

SOP-8 Dual P Enhancement 双 P 沟道增强型 MOS Field Effect Transistor 场效应管

■ Features 特点

Low on-resistance 低导通电阻

$R_{DS(ON)}=36m\Omega(\text{Type})@V_{GS}=-10V$

$R_{DS(ON)}=50m\Omega(\text{Type})@V_{GS}=-4.5V$

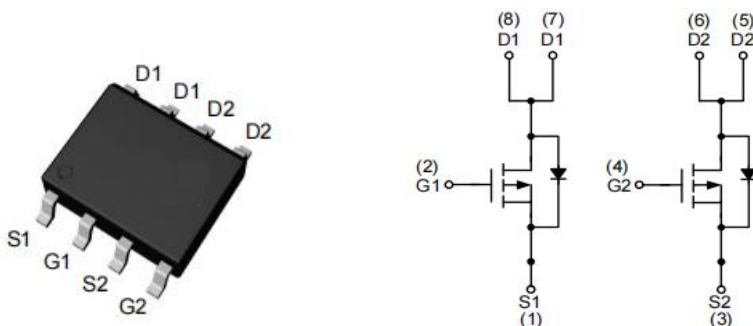
■ Applications 应用

Power Management in Notebook Computer 笔记本电脑电源管理

Battery Powered Systems 电池电源系统

Portable Equipment 桌面设备

■ Internal Schematic Diagram 内部结构



■ Absolute Maximum Ratings 最大额定值

Characteristic 特性参数	Symbol 符号	Rat 额定值	Unit 单位
Drain-Source Voltage 漏极-源极电压	BV_{DSS}	-30	V
Gate- Source Voltage 栅极-源极电压	V_{GS}	± 20	V
Drain Current (continuous)漏极电流-连续	I_D (at $T_A = 25^\circ\text{C}$)	-4.9	A
Drain Current (pulsed)漏极电流-脉冲	I_{DM}	-20	A
Total Device Dissipation 总耗散功率	P_{TOT} (at $T_A = 25^\circ\text{C}$ at $T_A = 100^\circ\text{C}$)	1.2 0.8	W
Thermal Resistance Junction-Ambient 热阻	$R_{\theta JA}$	105	$^\circ\text{C}/\text{W}$
Avalanche Energy Single Pulse 雪崩能量	E_{AS}	15	mJ
Junction/Storage Temperature 结温/储存温度	T_J, T_{stg}	-55~150	$^\circ\text{C}$

■ Electrical Characteristics 电特性

($T_A=25^{\circ}\text{C}$ unless otherwise noted 如无特殊说明, 温度为 25°C)

Characteristic 特性参数	Symbol 符号	Min 最小值	Typ 典型值	Max 最大值	Unit 单位
Drain-Source Breakdown Voltage 漏极-源极击穿电压($I_D = -250\mu\text{A}, V_{GS}=0\text{V}$)	BV_{DSS}	-30	—	—	V
Gate Threshold Voltage 栅极开启电压($I_D = -250\mu\text{A}, V_{GS} = V_{DS}$)	$V_{GS(th)}$	-1	-1.5	-2.3	V
Zero Gate Voltage Drain Current 零栅压漏极电流($V_{GS}=0\text{V}, V_{DS} = -24\text{V}$)	I_{DSS}	—	—	-1	μA
Gate Body Leakage 栅极漏电流($V_{GS}=\pm 20\text{V}, V_{DS}=0\text{V}$)	I_{GSS}	—	—	± 100	nA
Static Drain-Source On-State Resistance 静态漏源导通电阻($I_D = -4.9\text{A}, V_{GS} = -10\text{V}$) ($I_D = -3\text{A}, V_{GS} = -4.5\text{V}$)	$R_{DS(ON)}$	—	36 50	45 65	$\text{m}\Omega$
Diode Forward Voltage Drop 内附二极管正向压降($I_{SD} = -1.7\text{A}, V_{GS}=0\text{V}$)	V_{SD}	—	-0.8	-1.3	V
Input Capacitance 输入电容 ($V_{GS}=0\text{V}, V_{DS} = -15\text{V}, f=1\text{MHz}$)	C_{ISS}	—	625	—	pF
Common Source Output Capacitance 共源输出电容($V_{GS}=0\text{V}, V_{DS} = -15\text{V}, f=1\text{MHz}$)	C_{OSS}	—	100	—	pF
Reverse Transfer Capacitance 反馈电容($V_{GS}=0\text{V}, V_{DS} = -15\text{V}, f=1\text{MHz}$)	C_{RSS}	—	60	—	pF
Total Gate Charge 栅极电荷密度 ($V_{DS} = -15\text{V}, I_D = -4.9\text{A}, V_{GS} = -10\text{V}$)	Q_g	—	12	—	nC
Gate Source Charge 栅源电荷密度 ($V_{DS} = -15\text{V}, I_D = -4.9\text{A}, V_{GS} = -4.5\text{V}$)	Q_{gs}	—	1.3	—	nC
Gate Drain Charge 栅漏电荷密度 ($V_{DS} = -15\text{V}, I_D = -4.9\text{A}, V_{GS} = -4.5\text{V}$)	Q_{gd}	—	2.5	—	nC
Turn-ON Delay Time 开启延迟时间 ($V_{DS} = -15\text{V}, I_D = -1\text{A}, R_{GEN}=6\Omega, V_{GS} = -10\text{V}$)	$t_{d(on)}$	—	6	—	ns
Turn-ON Rise Time 开启上升时间 ($V_{DS} = -15\text{V}, I_D = -1\text{A}, R_{GEN}=6\Omega, V_{GS} = -10\text{V}$)	t_r	—	12	—	ns
Turn-OFF Delay Time 关断延迟时间 ($V_{DS} = -15\text{V}, I_D = -1\text{A}, R_{GEN}=6\Omega, V_{GS} = -10\text{V}$)	$t_{d(off)}$	—	25	—	ns
Turn-OFF Fall Time 关断下降时间 ($V_{DS} = -15\text{V}, I_D = -1\text{A}, R_{GEN}=6\Omega, V_{GS} = -10\text{V}$)	t_f	—	6	—	ns

