

DYNAMIC CHARACTERISTICS

APT30M70BVR_SVR

Symbol	Characteristic	Test Conditions	MIN	TYP	MAX	UNIT
C_{iss}	Input Capacitance	$V_{GS} = 0V$ $V_{DS} = 25V$ $f = 1 \text{ MHz}$		4890	5870	pF
C_{oss}	Output Capacitance			882	1235	
C_{rss}	Reverse Transfer Capacitance			277	415	
Q_g	Total Gate Charge ③	$V_{GS} = 10V$ $V_{DD} = 0.5 V_{DSS}$ $I_D = I_{D[Cont.]} @ 25^\circ C$		152	225	nC
Q_{gs}	Gate-Source Charge			35	52	
Q_{gd}	Gate-Drain ("Miller") Charge			66	99	
$t_{d(on)}$	Turn-on Delay Time	$V_{GS} = 15V$ $V_{DD} = 0.5 V_{DSS}$ $I_D = I_{D[Cont.]} @ 25^\circ C$ $R_G = 1.6\Omega$		14	28	ns
t_r	Rise Time			21	42	
$t_{d(off)}$	Turn-off Delay Time			57	85	
t_f	Fall Time			10	20	

SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS

Symbol	Characteristic / Test Conditions	MIN	TYP	MAX	UNIT
I_S	Continuous Source Current (Body Diode)			48	Amps
I_{SM}	Pulsed Source Current ① (Body Diode)			192	
V_{SD}	Diode Forward Voltage ② ($V_{GS} = 0V$, $I_S = -I_{D[Cont.]}$)			1.3	Volts
t_{rr}	Reverse Recovery Time ($I_S = -I_{D[Cont.]}$, $di_S/dt = 100A/\mu s$)		440		ns
Q_{rr}	Reverse Recovery Charge ($I_S = -I_{D[Cont.]}$, $di_S/dt = 100A/\mu s$)		5.8		μC

THERMAL CHARACTERISTICS

Symbol	Characteristic	MIN	TYP	MAX	UNIT
$R_{\theta JC}$	Junction to Case			0.34	$^\circ C/W$
$R_{\theta JA}$	Junction to Ambient			40	

