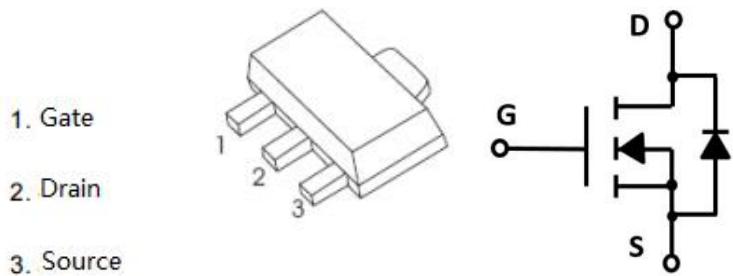


**SOT-89 100V N Channel Enhancement 沟道增强型
MOS Field Effect Transistor 场效应管**



■ 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} | 100 | 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 $T_A = 25^\circ C$) | 5 | A |
| Drain Current (pulsed)漏极电流-脉冲 | I_{DM} | 20 | A |
| Total Device Dissipation 总耗散功率 | P_D (at $T_A = 25^\circ C$) | 2000 | mW |
| Thermal Resistance Junction-Ambient 热阻 | $R_{\theta JA}$ | 62 | $^\circ C/W$ |
| Junction/Storage Temperature 结温/储存温度 | T_J, T_{stg} | -55~150 | $^\circ C$ |

■ Device Marking 产品字标

| |
|---------------------|
| FS5N10F=5N10 |
|---------------------|

■ 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} | 100 | — | — | V |
| Gate Threshold Voltage 栅极开启电压($I_D=250\mu\text{A}, V_{GS}=V_{DS}$) | $V_{GS(th)}$ | 1 | 1.65 | 2.5 | V |
| Zero Gate Voltage Drain Current 零栅压漏极电流($V_{GS}=0\text{V}, V_{DS}=100\text{V}$) | 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($I_D=3\text{A}, V_{GS}=10\text{V}$) ($I_D=1\text{A}, V_{GS}=4.5\text{V}$) | $R_{DS(ON)}$ | — | 86 113 | 100 130 | $\text{m}\Omega$ |
| Diode Forward Voltage Drop 内附二极管正向压降($I_{SD}=3\text{A}, V_{GS}=0\text{V}$) | V_{SD} | — | — | 1.3 | V |
| Input Capacitance 输入电容 ($V_{GS}=0\text{V}, V_{DS}=50\text{V}, f=1\text{MHz}$) | C_{ISS} | — | 210 | — | pF |
| Common Source Output Capacitance 共源输出电容($V_{GS}=0\text{V}, V_{DS}=50\text{V}, f=1\text{MHz}$) | C_{OSS} | — | 30 | — | pF |
| Reverse Transfer Capacitance 反馈电容($V_{GS}=0\text{V}, V_{DS}=50\text{V}, f=1\text{MHz}$) | C_{RSS} | — | 2 | — | pF |
| Total Gate Charge 栅极电荷密度 ($V_{DS}=50\text{V}, I_D=5\text{A}, V_{GS}=10\text{V}$) | Q_g | — | 4 | — | nC |
| Gate Source Charge 栅源电荷密度 ($V_{DS}=50\text{V}, I_D=5\text{A}, V_{GS}=10\text{V}$) | Q_{gs} | — | 2 | — | nC |
| Gate Drain Charge 栅漏电荷密度 ($V_{DS}=50\text{V}, I_D=5\text{A}, V_{GS}=10\text{V}$) | Q_{gd} | — | 1 | — | nC |
| Turn-ON Delay Time 开启延迟时间 ($V_{DS}=50\text{V}, I_D=1.5\text{A}, R_{GEN}=1\Omega, V_{GS}=10\text{V}$) | $t_{d(on)}$ | — | 15 | — | ns |
| Turn-ON Rise Time 开启上升时间 ($V_{DS}=50\text{V}, I_D=1.5\text{A}, R_{GEN}=1\Omega, V_{GS}=10\text{V}$) | t_r | — | 5 | — | ns |
| Turn-OFF Delay Time 关断延迟时间 ($V_{DS}=50\text{V}, I_D=1.5\text{A}, R_{GEN}=1\Omega, V_{GS}=10\text{V}$) | $t_{d(off)}$ | — | 22 | — | ns |
| Turn-OFF Fall Time 关断下降时间 ($V_{DS}=50\text{V}, I_D=1.5\text{A}, R_{GEN}=1\Omega, V_{GS}=10\text{V}$) | t_f | — | 3 | — | ns |

