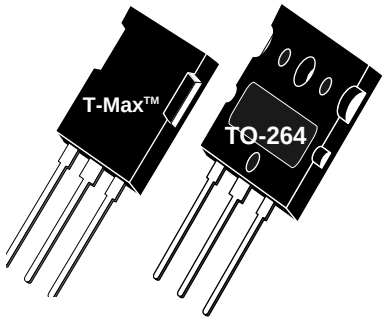
APT50M80B2VFR
APT50M80LVFR
500V 58A 0.080Ω

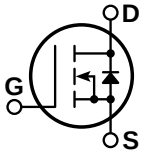
POWER MOS V®

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**
- **Faster Switching**
- **Fast Recovery Body Diode**
- **Avalanche Energy Rated**



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

Symbol	Parameter	APT50M80B2VFR _ LVFR	UNIT
V_{DSS}	Drain-Source Voltage	500	Volts
I_D	Continuous Drain Current @ T_C = 25°C	58	Amps
I_{DM}	Pulsed Drain Current ①	232	
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)	58	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)	500			Volts
$R_{DS(on)}$	Drain-Source On-State Resistance ② (V_{GS} = 10V, 29A)			0.080	Ohms
I_{DSS}	Zero Gate Voltage Drain Current (V_{DS} = 500V, V_{GS} = 0V)			250	µA
	Zero Gate Voltage Drain Current (V_{DS} = 400V, 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

050-5912 Rev B 12-2003

DYNAMIC CHARACTERISTICS

APT50M80B2VFR_LVFR

Symbol	Characteristic	Test Conditions	MIN	TYP	MAX	UNIT
C_{iss}	Input Capacitance	V_{GS} = 0V		8797		pF
C_{oss}	Output Capacitance	V_{DS} = 25V		1286		
C_{rss}	Reverse Transfer Capacitance	f = 1 MHz		562		
Q_g	Total Gate Charge ③	V_{GS} = 10V		423		nC
Q_{gs}	Gate-Source Charge	V_{DD} = 250V		41		
Q_{gd}	Gate-Drain ("Miller") Charge	I_D = 58A @ 25°C		214		
$t_{d(on)}$	Turn-on Delay Time	V_{GS} = 15V		14		ns
t_r	Rise Time	V_{DD} = 250V		25		
$t_{d(off)}$	Turn-off Delay Time	I_D = 58A @ 25°C		64		
t_f	Fall Time	R_G = 0.6Ω		23		

SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS

Symbol	Characteristic / Test Conditions		MIN	TYP	MAX	UNIT
I_S	Continuous Source Current (Body Diode)				58	Amps
I_{SM}	Pulsed Source Current ① (Body Diode)				232	
V_{SD}	Diode Forward Voltage ② (V_{GS} = 0V, I_S = -58A)				1.3	Volts
$^{dv}/_{dt}$	Peak Diode Recovery $^{dv}/_{dt}$ ⑤				5	V/ns
t_{rr}	Reverse Recovery Time (I_S = -58A, $^{di}/_{dt}$ = 100A/µs)	T_j = 25°C			270	ns
		T_j = 125°C			540	
Q_{rr}	Reverse Recovery Charge (I_S = -58A, $^{di}/_{dt}$ = 100A/µs)	T_j = 25°C		2.7		µC
		T_j = 125°C		5.9		
I_{RRM}	Peak Recovery Current (I_S = -58A, $^{di}/_{dt}$ = 100A/µs)	T_j = 25°C		16		Amps
		T_j = 125°C		22.5		

THERMAL CHARACTERISTICS

Symbol	Characteristic	MIN	TYP	MAX	UNIT
$R_{\theta JC}$	Junction to Case			0.20	°C/W
$R_{\theta JA}$	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 = 1.78mH, R_G = 25Ω, Peak I_L = 58A

⑤ $^{dv}/_{dt}$ numbers reflect the limitations of the test circuit rather than the device itself. $I_S \le$ -58A $^{di}/_{dt} \le$ 700A/µs $V_R \le$ 500V $T_J \le$ 150°C