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

③ See MIL-STD-750 Method 3471

② Pulse Test: Pulse width < 380 μs , Duty Cycle < 2%

④ Starting $T_j = +25^\circ C$, $L = 1.13mH$, $R_G = 25\Omega$, Peak $I_L = 48A$

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

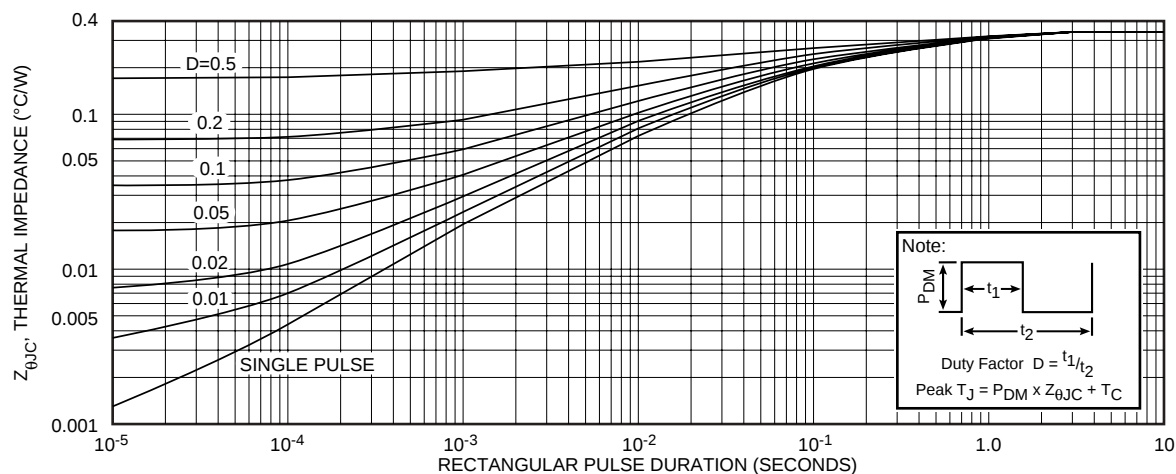


FIGURE 1, MAXIMUM EFFECTIVE TRANSIENT THERMAL IMPEDANCE, JUNCTION-TO-CASE vs PULSE DURATION

APT30M70BVR_SVR

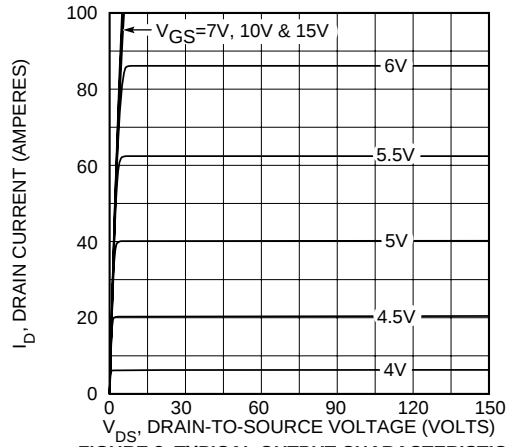


FIGURE 2, TYPICAL OUTPUT CHARACTERISTICS

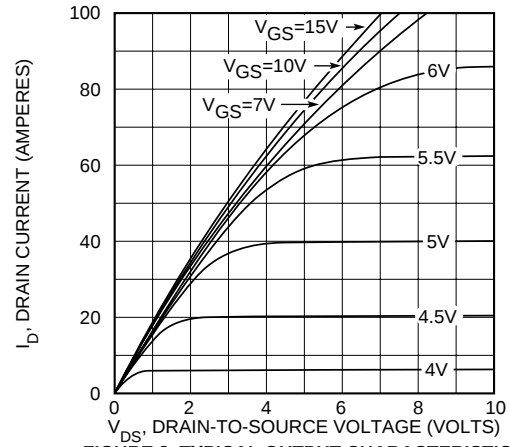


FIGURE 3, TYPICAL OUTPUT CHARACTERISTICS

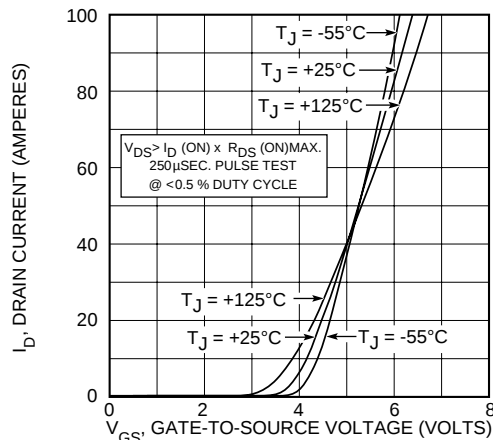