■ Typical Characteristic Curve 典型特性曲线

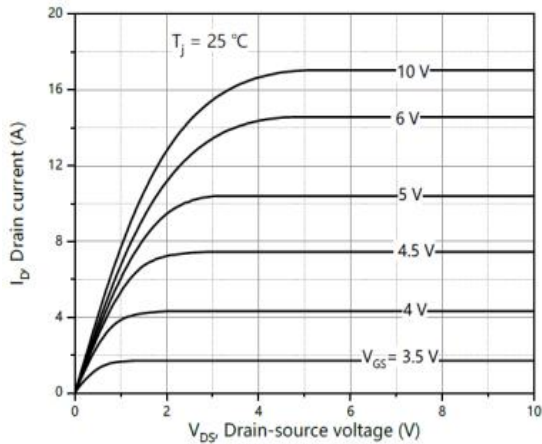


Figure 1: Output Characteristics

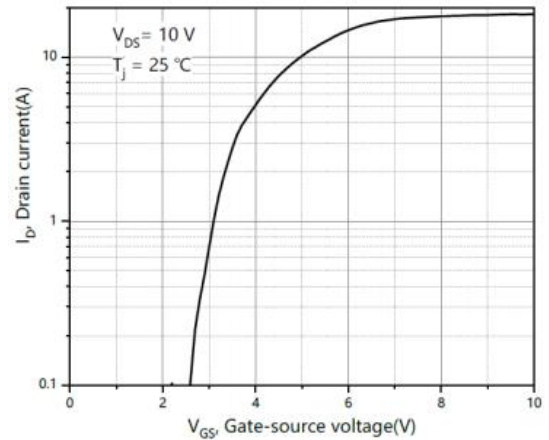


Figure 2: Transfer Characteristics

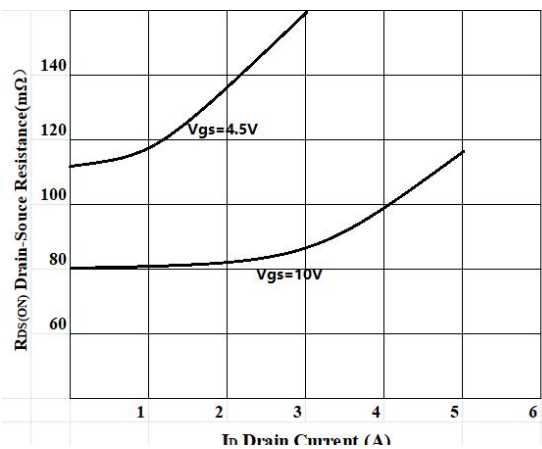


Figure 3: On-Resistance vs. Drain Current

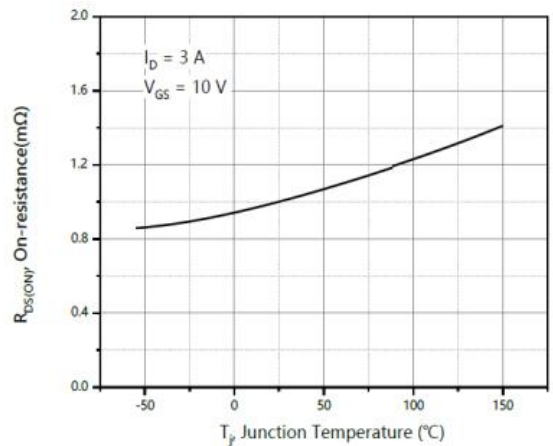


Figure 4: On-Resistance vs. Temperature

