

**SOP-8 30V Dual N Channel Enhancement 双 N 沟道增强型
MOS Field Effect Transistor 场效应管**

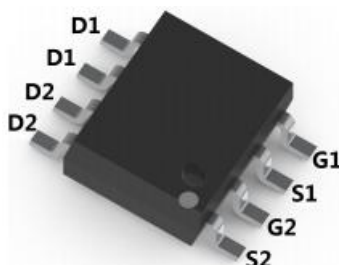
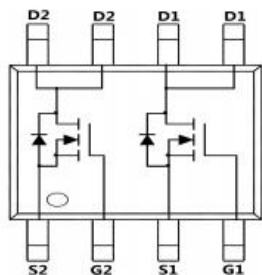
■ Features 特点

Low on-resistance 低导通电阻
 $R_{DS(ON)}=7.5m\Omega(\text{Type})@V_{GS}=10V$
 $R_{DS(ON)}=11m\Omega(\text{Type})@V_{GS}=4.5V$

■ Applications 应用

Load Switch 负载开关
 DC/DC Converter 电源转换
 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} | 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 $T_A = 25^\circ C$) (at $T_A = 75^\circ C$) | 10 8 | A |
| Drain Current (pulsed)漏极电流-脉冲 | I_{DM} | 40 | A |
| Total Device Dissipation 总耗散功率 | P_D (at $T_A = 25^\circ C$) (at $T_A = 75^\circ C$) | 1300 850 | mW |
| Thermal Resistance Junction-Ambient 热阻 | $R_{\theta JA}$ | 90 | $^\circ C/W$ |
| Avalanche Energy Single Pulse 雪崩能量 | E_{AS} | 20 | mJ |
| Junction/Storage Temperature 结温/储存温度 | T_J, T_{stg} | -55~150 | $^\circ C$ |

■ 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($I_D=250\mu\text{A}, V_{GS}=V_{DS}$) | $V_{GS(th)}$ | 1.5 | 1.7 | 2.5 | V |
| Zero Gate Voltage Drain Current 零栅压漏极电流($V_{GS}=0\text{V}, V_{DS}=30\text{V}$) | 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($I_D=8\text{A}, V_{GS}=10\text{V}$) ($I_D=6\text{A}, V_{GS}=4.5\text{V}$) | $R_{DS(ON)}$ | — | 7.5 11 | 11 14 | $\text{m}\Omega$ |
| Diode Forward Voltage Drop 内附二极管正向压降($I_{SD}=10\text{A}, V_{GS}=0\text{V}$) | V_{SD} | — | — | 1.1 | V |
| Input Capacitance 输入电容 ($V_{GS}=0\text{V}, V_{DS}=15\text{V}, f=1\text{MHz}$) | C_{ISS} | — | 1100 | — | 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} | — | 125 | — | pF |
| Reverse Transfer Capacitance 反馈电容 ($V_{GS}=0\text{V}, V_{DS}=15\text{V}, f=1\text{MHz}$) | C_{RSS} | — | 70 | — | pF |
| Total Gate Charge 栅极电荷密度 ($V_{DS}=15\text{V}, I_D=8\text{A}, V_{GS}=4.5\text{V}$) | Q_g | — | 15 | — | nC |
| Gate Source Charge 栅源电荷密度 ($V_{DS}=15\text{V}, I_D=8\text{A}, V_{GS}=4.5\text{V}$) | Q_{gs} | — | 2.5 | — | nC |
| Gate Drain Charge 栅漏电荷密度 ($V_{DS}=15\text{V}, I_D=8\text{A}, V_{GS}=4.5\text{V}$) | Q_{gd} | — | 3 | — | nC |
| Turn-ON Delay Time 开启延迟时间 ($V_{DS}=15\text{V}, I_D=1\text{A}, R_{GEN}=3\Omega, V_{GS}=10\text{V}$) | $t_{d(on)}$ | — | 8 | — | ns |
| Turn-ON Rise Time 开启上升时间 ($V_{DS}=15\text{V}, I_D=1\text{A}, R_{GEN}=3\Omega, V_{GS}=10\text{V}$) | t_r | — | 10 | — | ns |
| Turn-OFF Delay Time 关断延迟时间 ($V_{DS}=15\text{V}, I_D=1\text{A}, R_{GEN}=3\Omega, V_{GS}=10\text{V}$) | $t_{d(off)}$ | — | 18 | — | ns |
| Turn-OFF Fall Time 关断下降时间 ($V_{DS}=15\text{V}, I_D=1\text{A}, R_{GEN}=3\Omega, V_{GS}=10\text{V}$) | t_f | — | 6 | — | ns |