FIGURE 4, TYPICAL TRANSFER CHARACTERISTICS

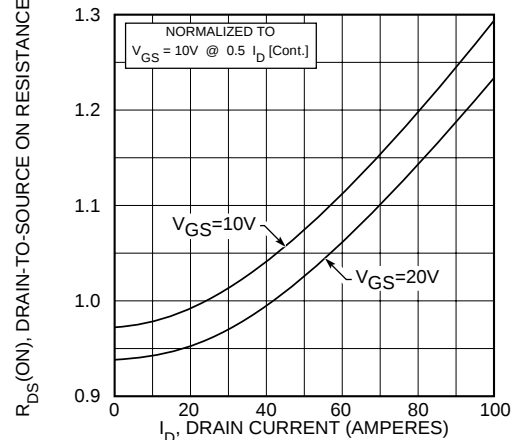


FIGURE 5, $R_{DS(ON)}$ vs DRAIN CURRENT

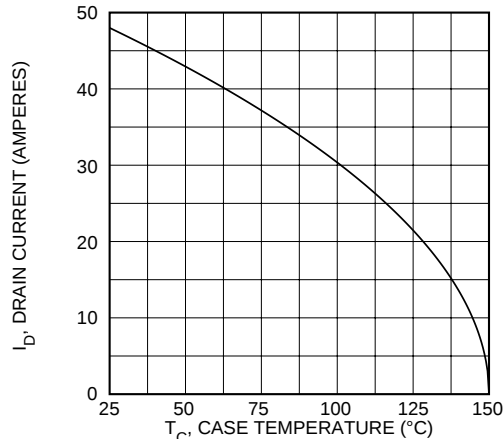


FIGURE 6, MAXIMUM DRAIN CURRENT vs CASE TEMPERATURE

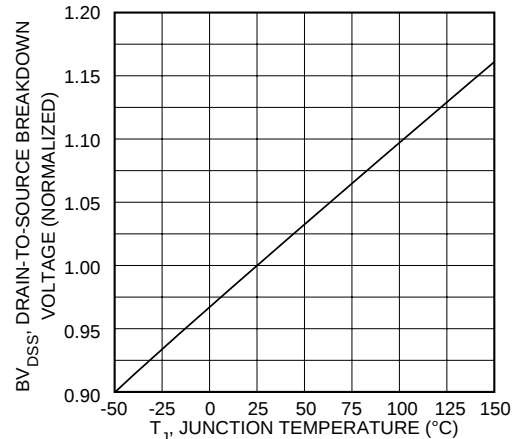


FIGURE 7, BREAKDOWN VOLTAGE vs TEMPERATURE

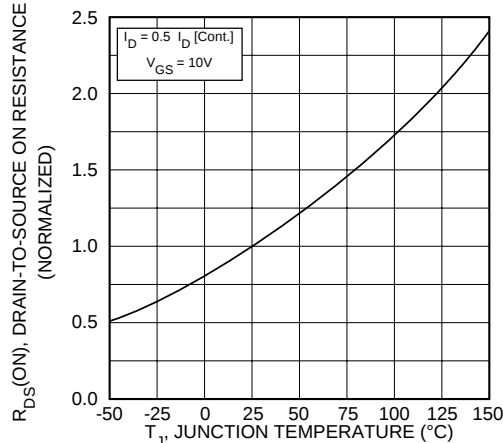


FIGURE 8, ON-RESISTANCE vs. TEMPERATURE

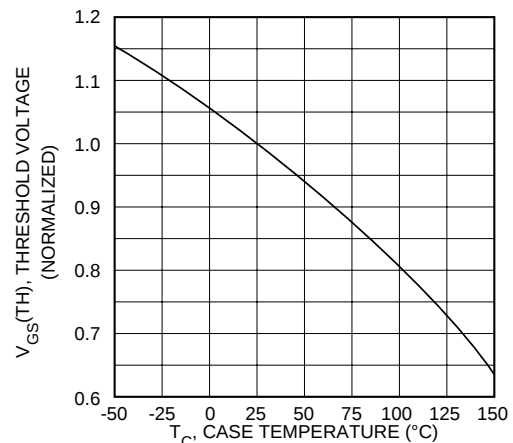


FIGURE 9, THRESHOLD VOLTAGE vs TEMPERATURE

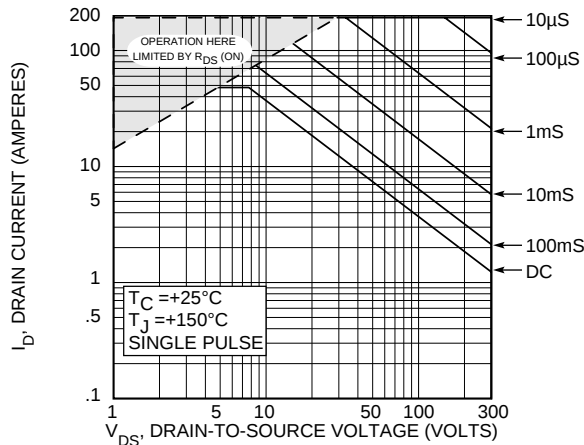


FIGURE 10, MAXIMUM SAFE OPERATING AREA

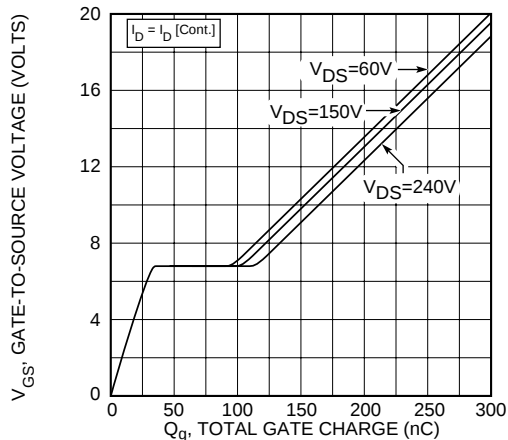


FIGURE 12, GATE CHARGES vs GATE-TO-SOURCE VOLTAGE

