TSSOP-8 20V Dual N Channel Enhancement with ESD 双 N 沟道增强型带静电保护 MOS Field Effect Transistor 场效应管

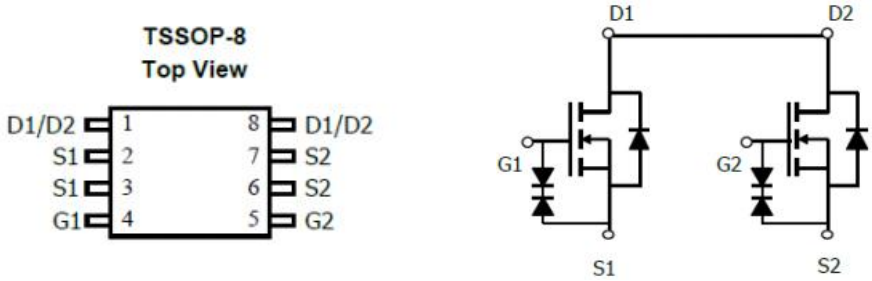
■Features 特点

Low on-resistance 低导通电阻
$R_{DS(ON)}$=12.5mΩ(Type)@V_{GS}=4.5V
$R_{DS(ON)}$=16mΩ(Type)@V_{GS}=2.5V
$R_{DS(ON)}$=22mΩ(Type)@V_{GS}=1.8V

■Applications 应用

Portable Equipment 桌面设备
Battery Powered System 电池电源系统
Power Management in Note Book 笔记本电源管理

■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}	20	V
Gate- Source Voltage 栅极-源极电压	V_{GS}	±10	V
Drain Current (continuous)漏极电流-连续	I_D（at T_A = 25°C）	7	A
Drain Current (pulsed)漏极电流-脉冲	I_{DM}	30	A
Total Device Dissipation 总耗散功率	P_D(at T_A = 25°C)	1500	mW
Thermal Resistance Junction-Ambient 热阻	$R_{\Theta JA}$	83	℃/W
Junction/Storage Temperature 结温/储存温度	T_J,T_{stg}	-55~150	℃

■Electrical Characteristics 电特性

(T_A=25℃ unless otherwise noted 如无特殊说明，温度为 25℃)

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 =250uA,V_{GS}=0V)	BV_{DSS}	20	—	—	V
Gate Threshold Voltage 栅极开启电压(I_D =250uA,V_{GS}= V_{DS})	$V_{GS(th)}$	0.4	0.75	1.0	V
Zero Gate Voltage Drain Current 零栅压漏极电流(V_{GS}=0V, V_{DS}= 20V)	I_{DSS}	—	—	1	μA
Gate Body Leakage 栅极漏电流(V_{GS}=±8V, V_{DS}=0V)	I_{GSS}	—	—	±10	μA
Static Drain-Source On-State Resistance 静态漏源导通电阻(I_D=7A,V_{GS}=4.5V) (I_D=6.5A,V_{GS}=2.5V) (I_D=5A,V_{GS}=1.8V)	$R_{DS(ON)}$	—	12.5 16 22	19 22 30	mΩ
Diode Forward Voltage Drop 内附二极管正向压降(I_{SD}=1A,V_{GS}=0V)	V_{SD}	—	0.7	1.3	V
Input Capacitance 输入电容 (V_{GS}=0V, V_{DS}=10V,f=1MHz)	C_{ISS}	—	1300	—	pF
Common Source Output Capacitance 共源输出电容(V_{GS}=0V, V_{DS}=10V,f=1MHz)	C_{OSS}	—	195	—	pF
Reverse Transfer Capacitance 反馈电容 (V_{GS}=0V, V_{DS}=10V,f=1MHz)	C_{RSS}	—	155	—	pF
Total Gate Charge 栅极电荷密度 (V_{DS}=10V, I_D=7A, V_{GS}=4.5V)	Q_g	—	16	—	nC
Gate Source Charge 栅源电荷密度 (V_{DS}=10V, I_D=7A, V_{GS}=4.5V)	Q_{gs}	—	2	—	nC
Gate Drain Charge 栅漏电荷密度 (V_{DS}=10V, I_D=7A, V_{GS}=4.5V)	Q_{gd}	—	7	—	nC
Turn-ON Delay Time 开启延迟时间 (V_{DS}=10V I_D=7A, R_{GEN}=3.3Ω,V_{GS}=4.5V)	$t_{d(on)}$	—	7	—	ns
Turn-ON Rise Time 开启上升时间 (V_{DS}=10V I_D=7A, R_{GEN}=3.3Ω,V_{GS}=4.5V)	t_r	—	11	—	ns
Turn-OFF Delay Time 关断延迟时间 (V_{DS}=10V I_D=7A, R_{GEN}=3.3Ω,V_{GS}=4.5V)	$t_{d(off)}$	—	64	—	ns
Turn-OFF Fall Time 关断下降时间 (V_{DS}=10V I_D=7A, R_{GEN}=3.3Ω,V_{GS}=4.5V)	t_f	—	32	—	ns