■ Typical Characteristic Curve 典型特性曲线

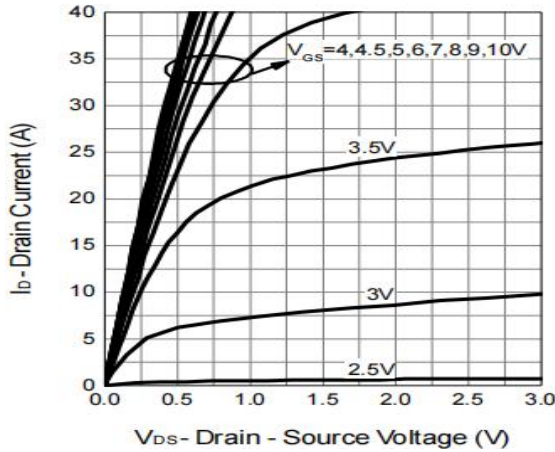


Figure 1: Output Characteristics

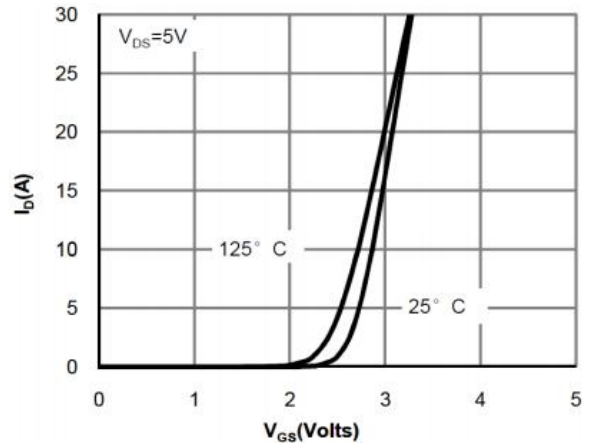


Figure 2: Transfer Characteristics

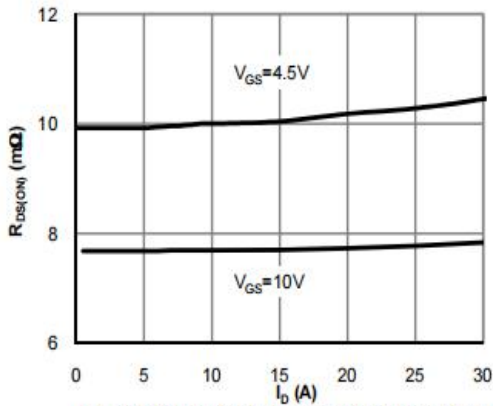


Figure 3: On-Resistance vs. Drain Current

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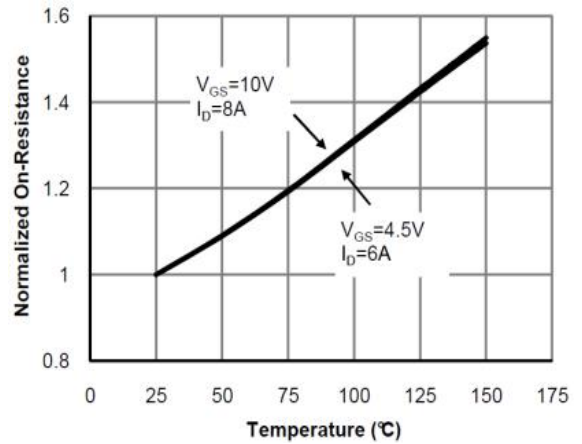


