



## 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

$R_{DS(ON)}=12.5m\Omega(\text{Type})@V_{GS}=4.5V$

$R_{DS(ON)}=16m\Omega(\text{Type})@V_{GS}=2.5V$

$R_{DS(ON)}=22m\Omega(\text{Type})@V_{GS}=1.8V$

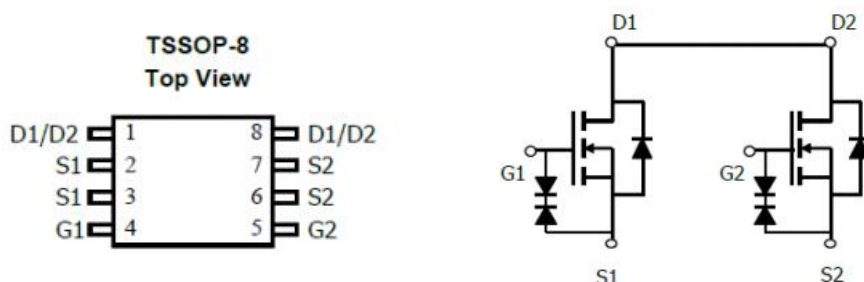
### ■ Applications 应用

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           | $V_{GS}$                                 | $\pm 10$ | V                  |
| Drain Current (continuous)漏极电流-连续      | $I_D$ (at $T_A = 25^\circ\text{C}$ )     | 7        | A                  |
| Drain Current (pulsed)漏极电流-脉冲          | $I_{DM}$                                 | 30       | A                  |
| Total Device Dissipation 总耗散功率         | $P_D(\text{at } T_A = 25^\circ\text{C})$ | 1500     | mW                 |
| Thermal Resistance Junction-Ambient 热阻 | $R_{\theta JA}$                          | 83       | $^\circ\text{C/W}$ |
| Junction/Storage Temperature 结温/储存温度   | $T_J, T_{stg}$                           | -55~150  | $^\circ\text{C}$   |



# 安徽富信半导体科技有限公司

ANHUI FOSAN SEMICONDUCTOR TECHNOLOGY CO., LTD.