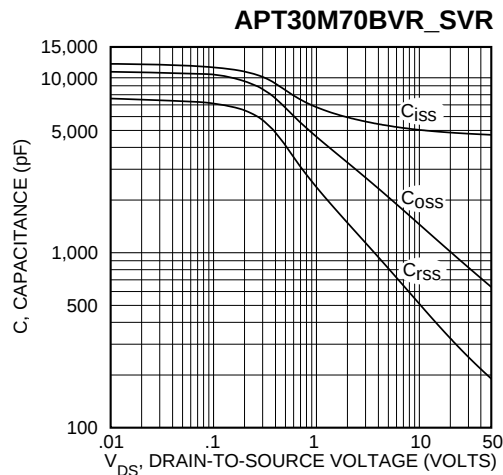


FIGURE 11, TYPICAL CAPACITANCE vs DRAIN-TO-SOURCE VOLTAGE

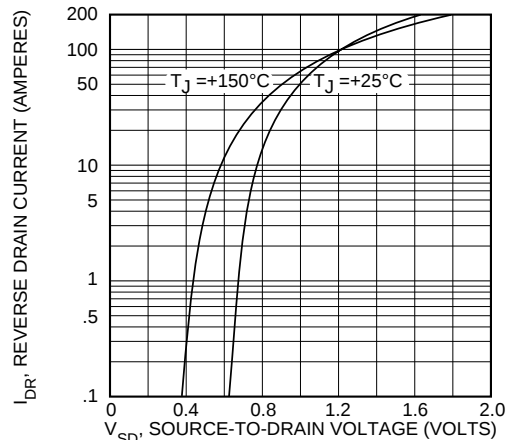
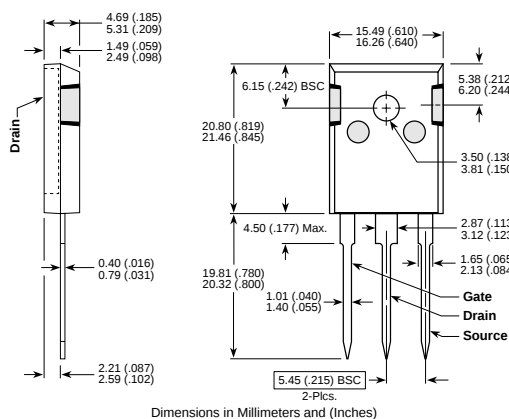


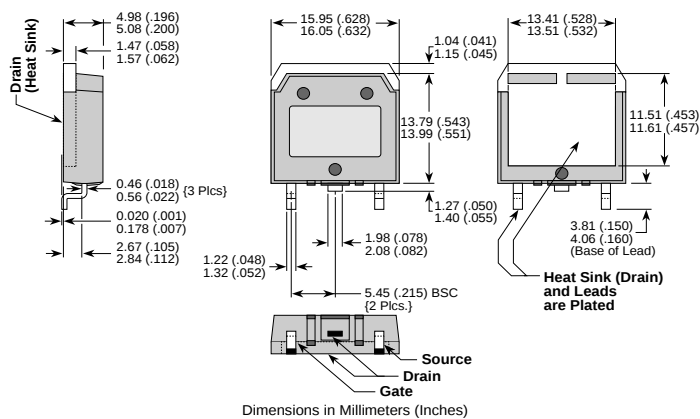
FIGURE 13, TYPICAL SOURCE-DRAIN DIODE FORWARD VOLTAGE

TO-247 Package Outline



Dimensions in Millimeters and (Inches)

D³PAK Package Outline



Dimensions in Millimeters (Inches)

APT's products are covered by one or more of U.S. patents 4,895,810 5,045,903 5,089,434 5,182,234 5,019,522

5,262,336 6,503,786 5,256,583 4,748,103 5,283,202 5,231,474 5,434,095 5,528,058 and foreign patents. US and Foreign patents pending. All Rights Reserved.