS(on)} Max, V_{GS} = 10V)$	130			Amps
R _{DS(on)}	Drain-Source On-State Resistance ⁽²⁾ $(V_{GS} = 10V, 0.5 I_{D[Cont.]})$			0.019	Ohms
I _{DSS}	Zero Gate Voltage Drain Current ($V_{DS} = V_{DSS}$, $V_{GS} = 0V$)			250	μA
	Zero Gate Voltage Drain Current ($V_{DS} = 0.8 V_{DSS}$, $V_{GS} = 0V$, $T_{C} = 125^{\circ}C$)			1000	μΛ
I _{GSS}	Gate-Source Leakage Current (V _{GS} = \pm 30V, V _{DS} = 0V)			±100	nA
V _{GS(th)}	Gate Threshold Voltage ($V_{DS} = V_{GS}$, $I_{D} = 5mA$)	2		4	Volts

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

DYNAMIC CHARACTERISTICS

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Symbol	Characteristic	Test Conditions	MIN	TYP	MAX	UNIT
C _{iss}	Input Capacitance	$V_{GS} = 0V$		18000	21600	
C _{oss}	Output Capacitance	V _{DS} = 25V		3250	4550	pF
C _{rss}	Reverse Transfer Capacitance	f = 1 MHz		980	1470	
Qg	Total Gate Charge $^{\textcircled{3}}$	V _{GS} = 10V		650	975	
Q _{gs}	Gate-Source Charge	$V_{DD} = 0.5 V_{DSS}$		115	175	nC
Q _{gd}	Gate-Drain ("Miller") Charge	I _D = I _D [Cont.] @ 25°C		290	435	
t _d (on)	Turn-on Delay Time	V _{GS} = 15V		22	44	
t _r	Rise Time	$V_{DD} = 0.5 V_{DSS}$		33	66	ns
t _d (off)	Turn-off Delay Time	I _D = I _D [Cont.] @ 25°C		70	135	115
t _f	Fall Time	$R_{G} = 0.6\Omega$		10	20	

SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS

Symbol	Characteristic / Test Conditions		MIN	TYP	MAX	UNIT
۱ _S	Continuous Source Current (Body Diode)				130	A
I _{SM}	Pulsed Source Current ^① (Body Diode)				520	Amps
V _{SD}	Diode Forward Voltage ⁽²⁾ ($V_{GS} = 0V, I_S = -I_D$ [Cont.])				1.3	Volts
dv/ _{dt}	Peak Diode Recovery ^{dv/} dt ^⑤				5	V/ns
	Reverse Recovery Time	T _j = 25°C		200	300	
t _{rr}	(I _S = -I _D [Cont.], ^{di/} _{dt} = 100A/µs)	T _j = 125°C		250	525	ns
-	Reverse Recovery Charge	T _j = 25°C		1.5		
Q _{rr}	(I _S = -I _D [Cont.], ^{di} / _{dt} = 100A/µs)	T _i = 125°C		4.4		μC
I _{RRM}	Peak Recovery Current	T _j = 25°C		15		
	(I _S = -I _D [Cont.], ^{di} / _{dt} = 100A/μs)	T _i = 125°C		25		Amps

THERMAL/PACKAGE CHARACTERISTICS

Symbol	Characteristic	MIN	TYP	MAX	UNIT	
$R_{ extsf{ heta}JC}$	Junction to Case			0.18	°C/W	
$R_{ extsf{ heta}JA}$	Junction to Ambient			40	0,00	
V _{Isolation}	RMS Voltage (50-60 Hz Sinusoidal Waveform From Terminals to Mounting Base for 1 Min.)	2500			Volts	
Torque	Maximum Torque for Device Mounting Screws and Electrical Terminations.			13	lb•in	

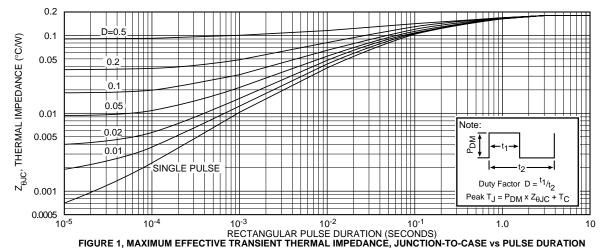
1 Repetitive Rating: Pulse width limited by maximum junction temperature.

