

AP4953A

P-Channel Power MOSFET

描述 / Descriptions

SOP-8 塑封封装双 P 沟道 MOS 场效应管。Dual P-Channel MOSFET in a SOP-8 Plastic Package.

特征 / Features

超高密度设计，导通电阻小，可靠性好。

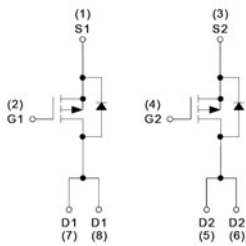
Super high dense cell design for low $R_{DS(ON)}$, Rugged and reliable.

用途 / Applications

用于电源管理，便携式设备和电池供电系统。

Power Management in Notebook computer, Portable Equipment and Battery powered systems.

内部等效电路 / Equivalent Circuit



引脚排列 / Pinning



PIN 1 : S1 PIN 2 : G1 PIN 3 : S2 PIN 4 : G2

PIN 5 : D2 PIN 6 : D2 PIN 7 : D1 PIN 8 : D1

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极限参数 / Absolute Maximum Ratings(Ta=25°C)

参数 Parameter	符号 Symbol	数值 Rating	单位 Unit
Drain-Source Voltage	V_{DSS}	-20	V
Gate-Source Voltage	V_{GSS}	±12	V
Continuous Drain Current	I_D^*	-3.0	A
Pulsed Drain Current	I_{DM}^*	-12	A
Diode Continuous Forward Current	I_S^*	-2.0	A
Power Dissipation for Single Operation	$P_D^*(Ta=25^\circ C)$	2	W
Power Dissipation for Single Operation	$P_D^*(Ta=100^\circ C)$	0.8	W
Maximum Junction Temperature	T_j	150	°C
Storage Temperature Range	T_{stg}	-55 ~ 150	°C
Thermal Resistance-Junction to Ambient	$R_{\theta JA}^*$	62.5	°C/W

Note:

* Surface Mounted on 1in2 pad area, t ≤ 10sec.

电性能参数 / Electrical Characteristics(Ta=25°C)

参数 Parameter	符号 Symbol	测试条件 Test Conditions	最小值 Min	典型值 Typ	最大值 Max	单位 Unit
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V$ $I_{DS}=-250\mu A$	-20			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-16V$ $V_{GS}=0V$			-1	μA
		$V_{DS}=-16V$ $V_{GS}=0V$ $T_j=85^\circ C$			-10	
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_{DS}=-250\mu A$	-0.50	-0.7	-1.0	V
Gate Leakage Current	I_{GSS}	$V_{GS}=\pm 12V$ $V_{DS}=0V$			±100	nA
Drain-Source On-state Resistance	$R_{DS(ON)}^a$	$V_{GS}=-10V$ $I_{DS}=-2.7A$		75	97	mΩ
		$V_{GS}=-4.5V$ $I_{DS}=-2.7A$		82	100	
		$V_{GS}=-2.5V$ $I_{DS}=-2.2A$		115	135	
Diode Forward Voltage	V_{SD}^a	$V_{GS}=0V$ $I_{SD}=-1.0A$		-0.7	-1.3	V
Total Gate Charge	Q_g^b	$V_{DS}=-6V$ $I_{DS}=-2.7A$ $V_{GS}=-4.5V$		3.2	6	nC
Gate-Source Charge	Q_{gs}^b			0.65		nC
Gate-Drain Charge	Q_{gd}^b			1.0		nC

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电性能参数 / Electrical Characteristics(Ta=25°C)

参数 Parameter	符号 Symbol	测试条件 Test Conditions	最小值 Min	典型值 Typ	最大值 Max	单位 Unit
Gate Resistance	R_G^b	$V_{GS}=0V$ $V_{DS}=0V$ $F=1MHz$		6		Ω
Input Capacitance	C_{iss}^b	$V_{GS}=0V$ $V_{DS}=-6V$ Frequency=1.0MHz		325		pF
Output Capacitance	C_{oss}^b			63		
Reverse Transfer Capacitance	C_{rss}^b			37		
Turn-on Delay Time	$t_{d(ON)}^b$	$V_{DD}=-6V$ $R_L=6\Omega$ $I_{DS}=-1A$ $V_{GEN}=-10V$ $R_G=6\Omega$		11	22	ns
Turn-on Rise Time	T_r^b			5.5	11	
Turn-off Delay Time	$T_{d(OFF)}^b$			22	40	
Turn-off Fall Time	T_f^b			10	20	

Notes:

 a : Pulse test ; pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.

b : Guaranteed by design, not subject to production testing.