FS8810

## ■ Electrical Characteristics 电特性

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

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

## ■ Typical Characteristic Curve 典型特性曲线

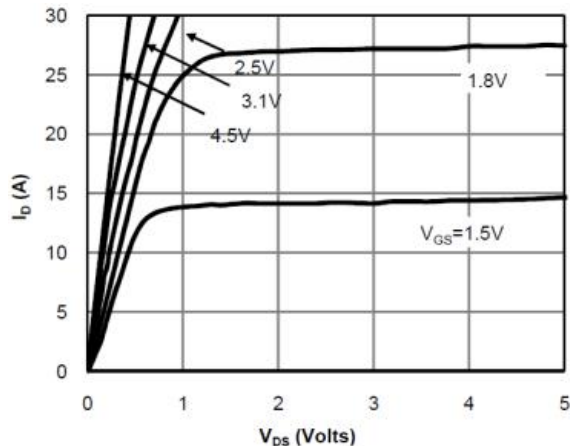


Figure 1: Output Characteristics

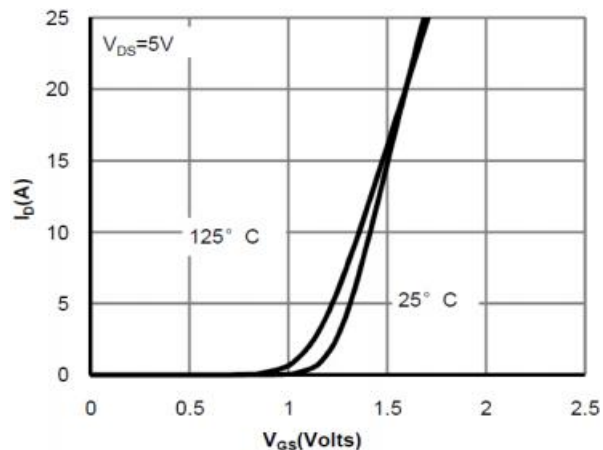


Figure 2: Transfer Characteristics

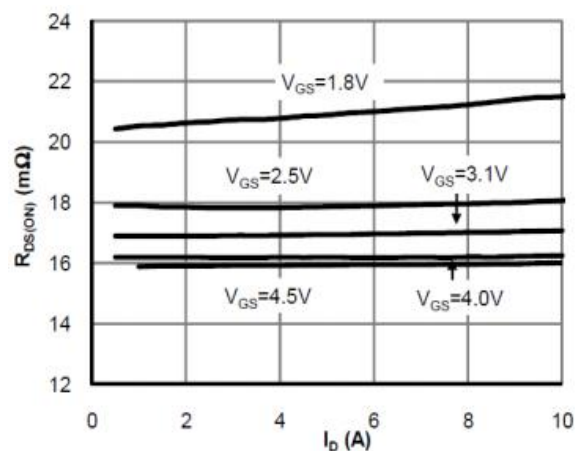