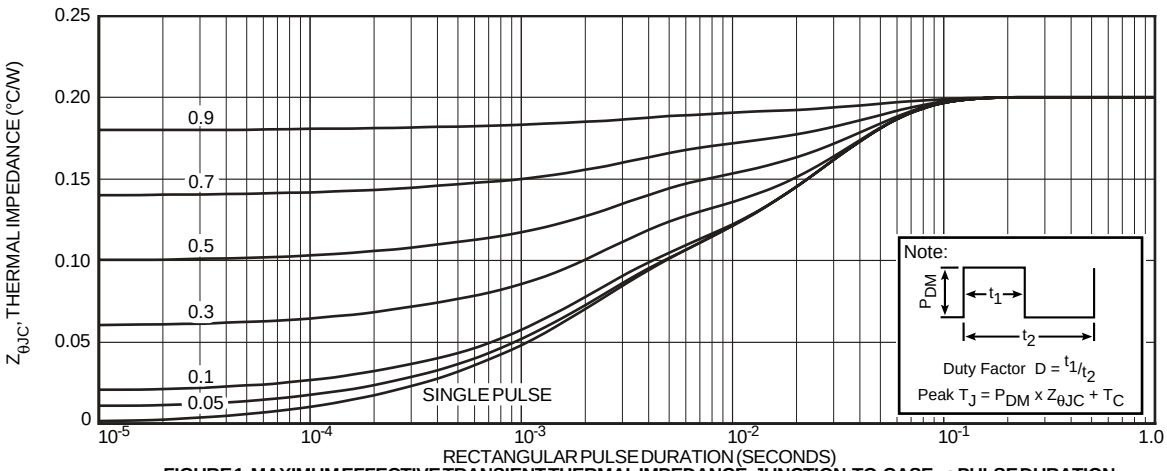


FIGURE 1, MAXIMUM EFFECTIVE TRANSIENT THERMAL IMPEDANCE, JUNCTION-TO-CASE vs PULSE DURATION

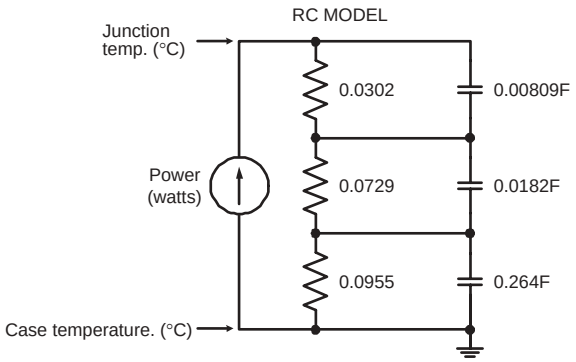


FIGURE 2, TRANSIENT THERMAL IMPEDANCE MODEL

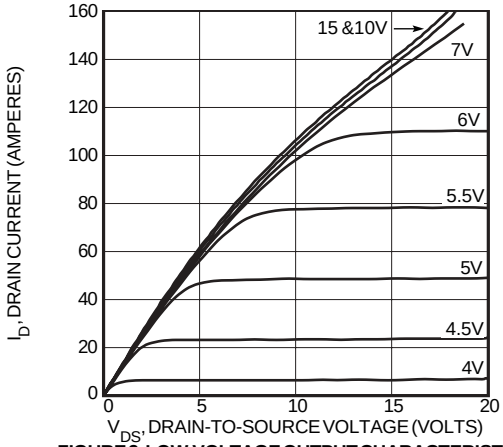


FIGURE 3, LOW VOLTAGE OUTPUT CHARACTERISTICS

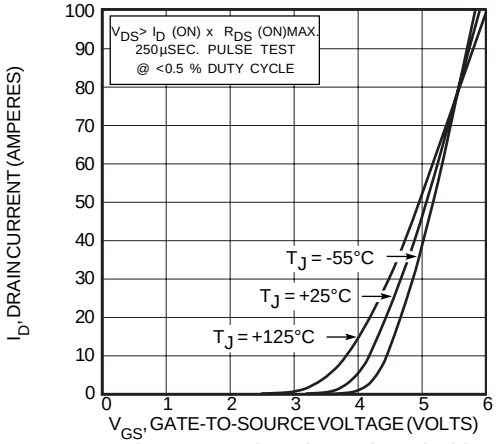


FIGURE 4, TRANSFER CHARACTERISTICS

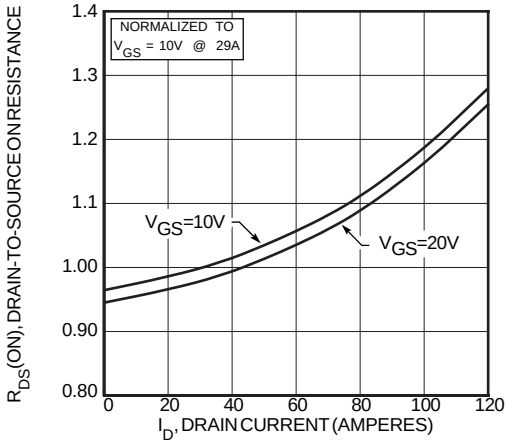


FIGURE 5, R_{DS}(ON) vs DRAIN CURRENT

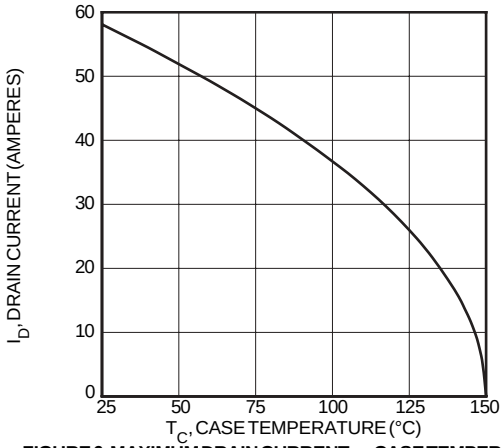


FIGURE 6, MAXIMUM DRAIN CURRENT vs CASE TEMPERATURE

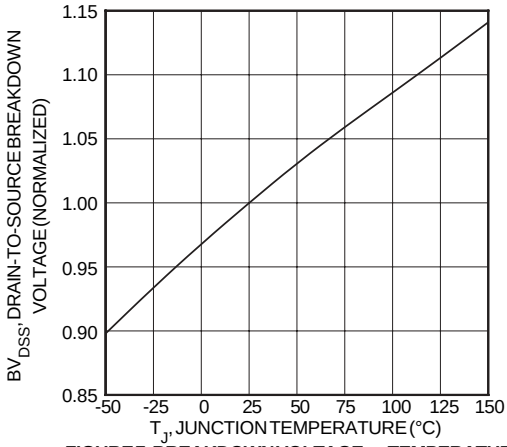


FIGURE 7, BREAKDOWN VOLTAGE vs TEMPERATURE

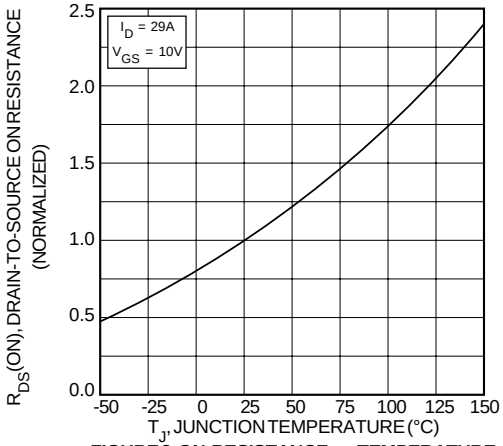


FIGURE 8, ON-RESISTANCE vs. TEMPERATURE