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Typical Electrical and Thermal Characteristics

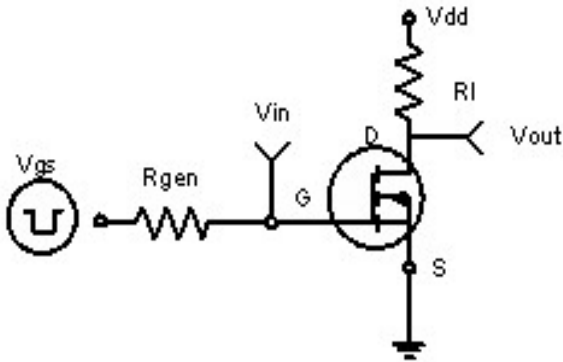


Figure 1: Switching Test Circuit

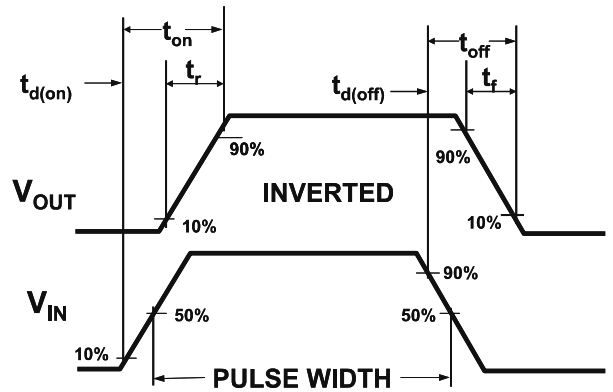


Figure 2: Switching Waveforms

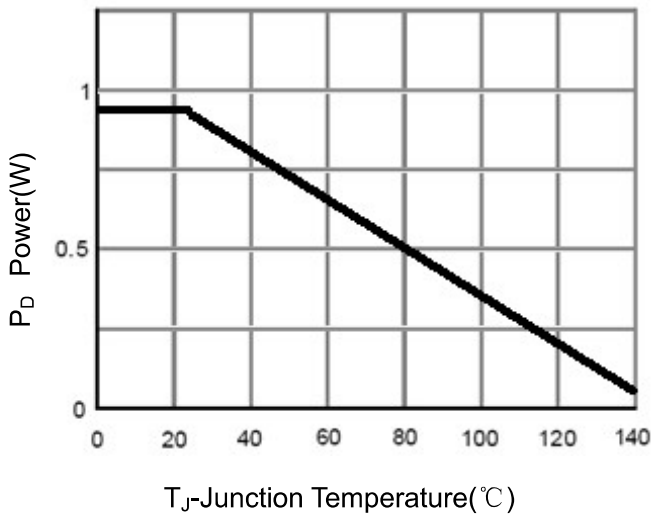


Figure 3 Power Dissipation