Figure 3: On-Resistance vs. Drain Current

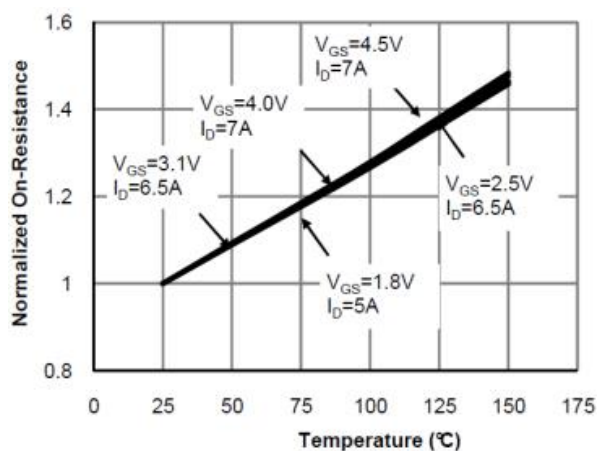


Figure 4: On-Resistance vs. Temperature

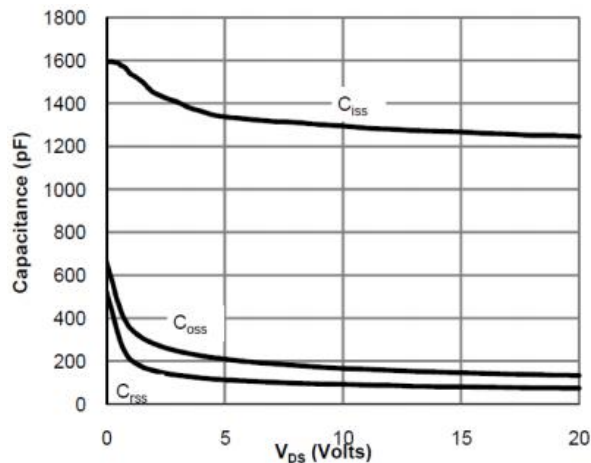


Figure 5: Capacitance Characteristics

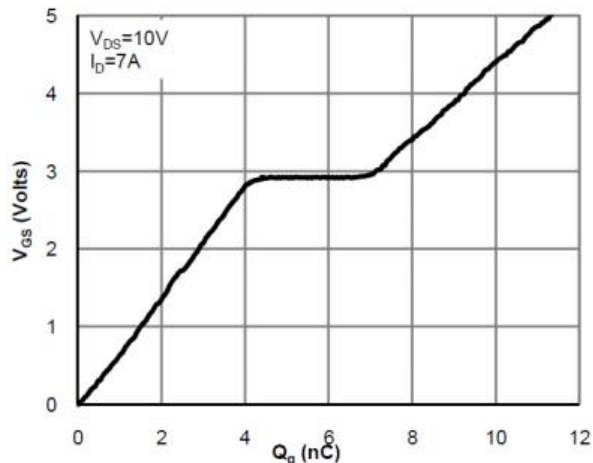


Figure 6: Gate-Charge Characteristics

## ■ Typical Characteristic Curve 典型特性曲线

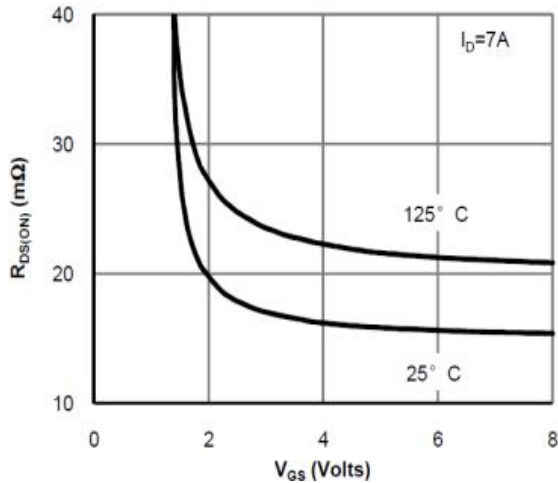


Figure 7: Drain Current vs.  $V_{GS}$

