

DYNAMIC CHARACTERISTICS

APT6011B2VR_LVR

Symbol	Characteristic	Test Conditions	MIN	TYP	MAX	UNIT
C_{iss}	Input Capacitance	$V_{GS} = 0V$ $V_{DS} = 25V$ $f = 1 \text{ MHz}$		8900		pF
C_{oss}	Output Capacitance			1100		
C_{rss}	Reverse Transfer Capacitance			500		
Q_g	Total Gate Charge ③	$V_{GS} = 10V$ $V_{DD} = 300V$ $I_D = 49A @ 25^\circ C$		450		nC
Q_{gs}	Gate-Source Charge			50		
Q_{gd}	Gate-Drain ("Miller") Charge			200		
$t_{d(on)}$	Turn-on Delay Time	$V_{GS} = 15V$ $V_{DD} = 300V$ $I_D = 49A @ 25^\circ C$ $R_G = 0.6\Omega$		17		ns
t_r	Rise Time			16		
$t_{d(off)}$	Turn-off Delay Time			65		
t_f	Fall Time			6		

SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS

Symbol	Characteristic / Test Conditions	MIN	TYP	MAX	UNIT
I_S	Continuous Source Current (Body Diode)			49	Amps
I_{SM}	Pulsed Source Current ① (Body Diode)			196	
V_{SD}	Diode Forward Voltage ② ($V_{GS} = 0V$, $I_S = -49A$)			1.3	Volts
t_{rr}	Reverse Recovery Time ($I_S = -49A$, $dI_S/dt = 100A/\mu s$)		760		ns
Q_{rr}	Reverse Recovery Charge ($I_S = -49A$, $dI_S/dt = 100A/\mu s$)		18.4		μC
dv/dt	Peak Diode Recovery dv/dt ⑤			8	V/ns

THERMAL CHARACTERISTICS

Symbol	Characteristic	MIN	TYP	MAX	UNIT
$R_{\theta JC}$	Junction to Case			0.20	$^\circ C/W$
$R_{\theta JA}$	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

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

④ Starting $T_J = +25^\circ C$, $L = 2.50mH$, $R_G = 25\Omega$, Peak $I_L = 49A$

⑤ dv/dt numbers reflect the limitations of the test circuit rather than the device itself. $I_S \leq -I_D 49A$ $dI/dt \leq 700A/\mu s$ $V_R \leq 600V$ $T_J \leq 150^\circ C$