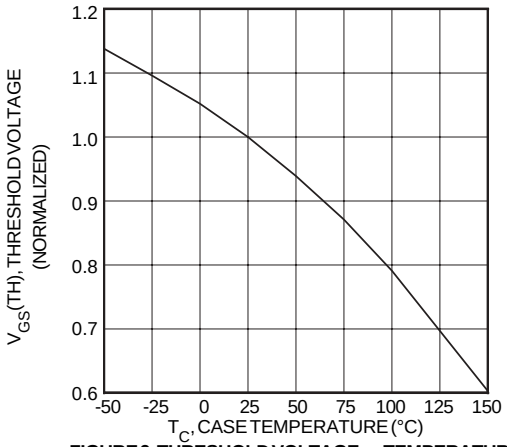


FIGURE 9, THRESHOLD VOLTAGE vs TEMPERATURE

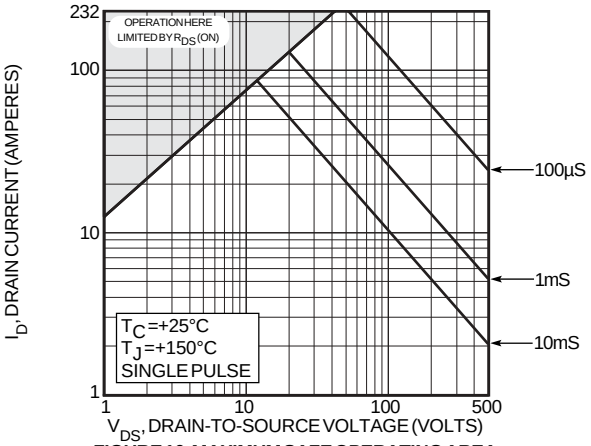


FIGURE 10, MAXIMUM SAFE OPERATING AREA

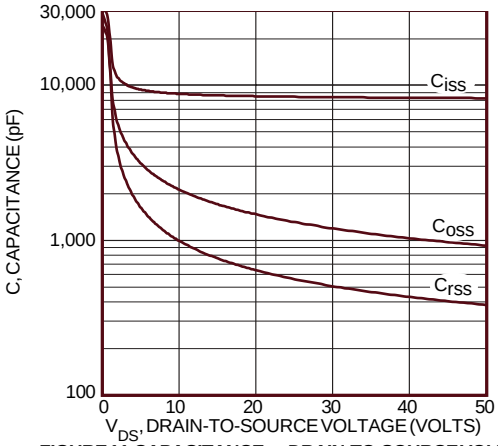


FIGURE 11, CAPACITANCE vs DRAIN-TO-SOURCE VOLTAGE

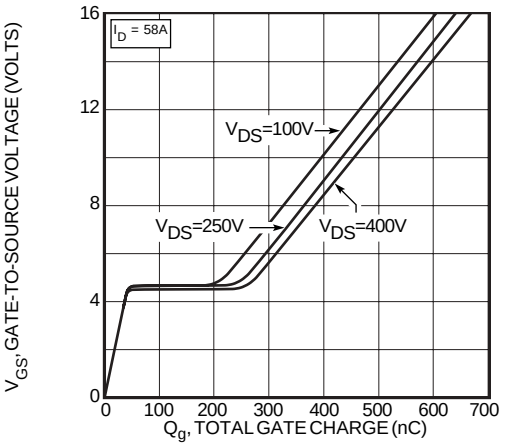


FIGURE 12, GATE CHARGES vs GATE-TO-SOURCE VOLTAGE

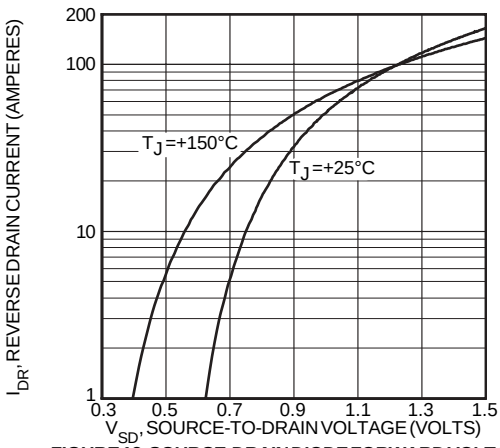
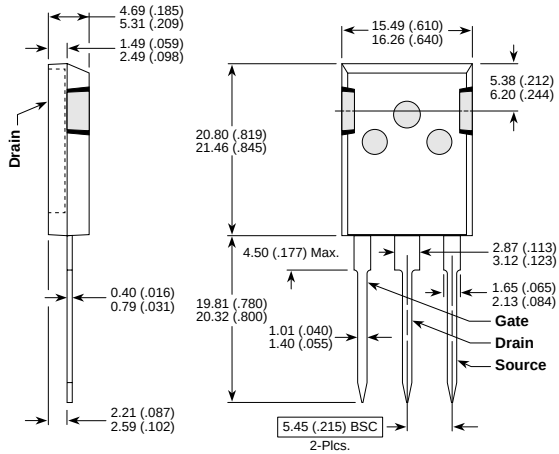


FIGURE 13, SOURCE-DRAIN DIODE FORWARD VOLTAGE

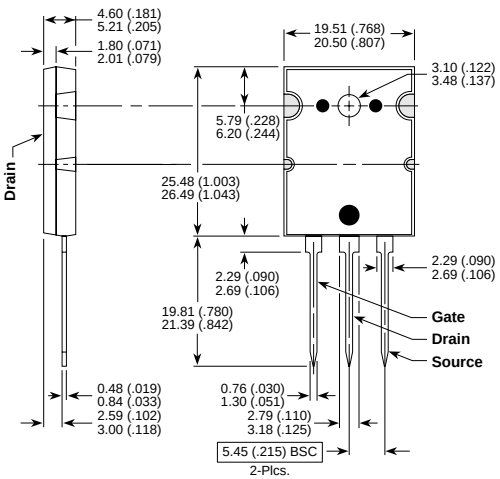
T-MAX™ (B2) Package Outline



These dimensions are equal to the TO-247 without the mounting hole.

Dimensions in Millimeters and (Inches)

TO-264 (L) Package Outline



Dimensions in Millimeters and (Inches)

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for MOSFET ***category:***

Click to view products by Microchip ***manufacturer:***

Other Similar products are found below :

614233C 648584F D2003UK MCH3443-TL-E MCH6422-TL-E FDPF9N50NZ FW216A-TL-2W FW231A-TL-E APT5010JVR NTNS3A92PZT5G IRF100S201 JANTX2N5237 2SK2464-TL-E 2SK3818-DL-E FCA20N60_F109 FDZ595PZ STD6600NT4G FQD4P40TM_AM002 FSS804-TL-E FW217A-TL-2W 2SJ277-DL-E 2SK1691-DL-E 2SK2545(Q,T) D2294UK 405094E 423220D MCH6646-TL-E TPCC8103,L1Q(CM 367-8430-0972-503 VN1206L 424134F 026935X 051075F SBVS138LT1G 614234A 715780A NTNS3166NZT5G 751625C 873612G IPS70R2K0CEAKMA1 RJK60S3DPP-E0#T2 RJK60S5DPK-M0#T0 APT8015JVFR APT5010JVFR APT12031JFLL APT12040JVR DMN3404LQ-7 NTE6400 NVC3S5A51PLZT1G JANTX2N6796U