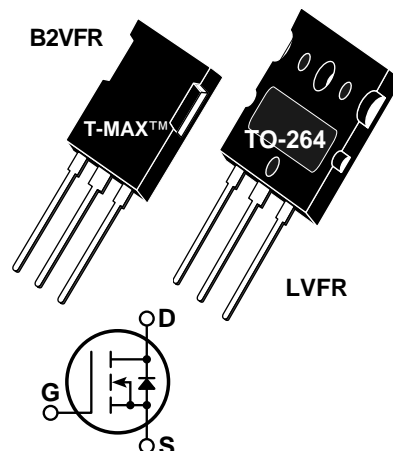




APT10040B2VFR APT10040LVFR 1000V 25A 0.400Ω

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.

- **Identical Specifications: T-MAX™ or TO-264 Package**
- **Lower Leakage**
- **Fast Recovery Body Diode**
- **Faster Switching**
- **100% Avalanche Tested**

MAXIMUM RATINGS

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

Symbol	Parameter	APT10040	UNIT
V _{DSS}	Drain-Source Voltage	1000	Volts
I _D	Continuous Drain Current @ T _C = 25°C	25	Amps
I _{DM}	Pulsed Drain Current ^①	100	
V _{GS}	Gate-Source Voltage Continuous	±30	Volts
V _{GSM}	Gate-Source Voltage Transient	±40	
P _D	Total Power Dissipation @ T _C = 25°C	625	Watts
	Linear Derating Factor	5.0	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	50	mJ
E _{AS}	Single Pulse Avalanche Energy ^④	3000	

STATIC ELECTRICAL CHARACTERISTICS

Symbol	Characteristic / Test Conditions	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 (V _{DS} > I _{D(on)} × R _{DS(on)} Max, V _{GS} = 10V)	25			Amps
R _{DS(on)}	Drain-Source On-State Resistance ^② (V _{GS} = 10V, 0.5 I _{D[Cont.]})			0.40	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°C)			1000	
I _{GSS}	Gate-Source Leakage Current (V _{GS} = ±30V, V _{DS} = 0V)			±100	nA
V _{GS(th)}	Gate Threshold Voltage (V _{DS} = V _{GS} , I _D = 2.5mA)	2		4	Volts

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

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

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DYNAMIC CHARACTERISTICS

APT10040 B2VFR - LVFR

Symbol	Characteristic	Test Conditions	MIN	TYP	MAX	UNIT
C _{iss}	Input Capacitance	V _{GS} = 0V		7700		pF
C _{oss}	Output Capacitance	V _{DS} = 25V		690		
C _{rss}	Reverse Transfer Capacitance	f = 1 MHz		330		
Q _g	Total Gate Charge ^③	V _{GS} = 10V		380		nC
Q _{gs}	Gate-Source Charge	V _{DD} = 0.5 V _{DSS}		33		
Q _{gd}	Gate-Drain ("Miller") Charge	I _D = I _D [Cont.] @ 25°C		196		
t _{d(on)}	Turn-on Delay Time	V _{GS} = 15V		18		ns
t _r	Rise Time	V _{DD} = 0.5 V _{DSS}		14		
t _{d(off)}	Turn-off Delay Time	I _D = I _D [Cont.] @ 25°C		66		
t _f	Fall Time	R _G = 0.6Ω		9		

SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS

Symbol	Characteristic / Test Conditions	MIN	TYP	MAX	UNIT
I _S	Continuous Source Current (Body Diode)			25	Amps
I _{SM}	Pulsed Source Current ^① (Body Diode)			100	
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
t _{rr}	Reverse Recovery Time (I _S = -I _D [Cont.], di/dt = 100A/μs)	T _j = 25°C		320	ns
		T _j = 125°C		650	
Q _{rr}	Reverse Recovery Charge (I _S = -I _D [Cont.], di/dt = 100A/μs)	T _j = 25°C		1.9	μC
		T _j = 125°C		5.4	
I _{RRM}	Peak Recovery Current (I _S = -I _D [Cont.], di/dt = 100A/μs)	T _j = 25°C		13	Amps
		T _j = 125°C		21	

THERMAL CHARACTERISTICS

Symbol	Characteristic	MIN	TYP	MAX	UNIT
R _{θJC}	Junction to Case			0.20	°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 = 9.60mH, R_G = 25Ω, Peak I_L = 25A
- ⑤ I_S ≤ -I_D [Cont.], di/dt = 100A/μs, T_j ≤ 150°C, R_G = 2.0Ω, V_R = 200V.

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