■ Typical Characteristic Curve 典型特性曲线

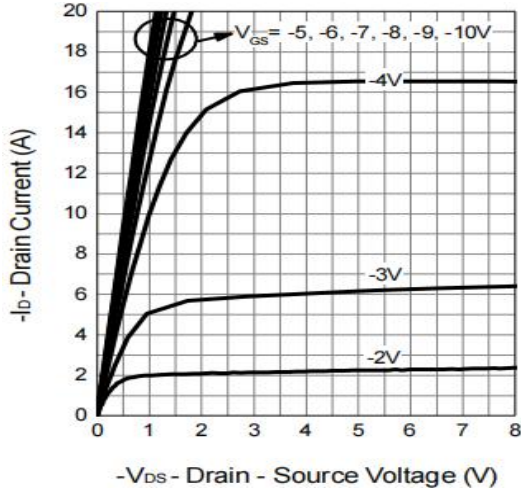


Figure 1: Output Characteristics

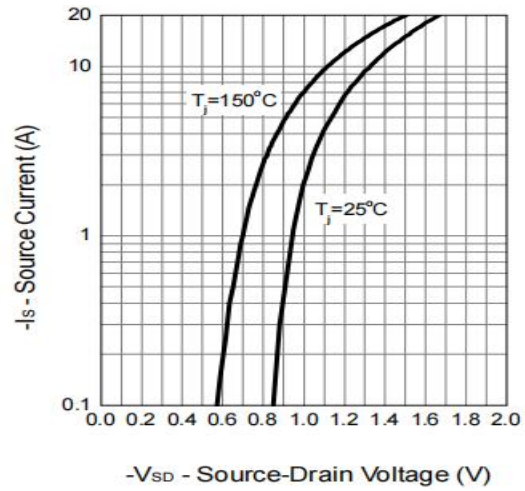


Figure 2: Diode Forward Characteristics

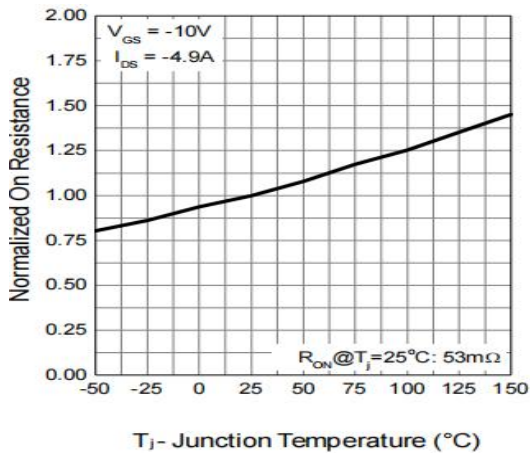


Figure 3: On-Resistance vs. T_J

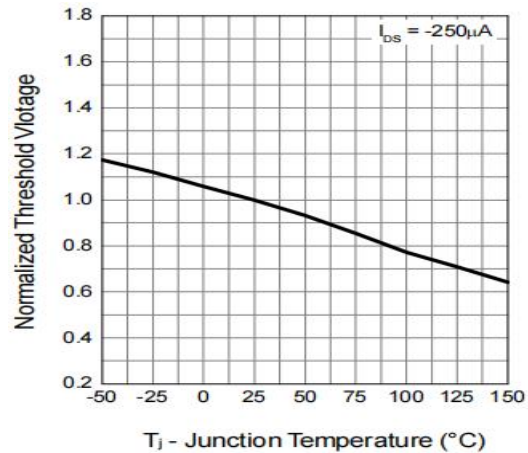


Figure 4: Gate Threshold Voltage

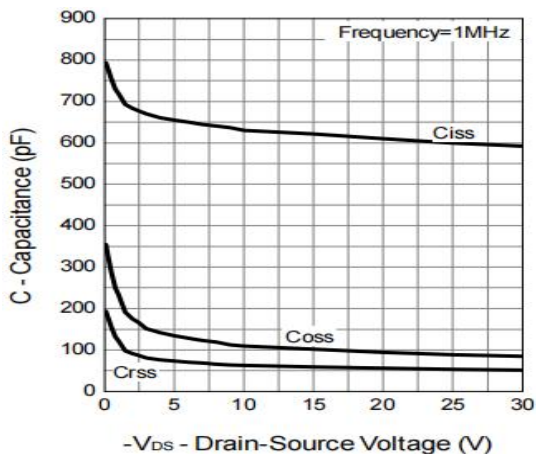


Figure 5: Capacitance Characteristics