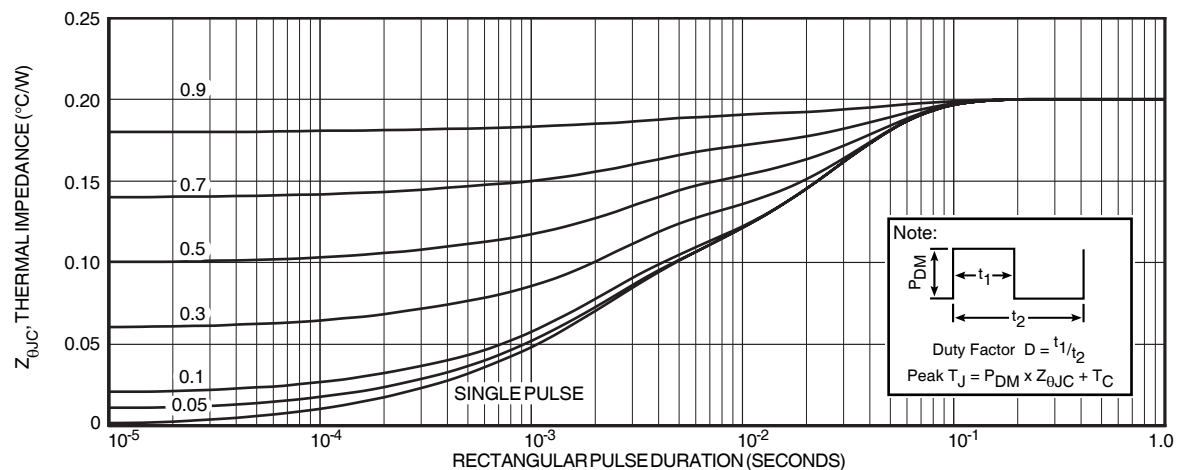


FIGURE 1, MAXIMUM EFFECTIVE TRANSIENT THERMAL IMPEDANCE, JUNCTION-TO-CASE vs PULSE DURATION

Typical Performance Curves

APT6011B2VR_LVR

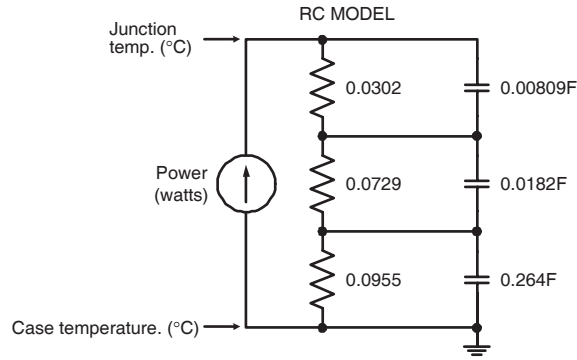


FIGURE 2, TRANSIENT THERMAL IMPEDANCE MODEL

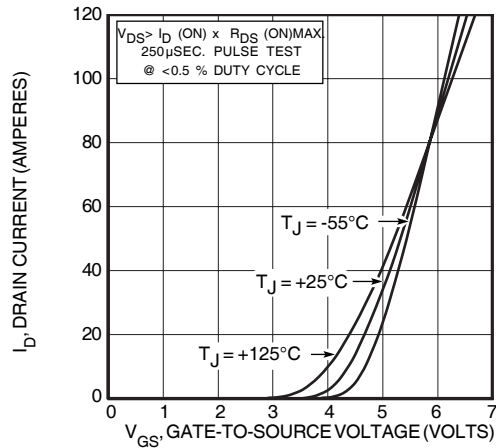


FIGURE 4, TRANSFER CHARACTERISTICS

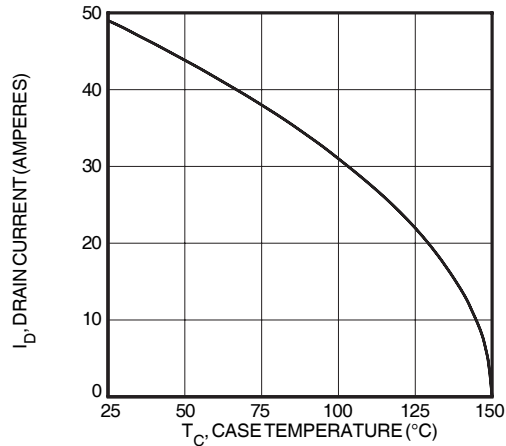


FIGURE 6, MAXIMUM DRAIN CURRENT vs CASE TEMPERATURE

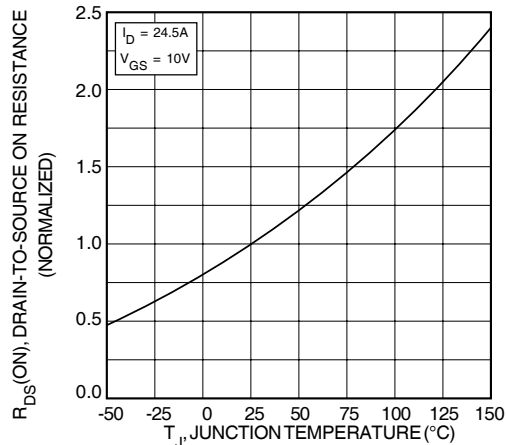


FIGURE 8, ON-RESISTANCE vs. TEMPERATURE