Figure 4: On-Resistance vs. Temperature

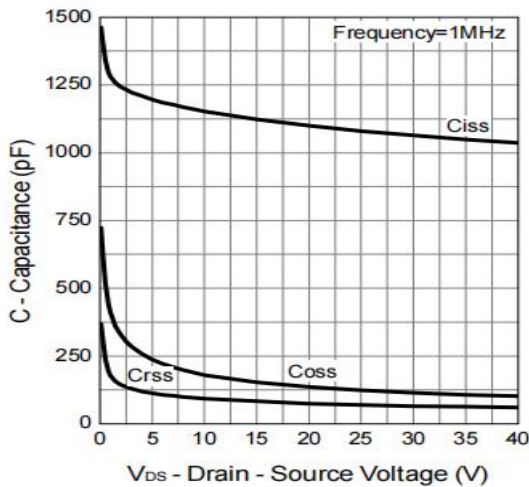


Figure 5: Capacitance Characteristics

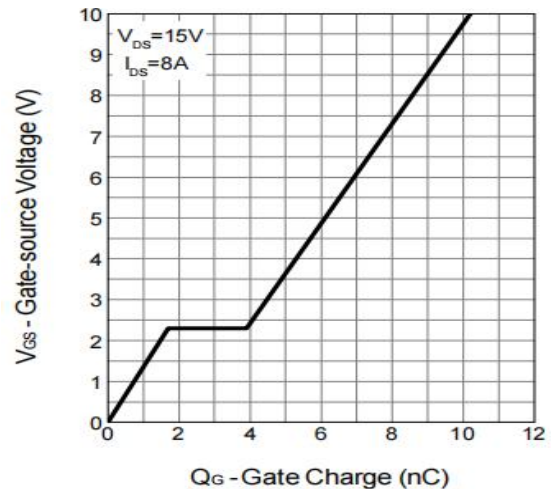


Figure 6: Gate-Charge Characteristics

■ Typical Characteristic Curve 典型特性曲线

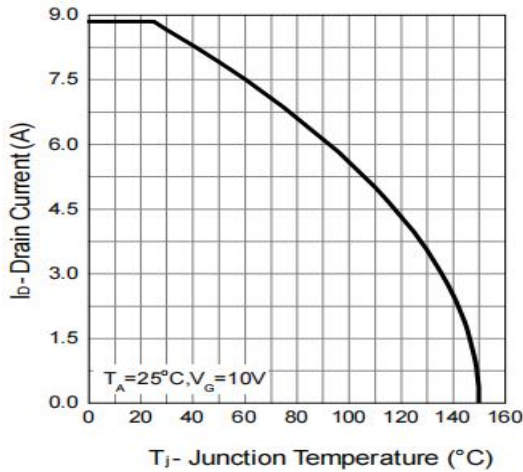


Figure 7: Drain Current vs. Temperature

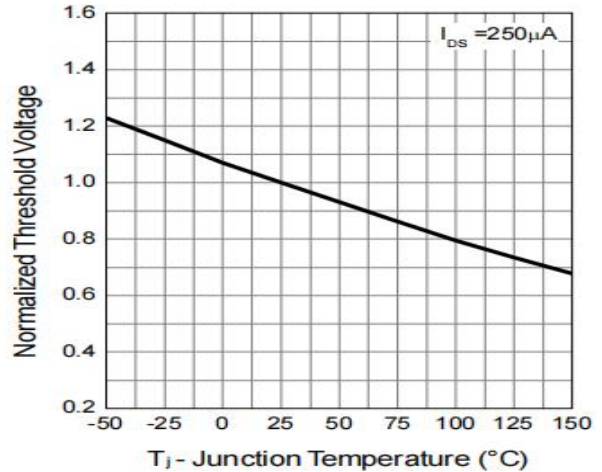


Figure 8: Threshold Voltage vs. Temperature

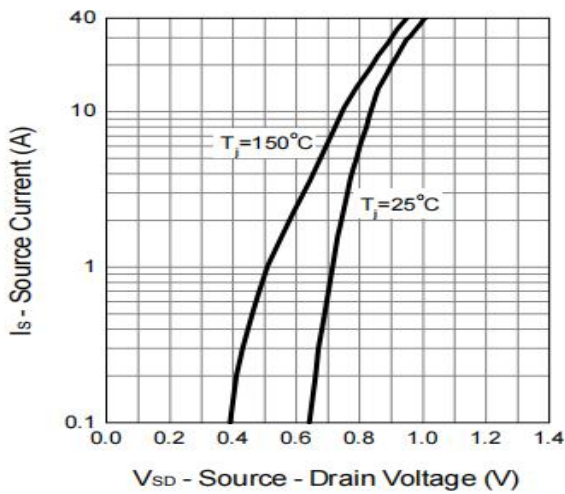


Figure 9: Diode Characteristics

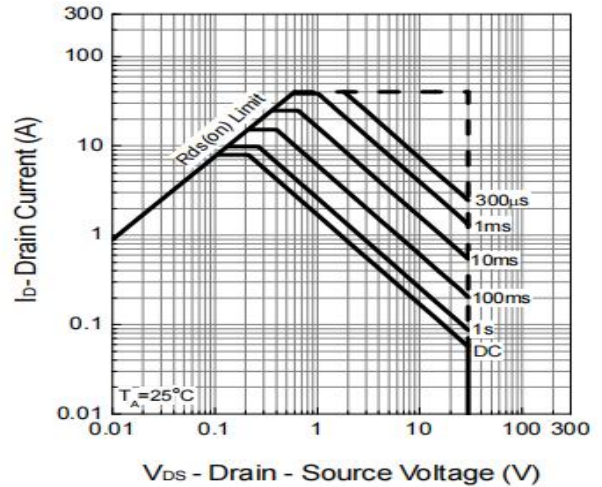


Figure 10: Safe Operating Area

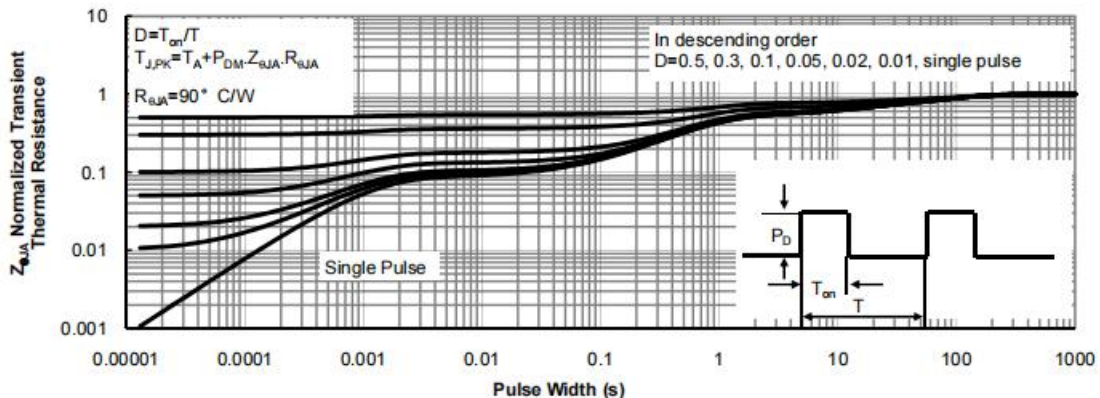
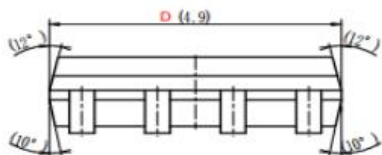