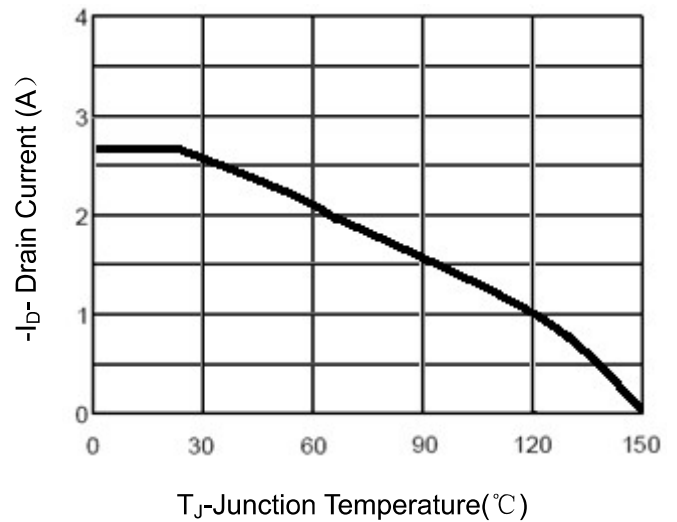


Figure 4 Drain Current

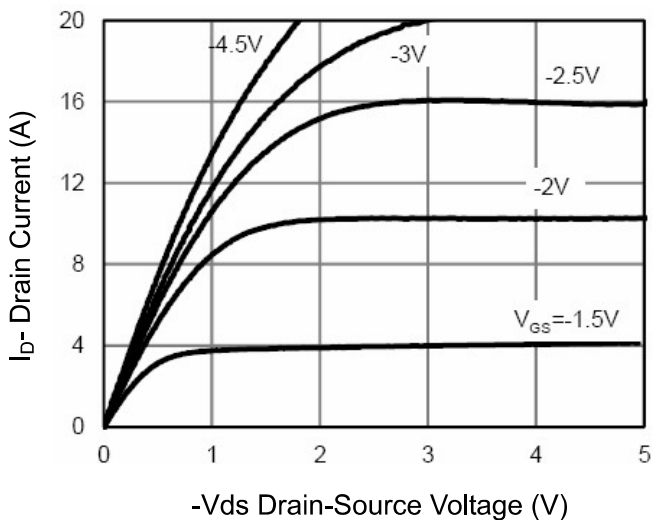


Figure 5 Output Characteristics

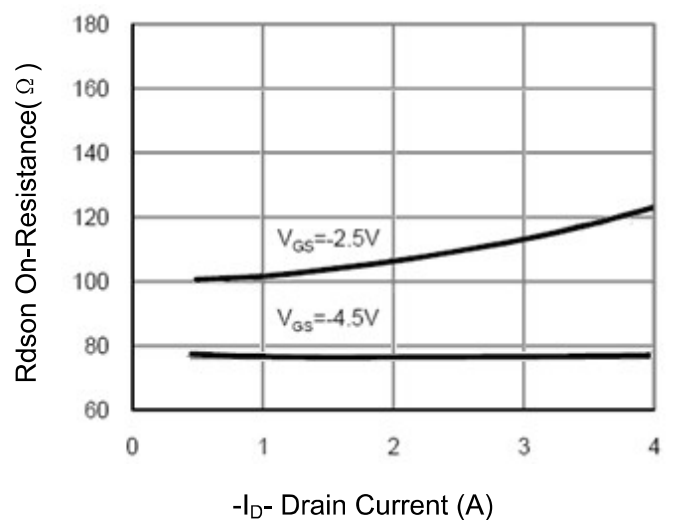


Figure 6 Drain-Source On-Resistance

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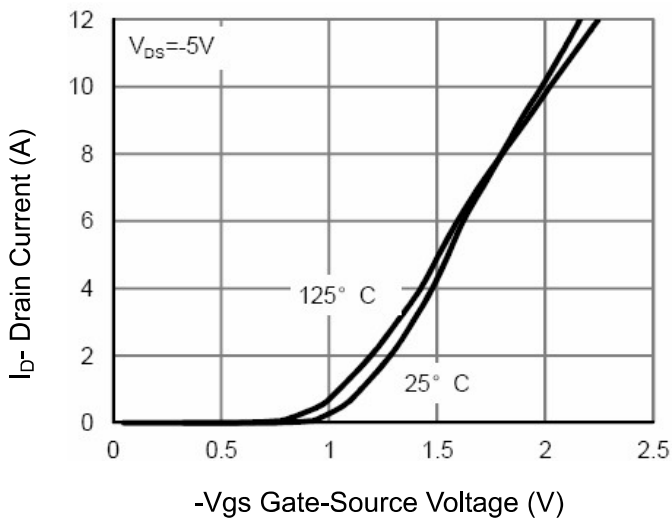