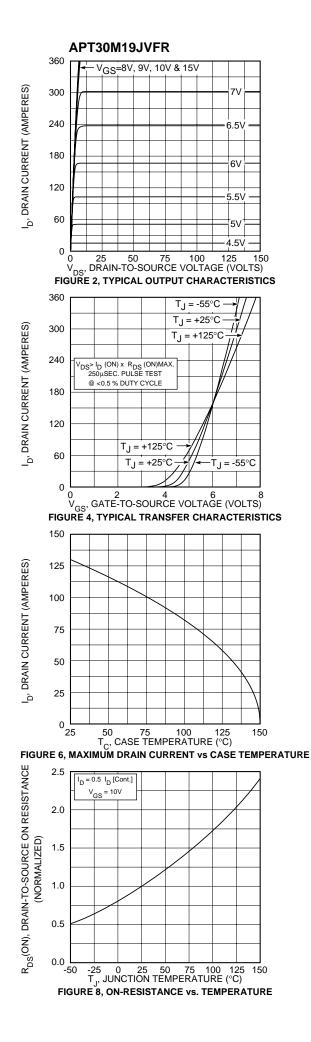
③ See MIL-STD-750 Method 3471

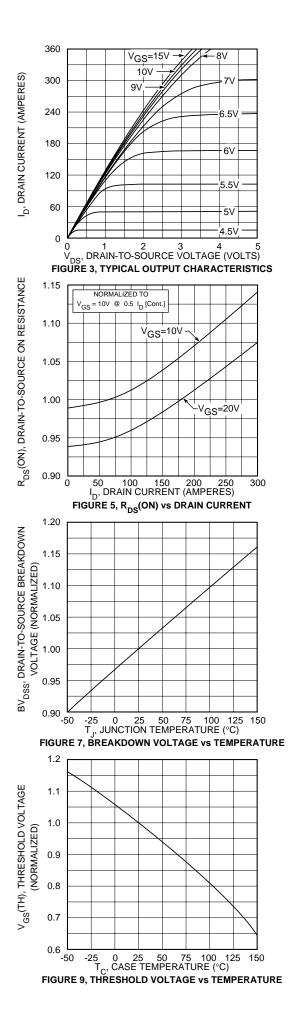
⁽²⁾ Pulse Test: Pulse width < 380 μ S, Duty Cycle < 2%

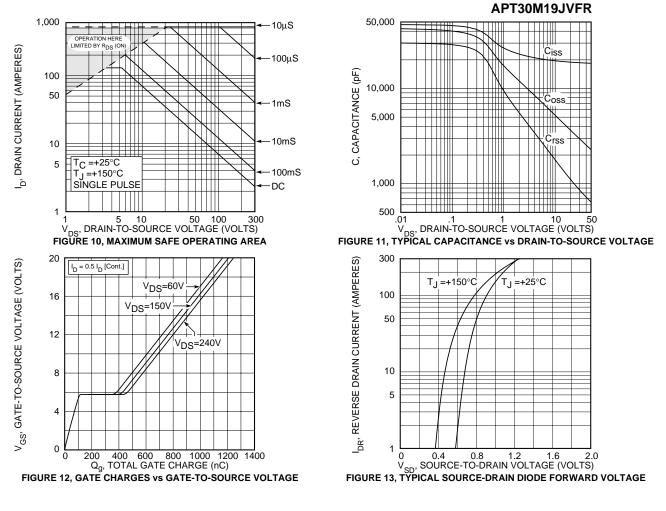
 $V_{R} = 200V$

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

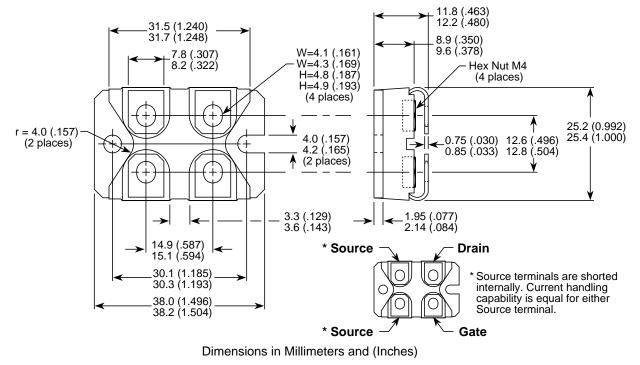








SOT-227 (ISOTOP®) Package Outline



V_{Isolation}, RMS Voltage (50-60 Hz Sinusoidal Waveform from Terminals to Mounting Base for 1 Minute) = 2500 Volts Minimum

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