

DYNAMIC CHARACTERISTICS

APT50M80B2VFR_LVFR

Symbol	Characteristic	Test Conditions	MIN	TYP	MAX	UNIT
C _{iss}	Input Capacitance	V _{GS} = 0V V _{DS} = 25V f = 1 MHz		8797		pF
C _{oss}	Output Capacitance			1286		
C _{rss}	Reverse Transfer Capacitance			562		
Q _g	Total Gate Charge ^③	V _{GS} = 10V V _{DD} = 250V I _D = 58A @ 25°C		423		nC
Q _{gs}	Gate-Source Charge			41		
Q _{gd}	Gate-Drain ("Miller") Charge			214		
t _{d(on)}	Turn-on Delay Time	V _{GS} = 15V V _{DD} = 250V I _D = 58A @ 25°C R _G = 0.6Ω		14		ns
t _r	Rise Time			25		
t _{d(off)}	Turn-off Delay Time			64		
t _f	Fall Time			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 _{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 = 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 ≤ -58A di/dt ≤ 700A/μs V_R ≤ 500V T_j ≤ 150°C

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

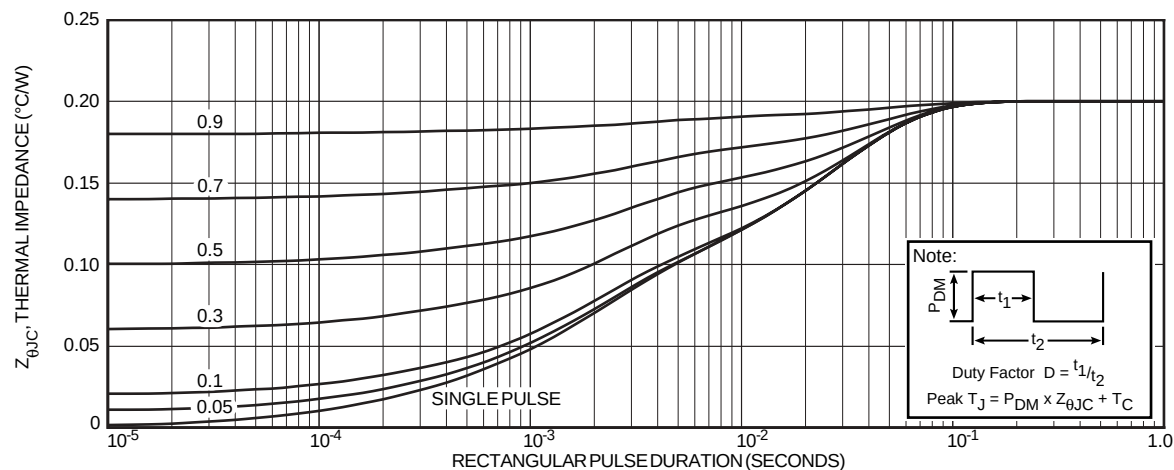


FIGURE 1, MAXIMUM EFFECTIVE TRANSIENT THERMAL IMPEDANCE, JUNCTION-TO-CASE vs PULSE DURATION

Typical Performance Curves

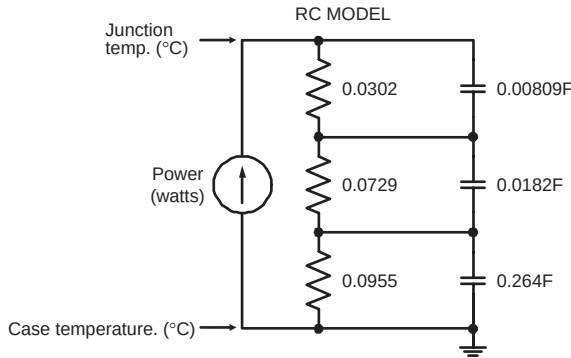


FIGURE 2, TRANSIENT THERMAL IMPEDANCE MODEL

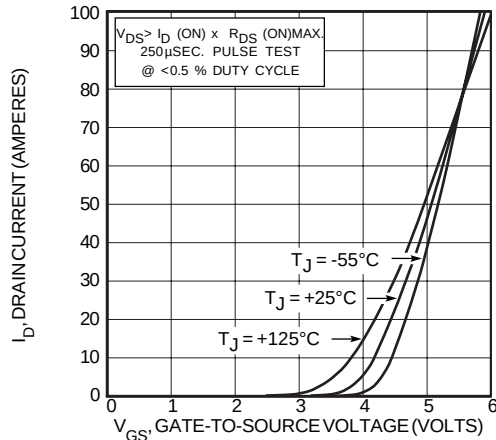


FIGURE 4, TRANSFER CHARACTERISTICS

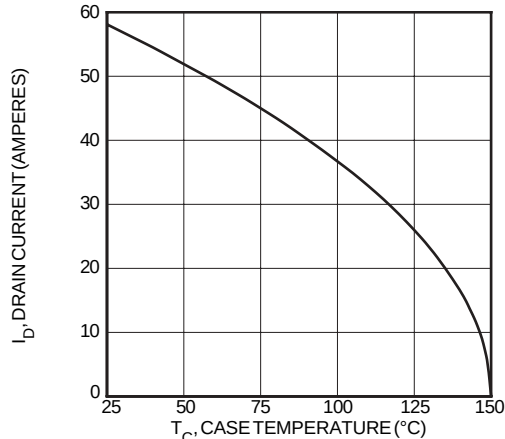


FIGURE 6, MAXIMUM DRAIN CURRENT vs CASE TEMPERATURE

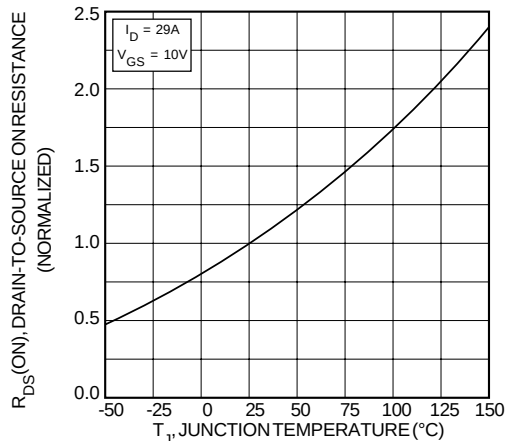


FIGURE 8, ON-RESISTANCE vs. TEMPERATURE

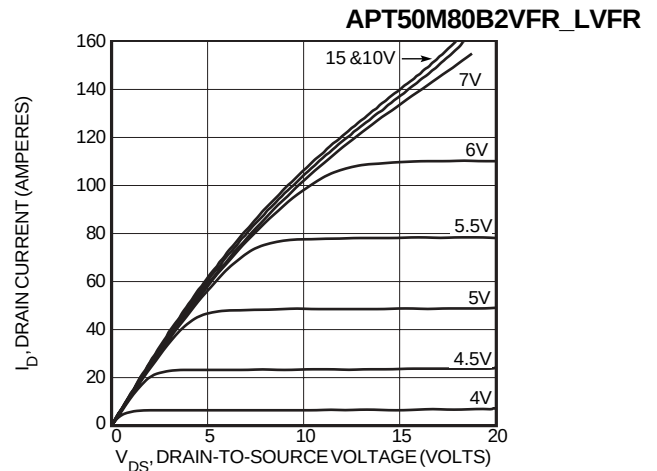


FIGURE 3, LOW VOLTAGE OUTPUT CHARACTERISTICS

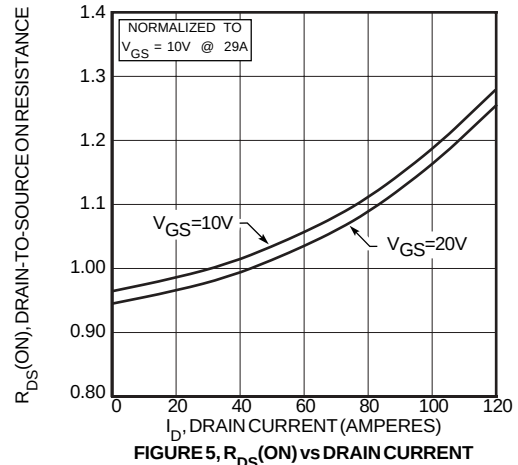


