

## DYNAMIC CHARACTERISTICS

APT10050LVR

Symbol	Characteristic	Test Conditions	MIN	TYP	MAX	UNIT
$C_{iss}$	Input Capacitance	$V_{GS} = 0V$ $V_{DS} = 25V$ $f = 1 \text{ MHz}$		6600	7900	pF
$C_{oss}$	Output Capacitance			595	830	
$C_{rss}$	Reverse Transfer Capacitance			290	430	
$Q_g$	Total Gate Charge <sup>③</sup>	$V_{GS} = 10V$ $V_{DD} = 0.5 V_{DSS}$ $I_D = I_{D[Cont.]} @ 25^\circ C$		335	500	nC
$Q_{gs}$	Gate-Source Charge			29	45	
$Q_{gd}$	Gate-Drain ("Miller") Charge			165	250	
$t_{d(on)}$	Turn-on Delay Time	$V_{GS} = 15V$ $V_{DD} = 0.5 V_{DSS}$ $I_D = I_{D[Cont.]} @ 25^\circ C$ $R_G = 0.6\Omega$		16	32	ns
$t_r$	Rise Time			13	26	
$t_{d(off)}$	Turn-off Delay Time			59	90	
$t_f$	Fall Time			8	16	

## SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS

Symbol	Characteristic / Test Conditions	MIN	TYP	MAX	UNIT
$I_S$	Continuous Source Current (Body Diode)			21	Amps
$I_{SM}$	Pulsed Source Current <sup>①</sup> (Body Diode)			84	
$V_{SD}$	Diode Forward Voltage <sup>②</sup> ( $V_{GS} = 0V, I_S = -I_{D[Cont.]}$ )			1.3	Volts
$t_{rr}$	Reverse Recovery Time ( $I_S = -I_{D[Cont.]}, di_S/dt = 100A/\mu s$ )		960		ns
$Q_{rr}$	Reverse Recovery Charge ( $I_S = -I_{D[Cont.]}, di_S/dt = 100A/\mu s$ )		22		$\mu C$

## THERMAL CHARACTERISTICS

Symbol	Characteristic	MIN	TYP	MAX	UNIT
$R_{\theta JC}$	Junction to Case			0.24	$^\circ C/W$
$R_{\theta JA}$	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  $\mu s$ , Duty Cycle < 2%

④ Starting  $T_j = +25^\circ C$ ,  $L = 11.34mH$ ,  $R_G = 25\Omega$ , Peak  $I_L = 21A$

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

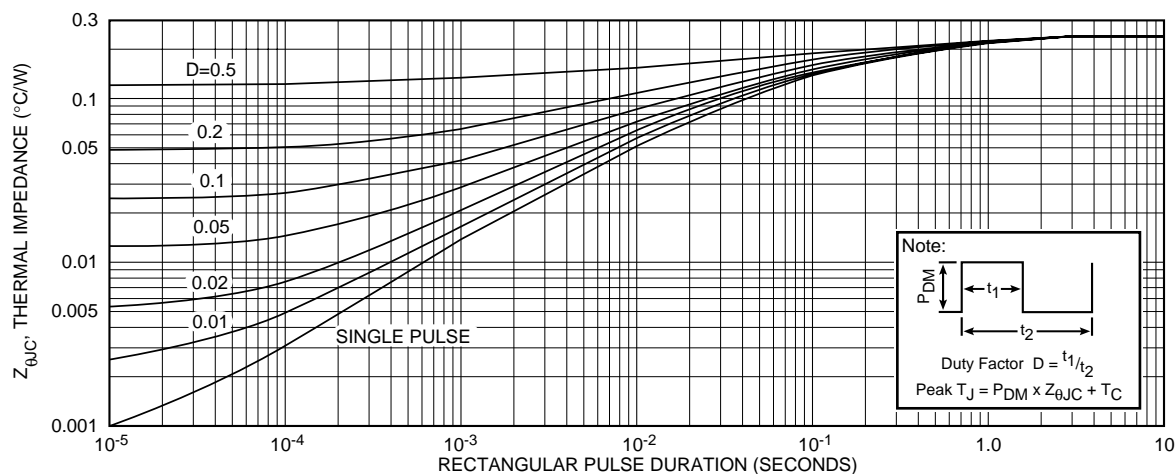
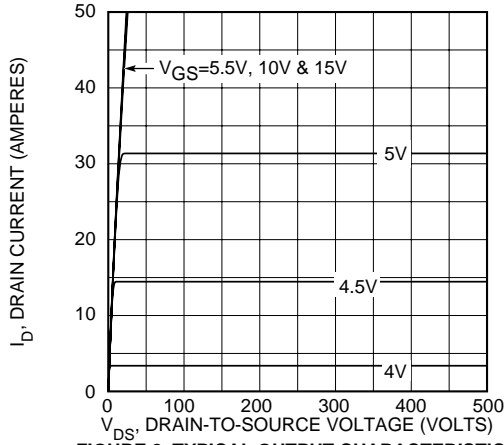
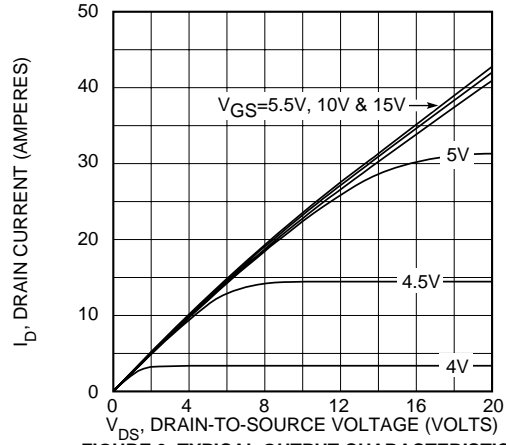