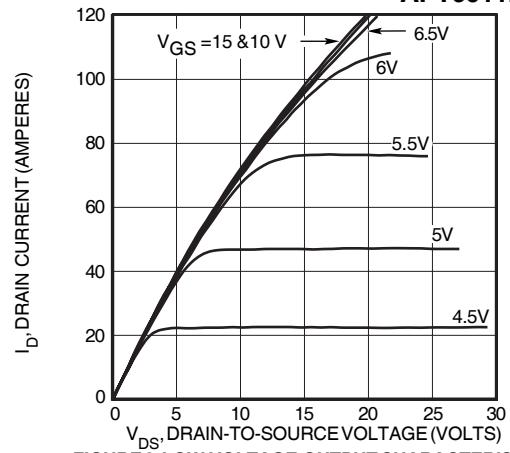


FIGURE 3, LOW VOLTAGE OUTPUT CHARACTERISTICS

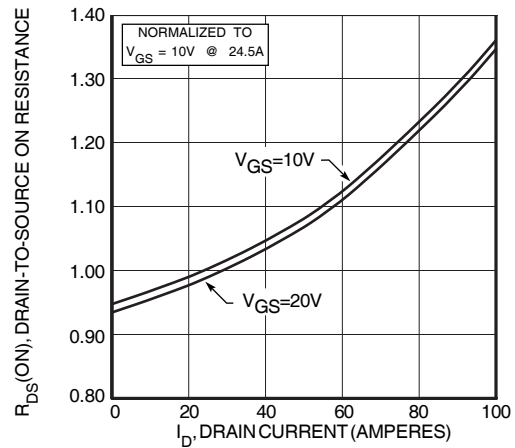


FIGURE 5, $R_{DS}(ON)$ vs DRAIN CURRENT

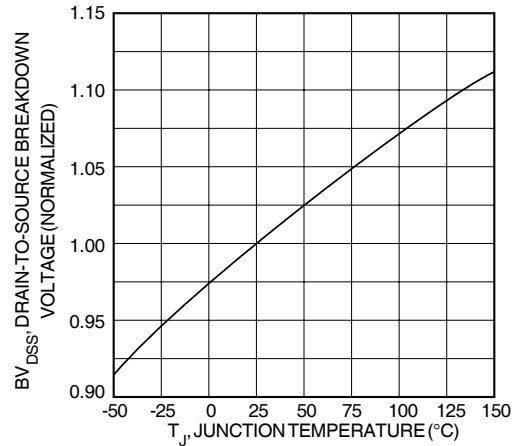


FIGURE 7, BREAKDOWN VOLTAGE vs TEMPERATURE

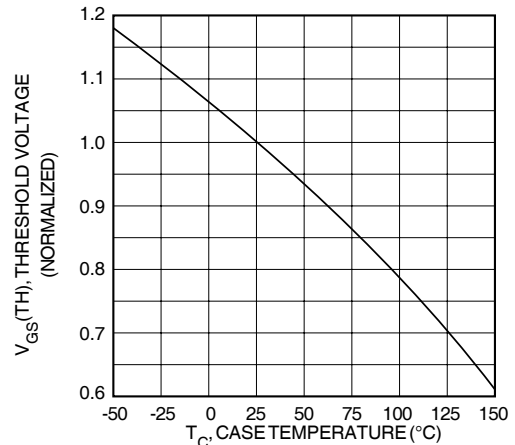


FIGURE 9, THRESHOLD VOLTAGE vs TEMPERATURE

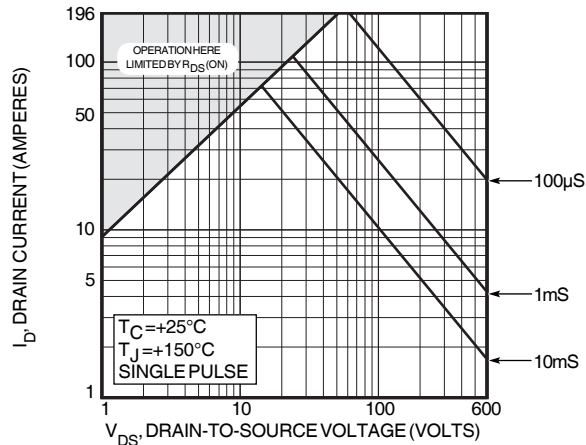


FIGURE 10, MAXIMUM SAFE OPERATING AREA

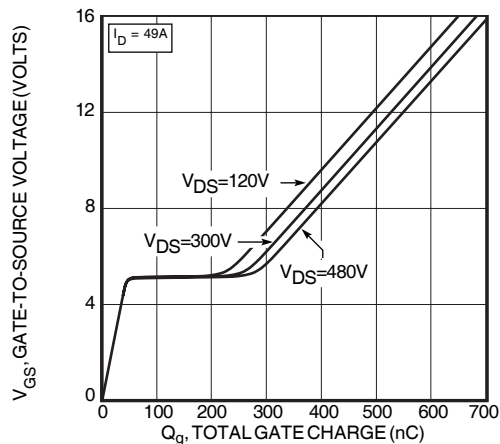