Figure 7 Transfer Characteristics

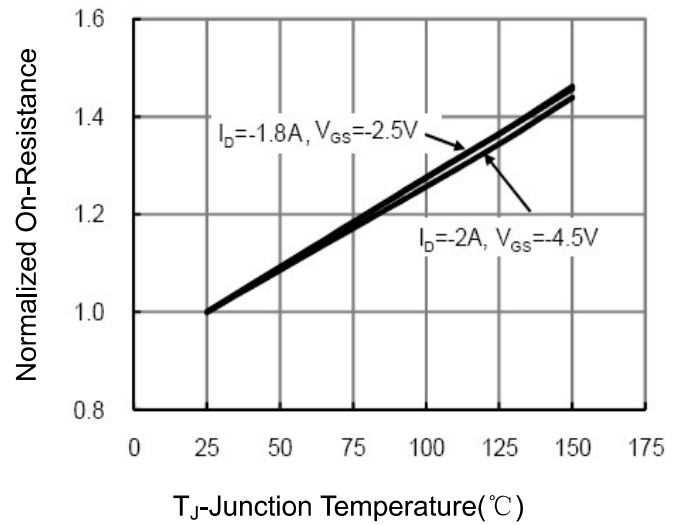


Figure 8 Drain-Source On-Resistance

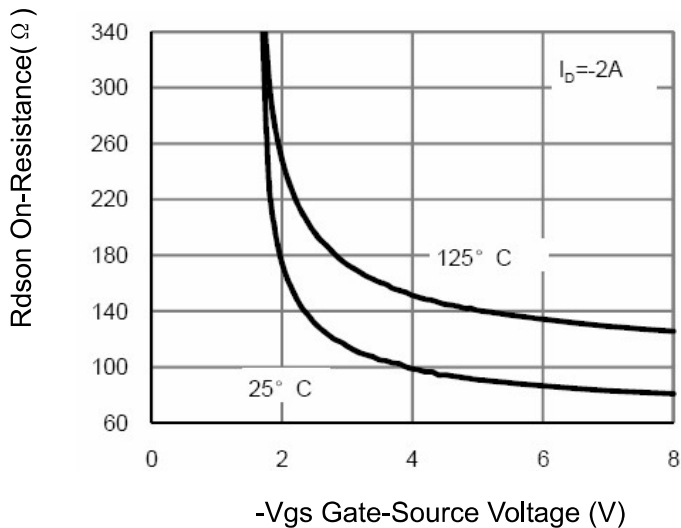


Figure 9 Rdson vs Vgs

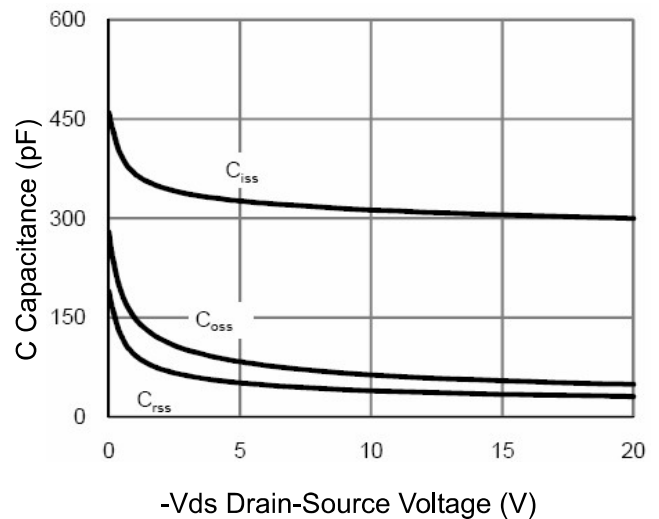


Figure 10 Capacitance vs Vds

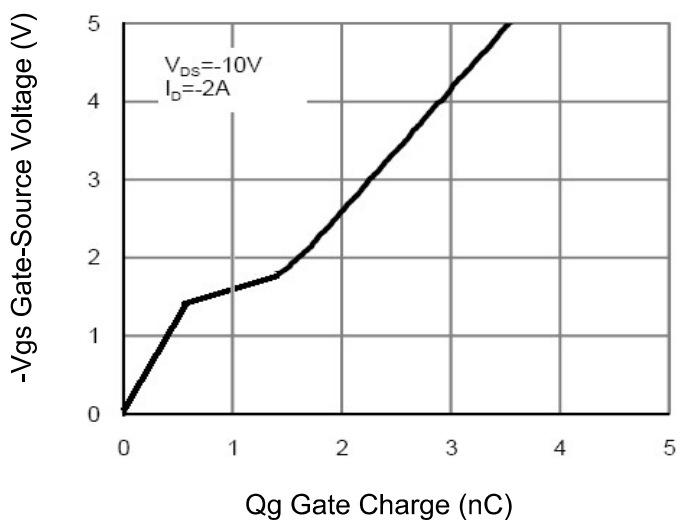