FIGURE 1, MAXIMUM EFFECTIVE TRANSIENT THERMAL IMPEDANCE, JUNCTION-TO-CASE vs PULSE DURATION

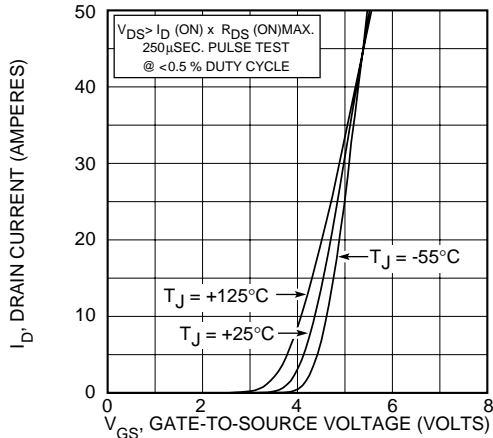
**APT10050LVR**



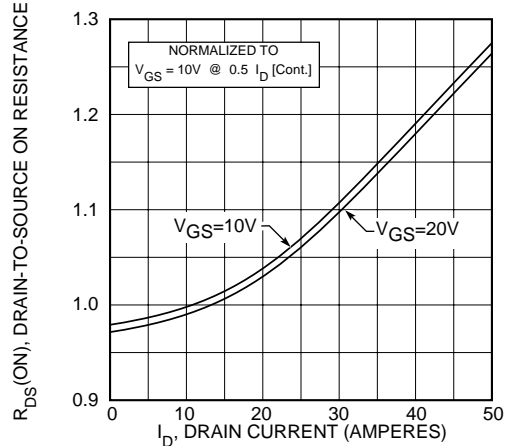
**FIGURE 2, TYPICAL OUTPUT CHARACTERISTICS**



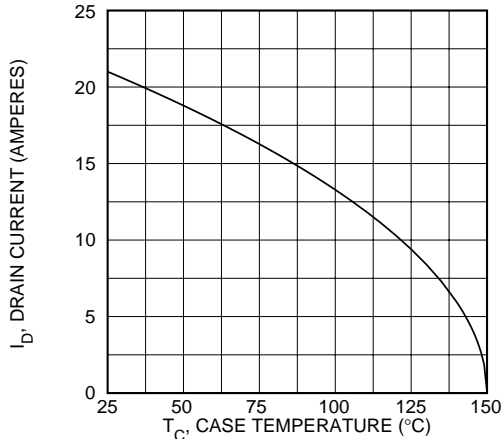
**FIGURE 3, TYPICAL OUTPUT CHARACTERISTICS**



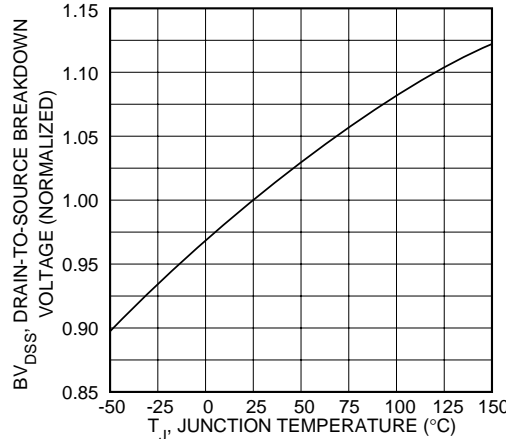
**FIGURE 4, TYPICAL TRANSFER CHARACTERISTICS**



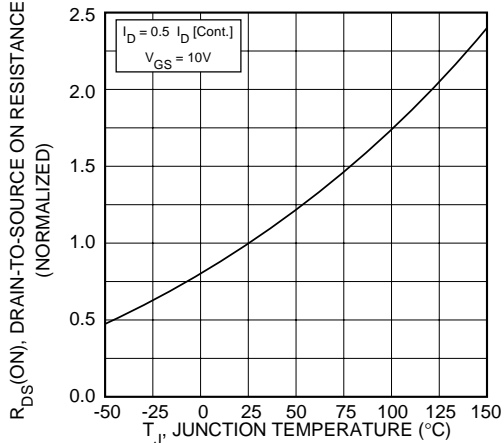
**FIGURE 5,  $R_{DS(ON)}$  vs DRAIN CURRENT**



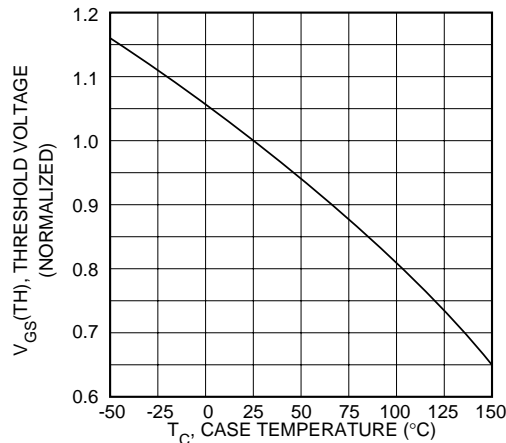
**FIGURE 6, MAXIMUM DRAIN CURRENT vs CASE TEMPERATURE**