■Typical Characteristic Curve 典型特性曲线

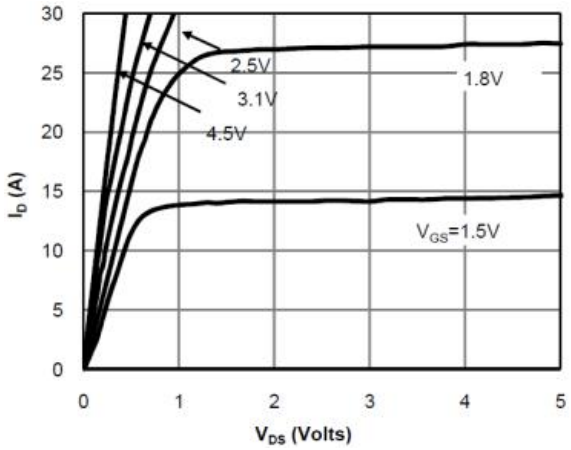


Figure 1: Output Characteristics

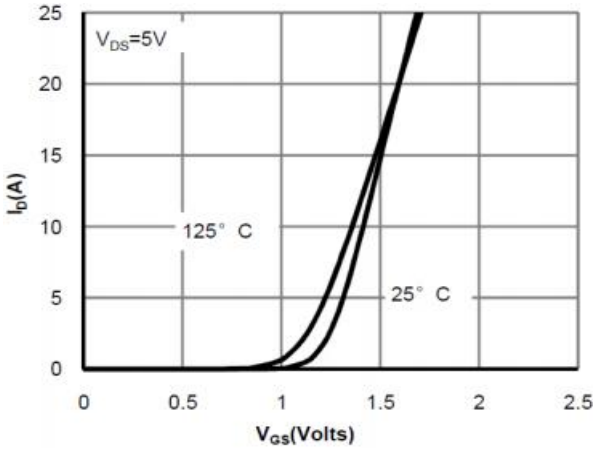


Figure 2: Transfer Characteristics

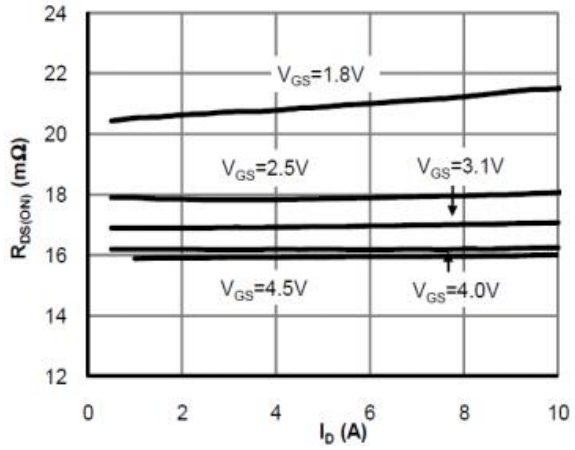


Figure 3: On-Resistance vs. Drain Current

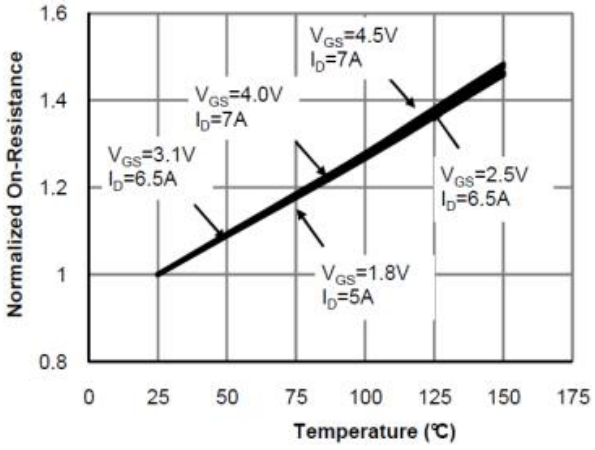