Figure 11 Gate Charge

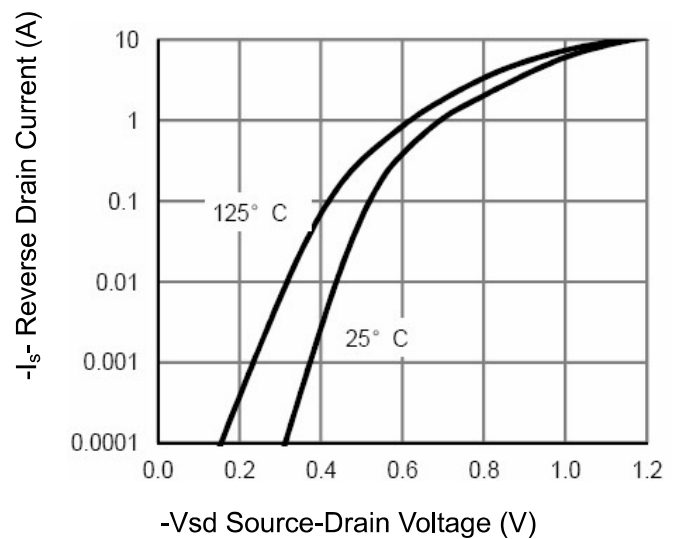


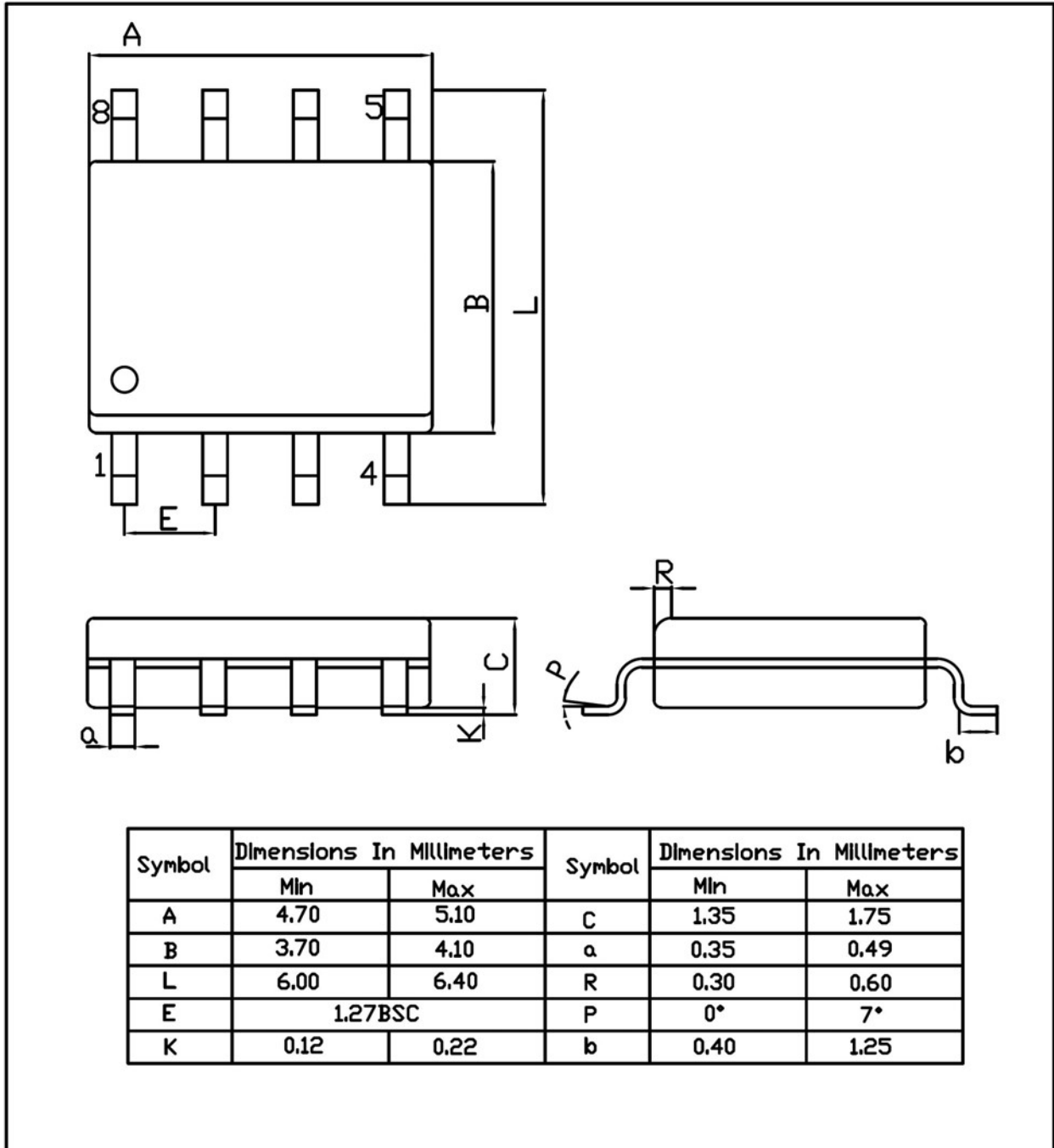
Figure 12 Source- Drain Diode Forward

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外形尺寸图 / Package Dimensions

SOP-8

Unit:mm



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