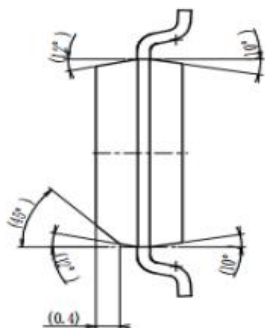
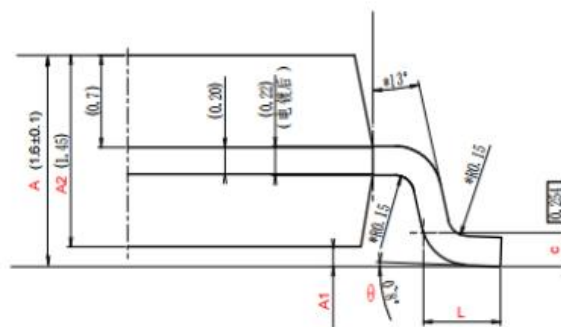
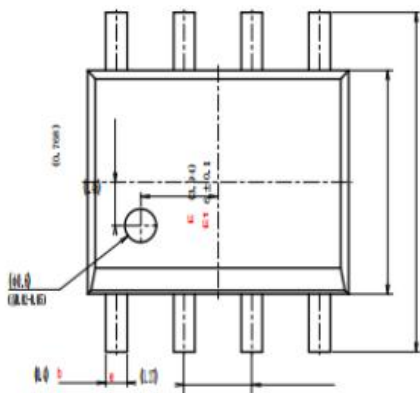


Figure 11: Transient Thermal Response Curve

■ Dimension 外形封装尺寸



| 字符 | Dimension millimeters | | |
|----|-----------------------|------------|-------|
| | Min | Standard | Max |
| A | 1.500 | 1.600 | 1.700 |
| A1 | 0.040 | 0.080 | 0.150 |
| A2 | 1.350 | 1.450 | 1.550 |
| b | 0.300 | 0.400 | 0.500 |
| c | 0.220 | 0.254 | 0.280 |
| D | 4.800 | 4.900 | 5.000 |
| E | 3.840 | 3.940 | 4.040 |
| E1 | 5.900 | 6.000 | 6.100 |
| e | | 1.27 (BSC) | |
| L | 0.400 | 0.550 | 0.700 |
| θ | 0° | | 8° |