Figure 4: On-Resistance vs. Temperature

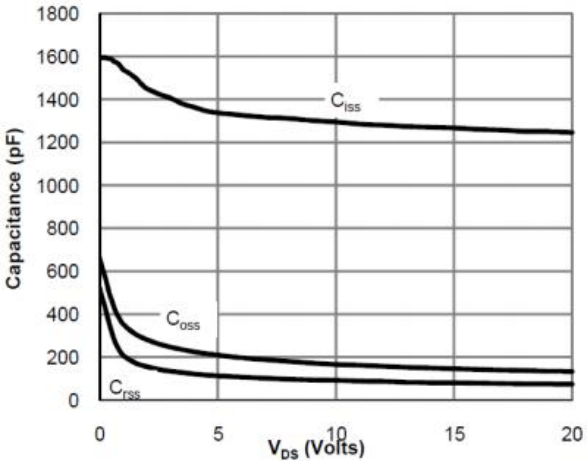


Figure 5: Capacitance Characteristics

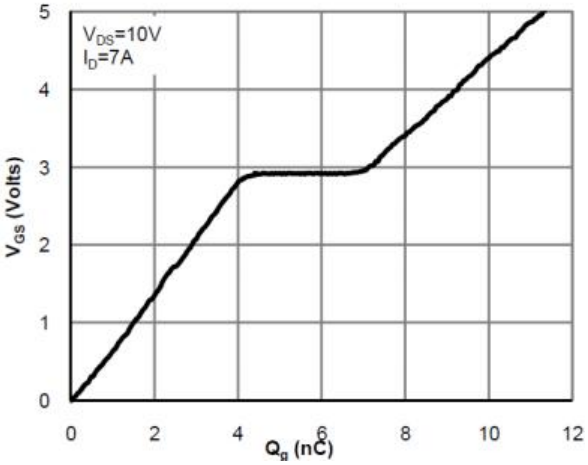


Figure 6: Gate-Charge Characteristics

■Typical Characteristic Curve 典型特性曲线

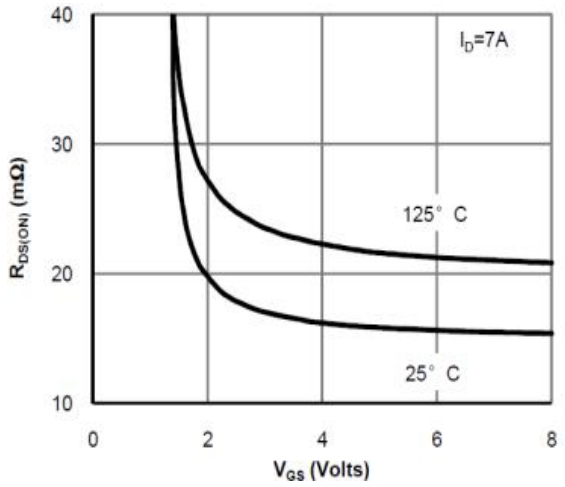


Figure 7: Drain Current vs. V_{GS}

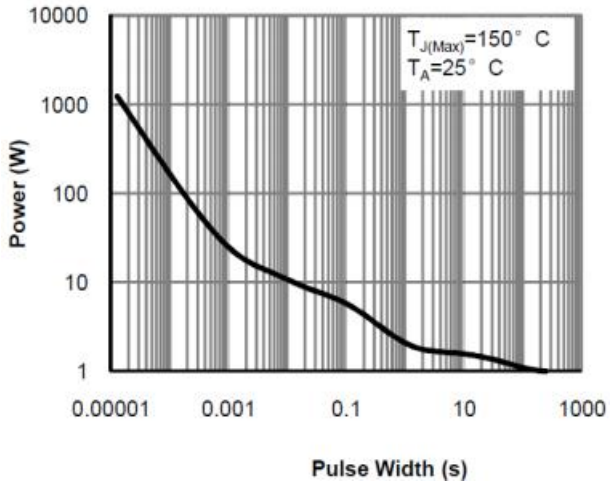