**FIGURE 7, BREAKDOWN VOLTAGE vs TEMPERATURE**



**FIGURE 8, ON-RESISTANCE vs. TEMPERATURE**



**FIGURE 9, THRESHOLD VOLTAGE vs TEMPERATURE**

# APT10050LVR

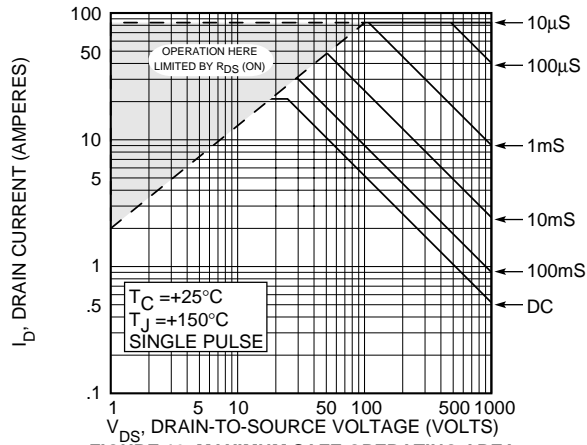


FIGURE 10, MAXIMUM SAFE OPERATING AREA

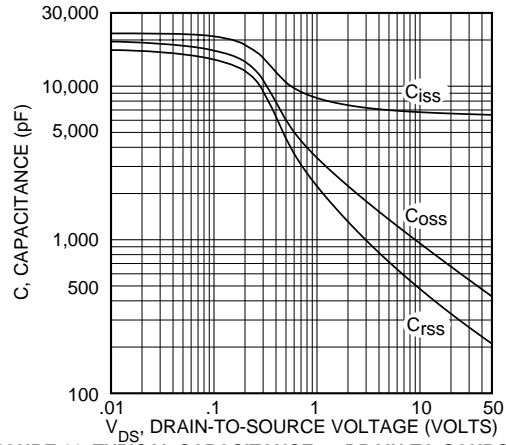


FIGURE 11, TYPICAL CAPACITANCE vs DRAIN-TO-SOURCE VOLTAGE

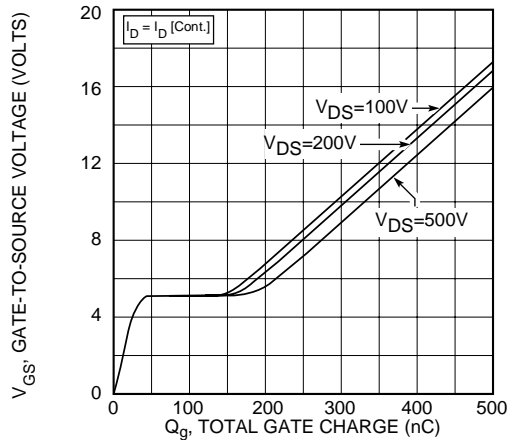