FIGURE 5, $R_{DS, \text{(ON)}}$ vs DRAIN CURRENT

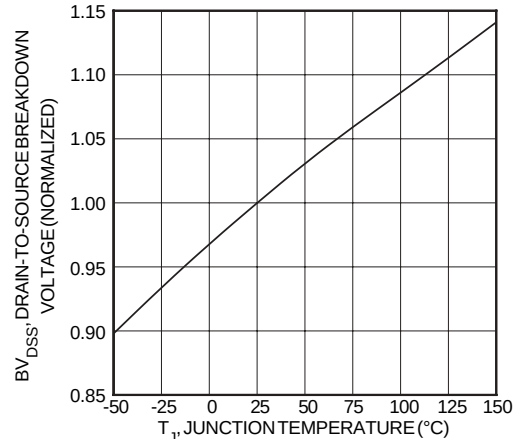


FIGURE 7, BREAKDOWN VOLTAGE vs TEMPERATURE

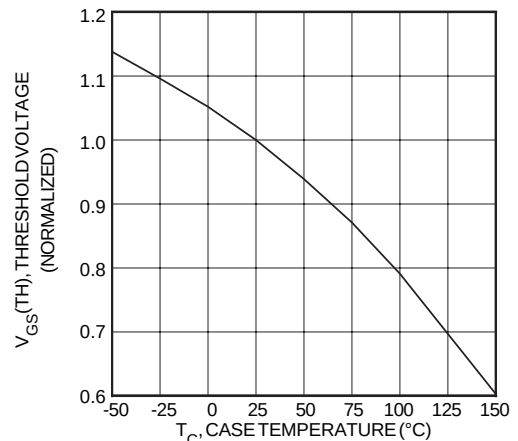


FIGURE 9, THRESHOLD VOLTAGE vs TEMPERATURE

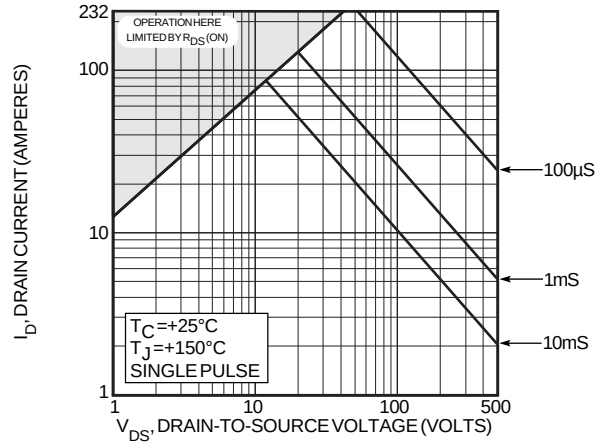


FIGURE 10, MAXIMUM SAFE OPERATING AREA

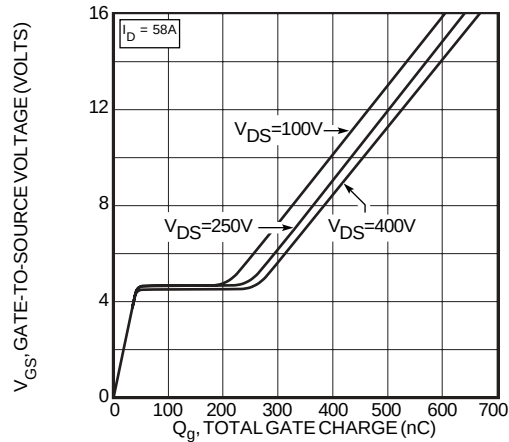


FIGURE 12, GATE CHARGES vs GATE-TO-SOURCE VOLTAGE

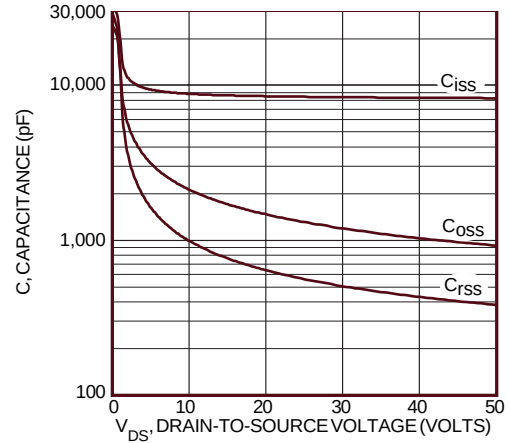


FIGURE 11, CAPACITANCE vs DRAIN-TO-SOURCE VOLTAGE

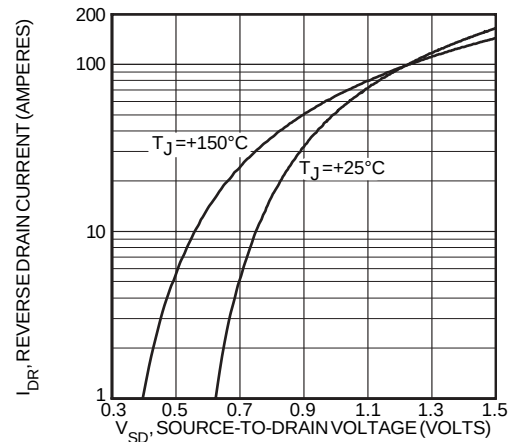
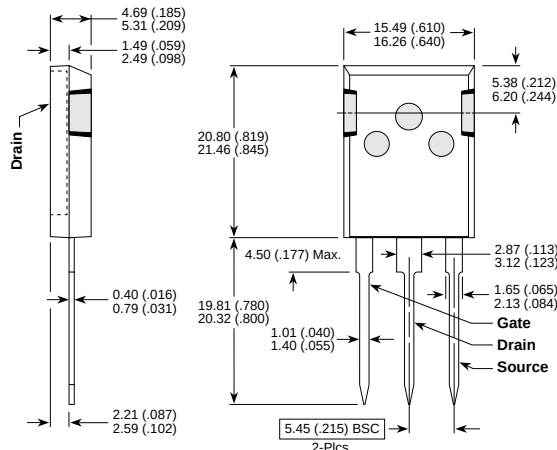


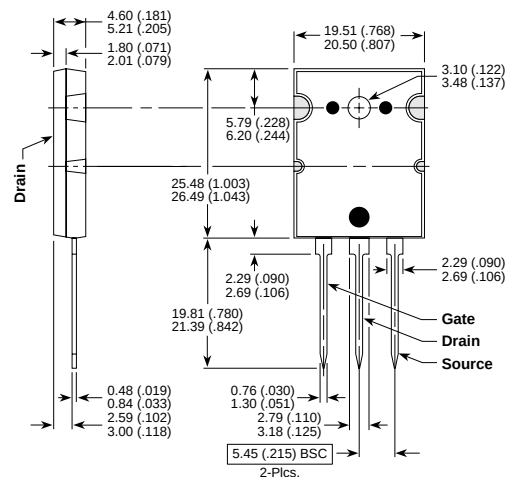
FIGURE 13, SOURCE-DRAIN DIODE FORWARD VOLTAGE

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)