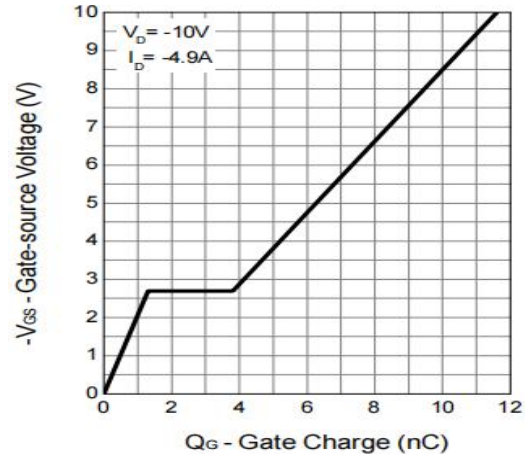


Figure 6: Gate-Charge Characteristics

■ P Typical Characteristic Curve 典型特性曲线

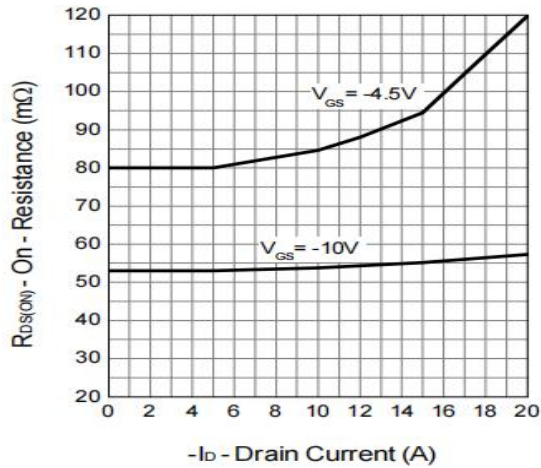


Figure 7: On-Resistance vs. Drain Current

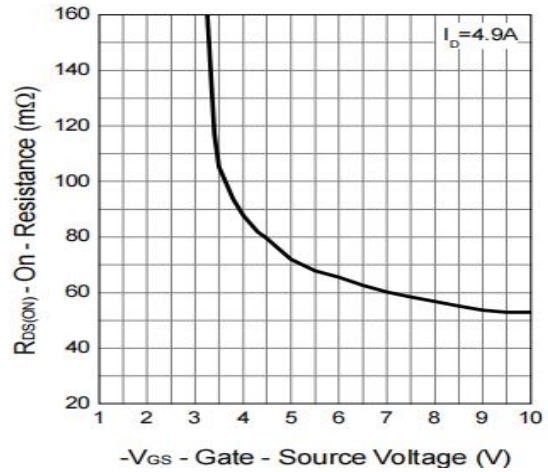


Figure 8: On-Resistance vs. V_{GS}

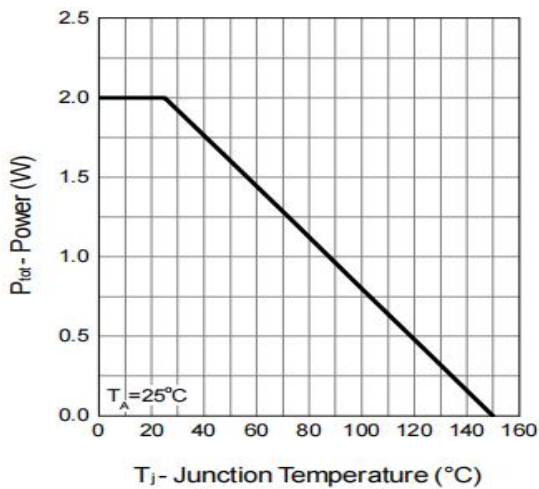


Figure 9: Power Rating Curve

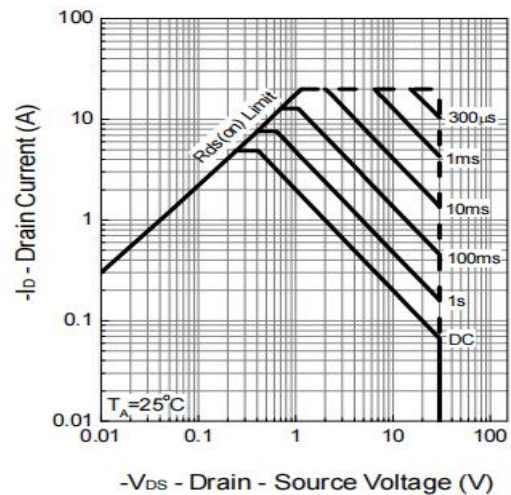


Figure 10: Safe Operating Area

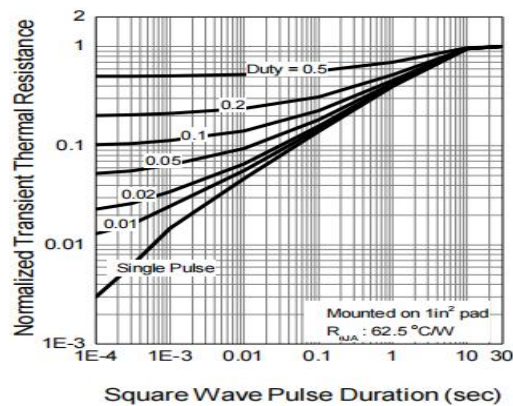