FIGURE 12, GATE CHARGES vs GATE-TO-SOURCE VOLTAGE

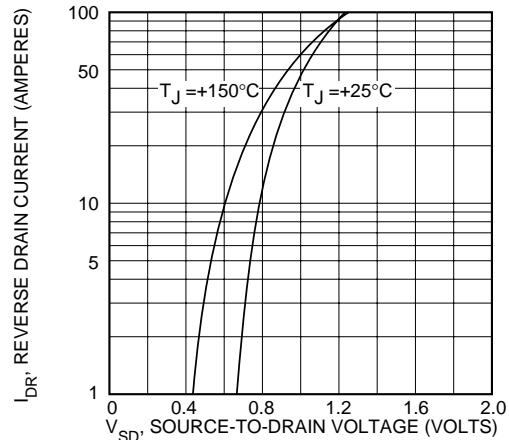
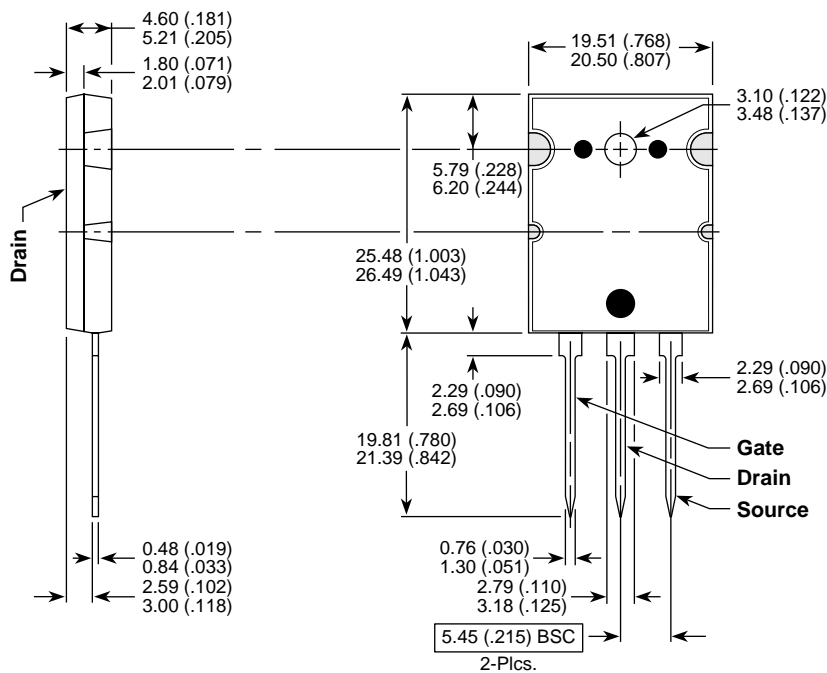


FIGURE 13, TYPICAL SOURCE-DRAIN DIODE FORWARD VOLTAGE

## TO-264 Package Outline



Dimensions in Millimeters and (Inches)

# Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[Microchip:](#)

[APT10050LVRG](#) [APT10050LVFRG](#)