Figure 8: Power Rating Curve

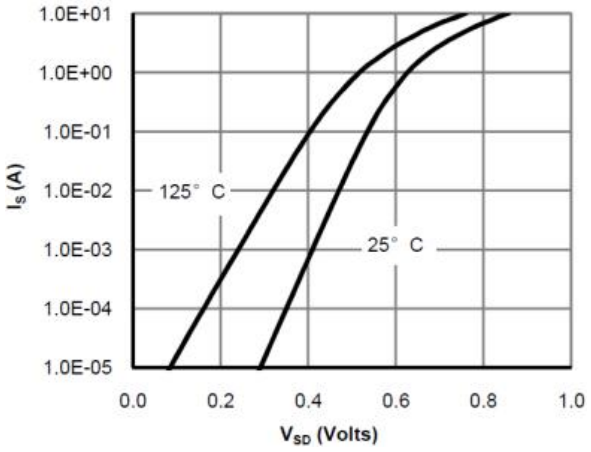


Figure 9: Diode Characteristics

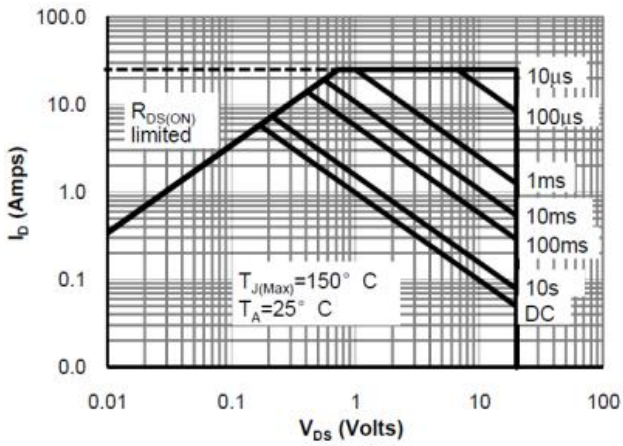


Figure 10: Safe Operating Area

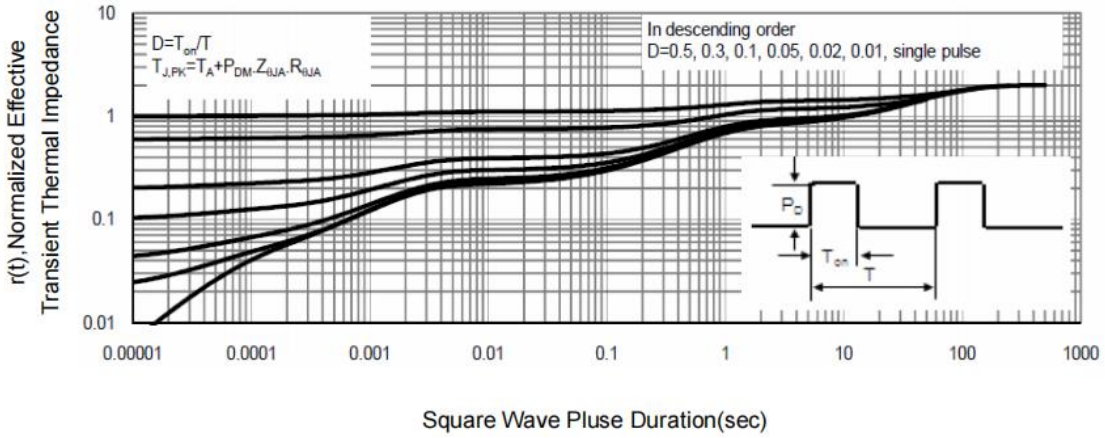
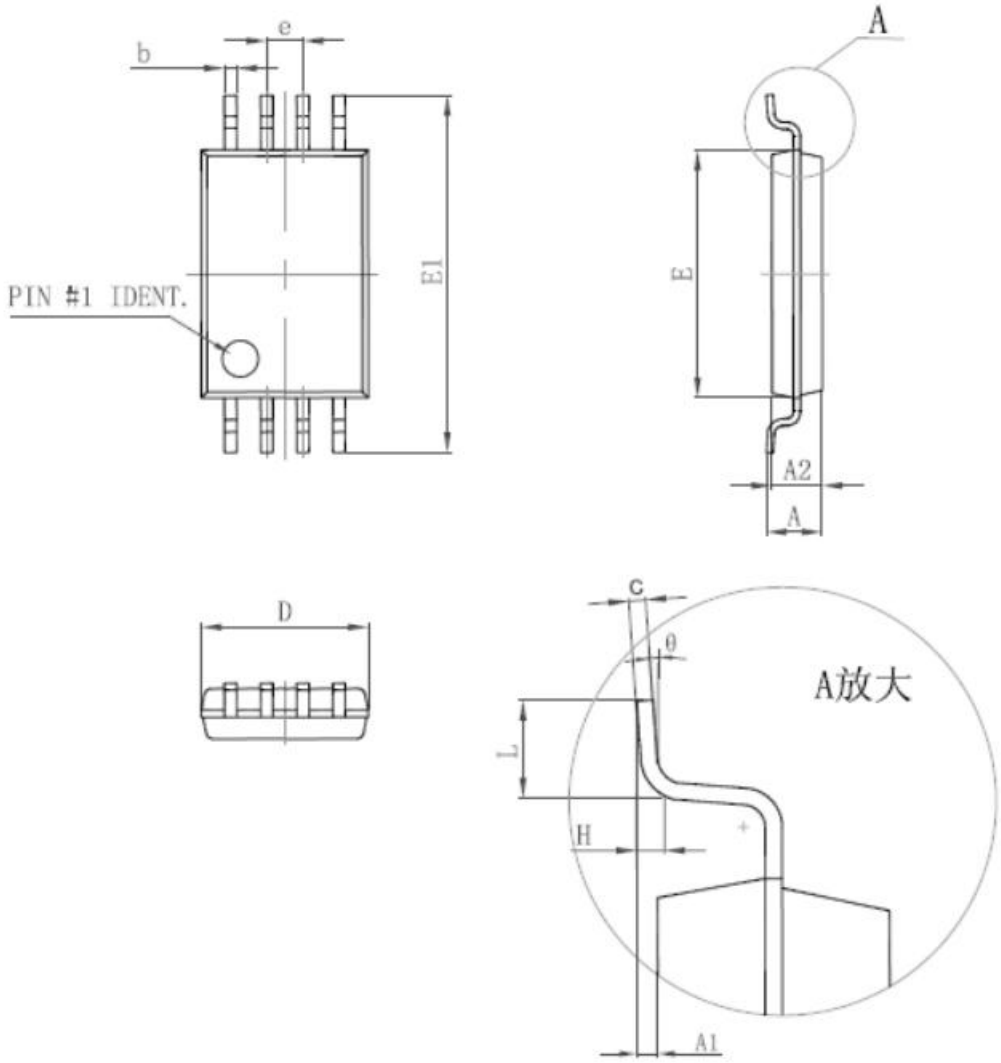


Figure 11: Transient Thermal Response Curve

■Dimension 外形封装尺寸



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
D	2.900	3.100	0.114	0.122
E	4.300	4.500	0.169	0.177
b	0.190	0.300	0.007	0.012
c	0.090	0.200	0.004	0.008
E1	6.250	6.550	0.246	0.258
A		1.100		0.043
A2	0.800	1.000	0.031	0.039
A1	0.020	0.150	0.001	0.006
e	0.65 (BSC)		0.026 (BSC)	
L	0.500	0.700	0.020	0.028
H	0.25 (TYP)		0.01 (TYP)	
θ	1°	7°	1°	7°