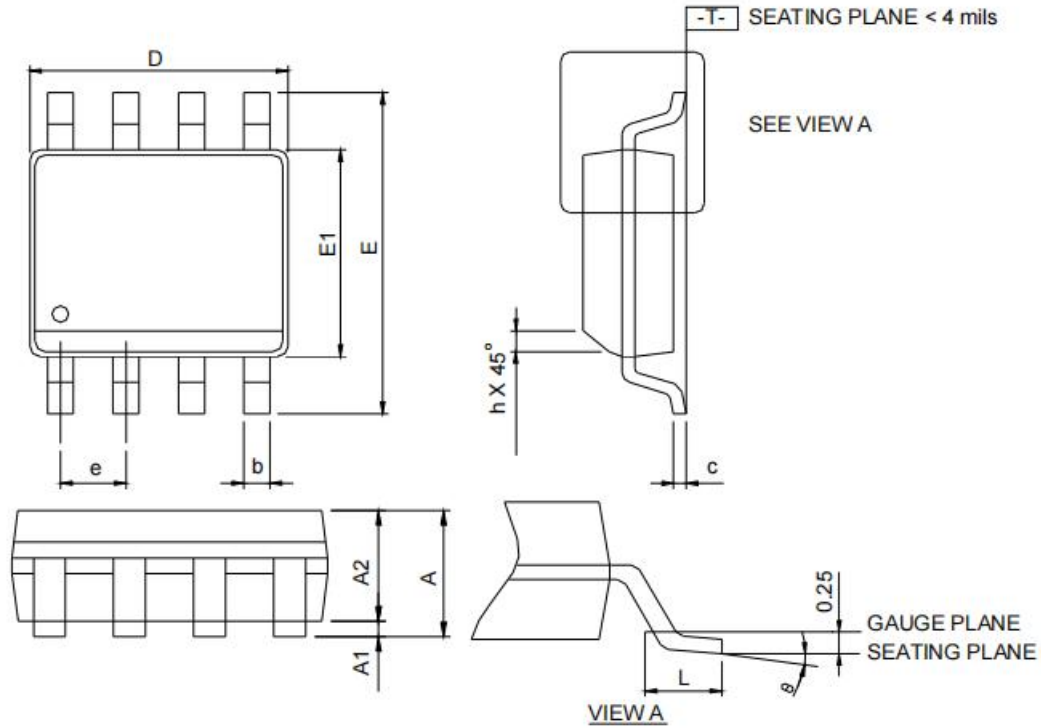


Figure 11: Transient Thermal Response Curve

■ Dimension 外形封装尺寸



Symbol	SOP-8			
	MILLIMETERS		INCHES	
	MIN.	MAX.	MIN.	MAX.
A	-	1.75	-	0.069
A1	0.10	0.25	0.004	0.010
A2	1.25	-	0.049	-
b	0.31	0.51	0.012	0.020
c	0.17	0.25	0.007	0.010
D	4.80	5.00	0.189	0.197
E	5.80	6.20	0.228	0.244
E1	3.80	4.00	0.150	0.157
e	1.27 BSC		0.050 BSC	
h	0.25	0.50	0.010	0.020
L	0.40	1.27	0.016	0.050
θ	0°	8°	0°	8°