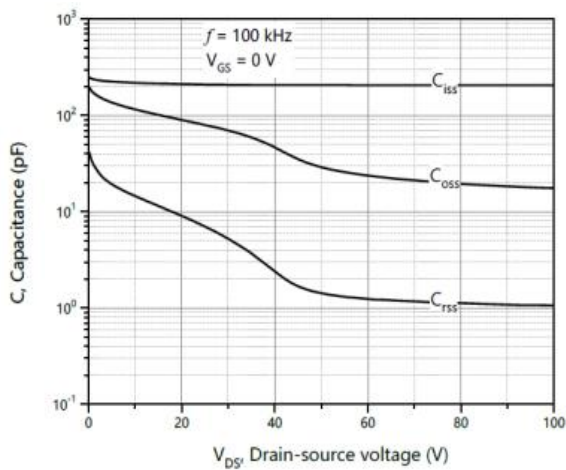


Figure 5: Capacitance Characteristics

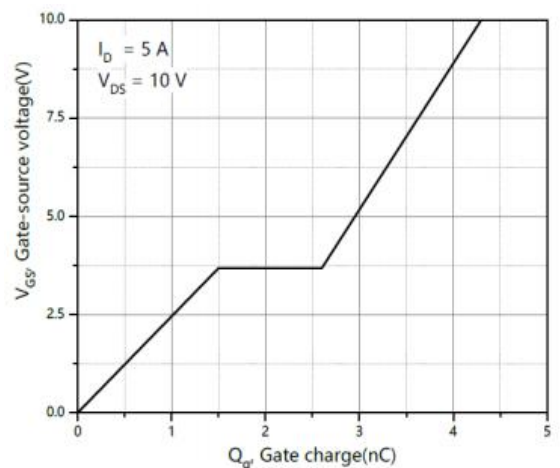


Figure 6: Gate-Charge Characteristics

■ Typical Characteristic Curve 典型特性曲线

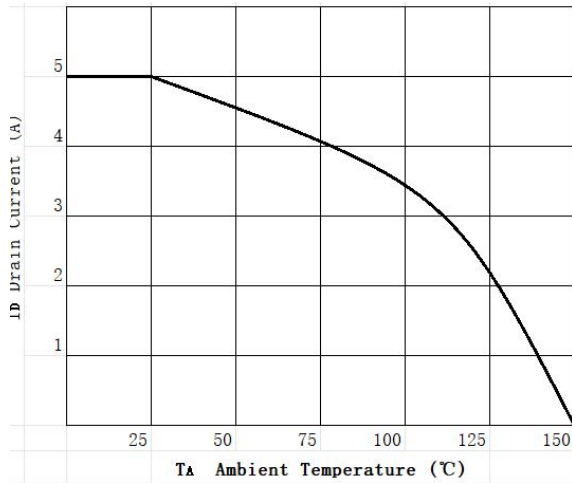


Figure 7: Drain Current vs. Temperature

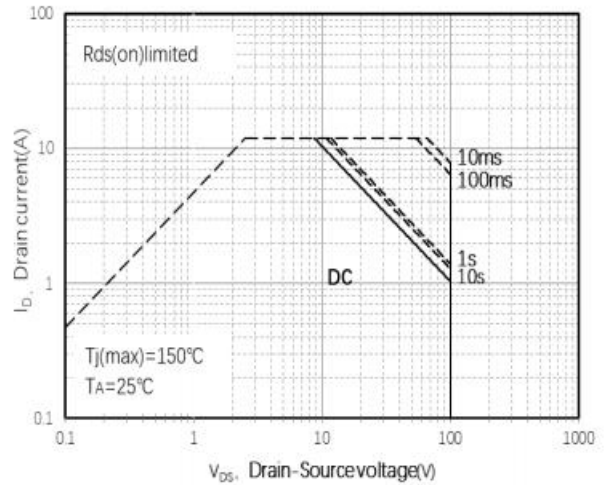


Figure 8: Safe Operating Area