FIGURE 12, GATE CHARGE vs GATE-TO-SOURCE VOLTAGE

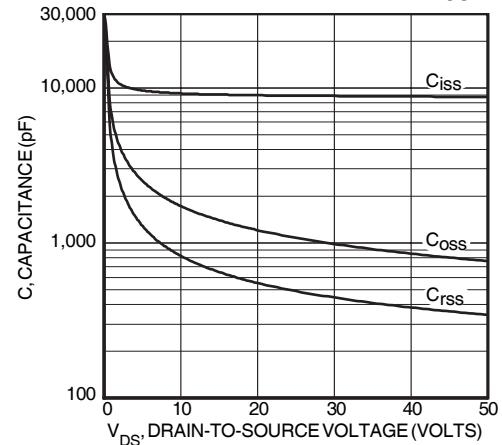


FIGURE 11, CAPACITANCE vs DRAIN-TO-SOURCE VOLTAGE

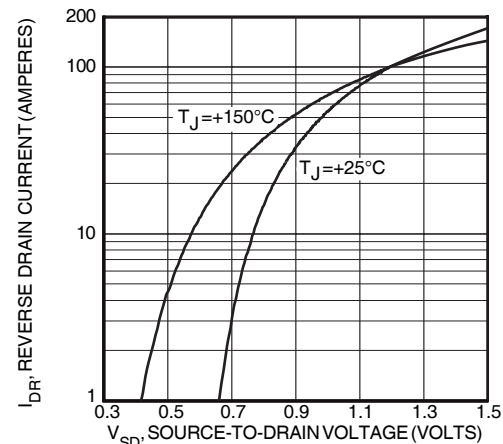
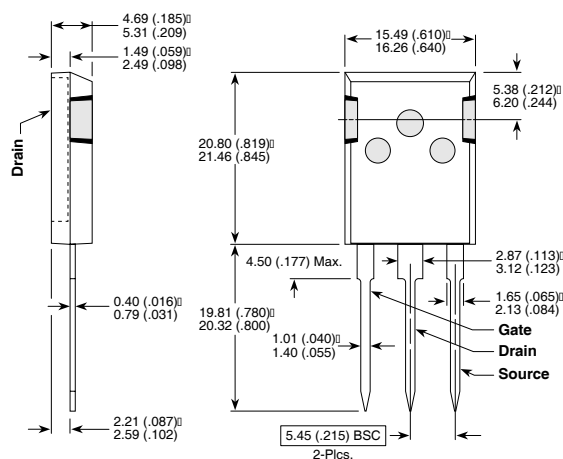


FIGURE 13, SOURCE-DRAIN DIODE FORWARD VOLTAGE

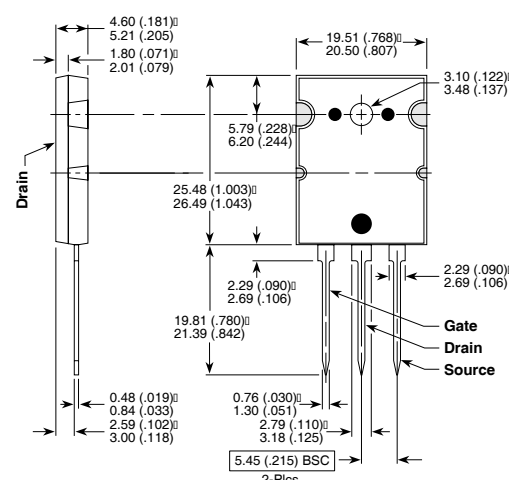
T-MAX™ (B2) Package Outline (B2VR)



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

Dimensions in Millimeters and (Inches)

TO-264 (L) Package Outline (LVR)



Dimensions in Millimeters and (Inches)