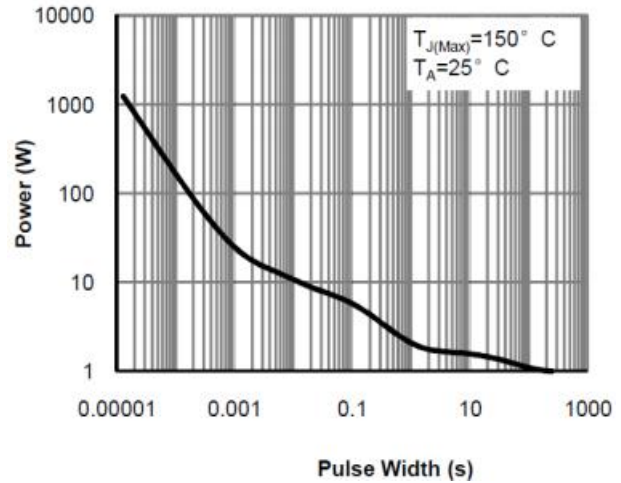


Figure 8: Power Rating Curve

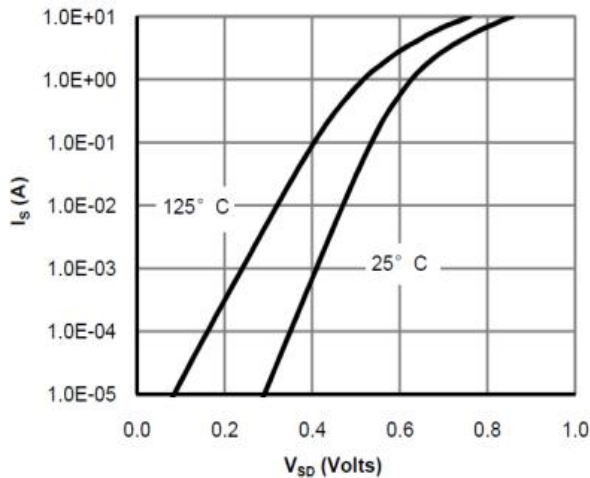


Figure 9: Diode Characteristics

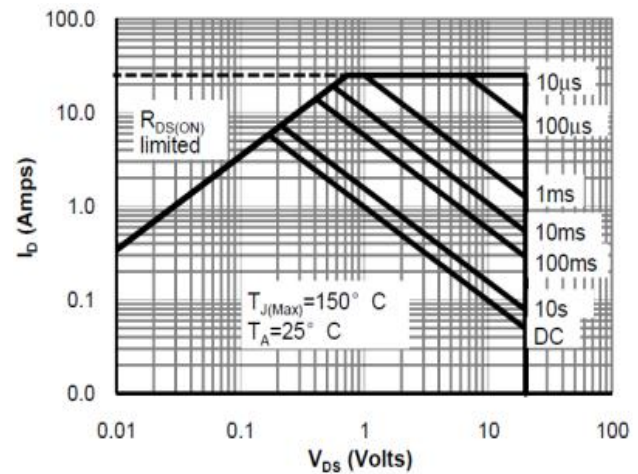


Figure 10: Safe Operating Area

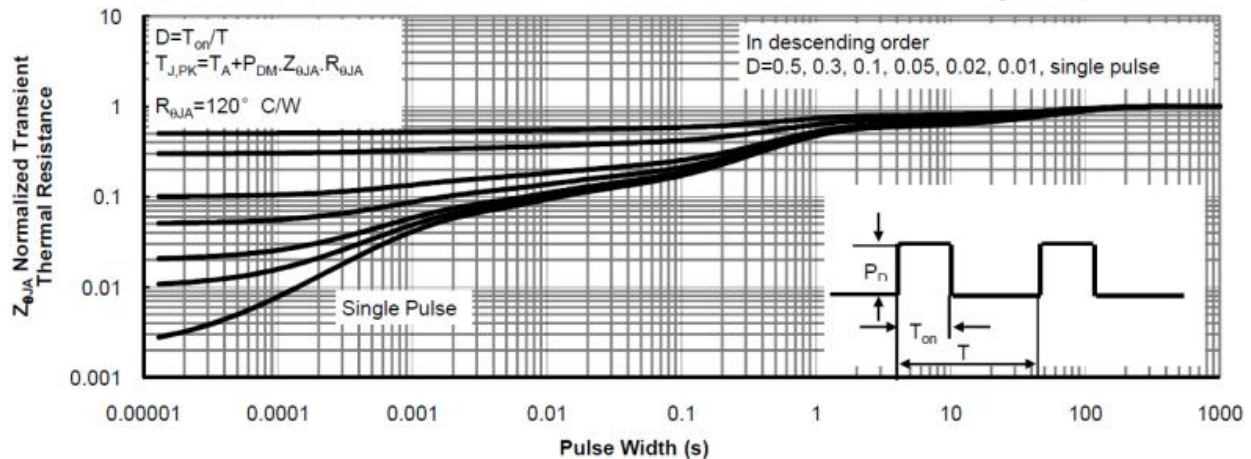
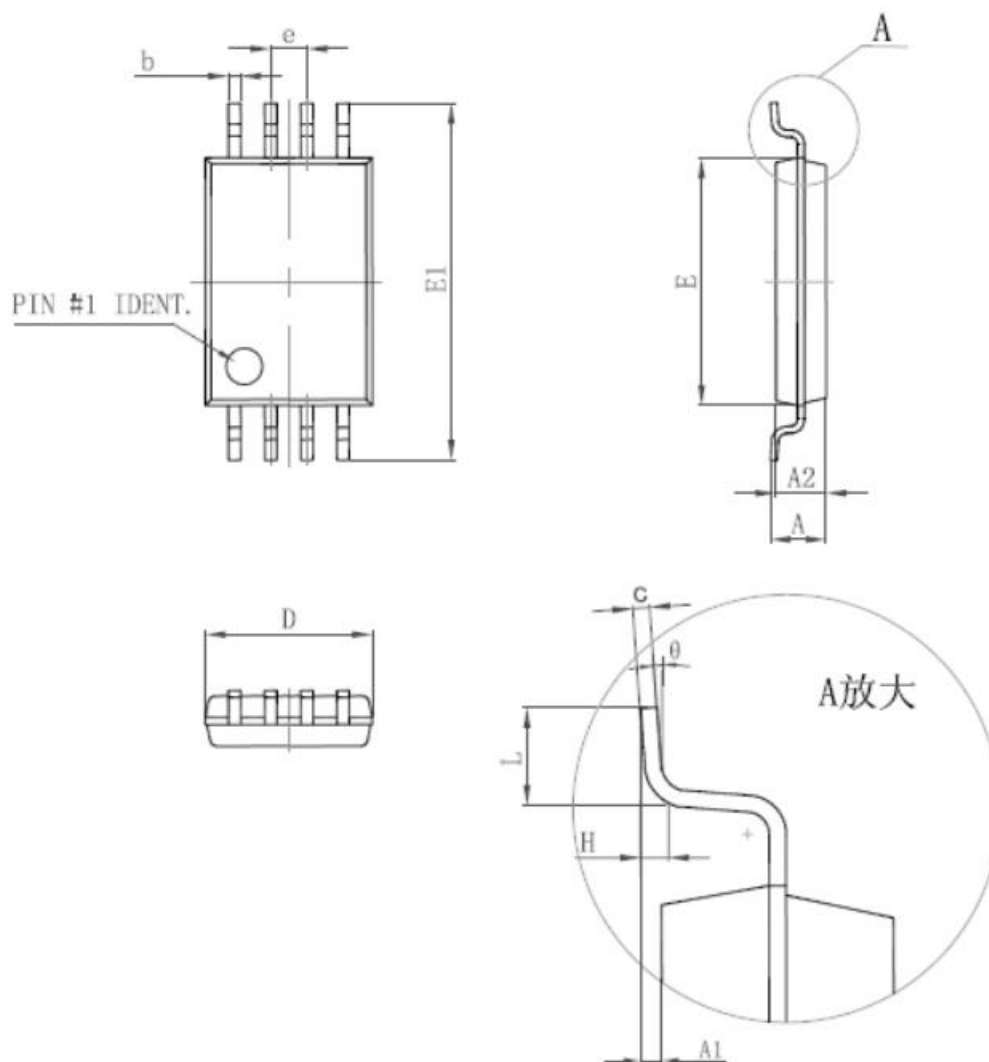


Figure 11: Transient Thermal Response Curve

## ■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°    |