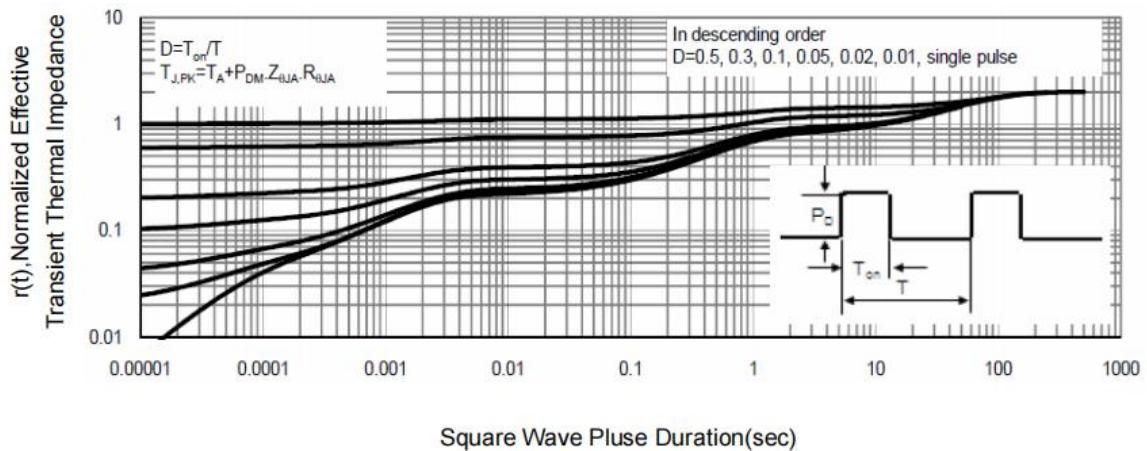
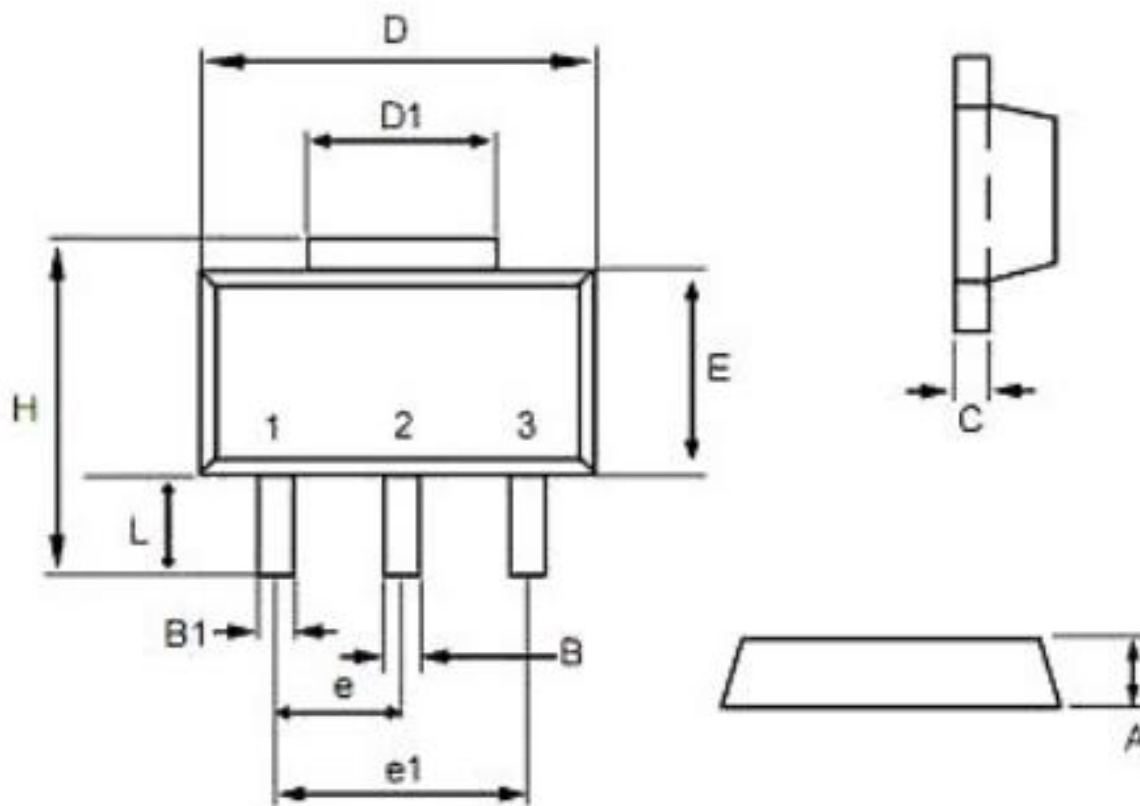


Figure 9: Transient Thermal Response Curve

■ Dimension 外形封装尺寸



| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|--------|---------------------------|------|----------------------|-------|
| | Min | Max | Min | Max |
| A | 1.40 | 1.60 | 0.055 | 0.063 |
| B | 0.40 | 0.56 | 0.016 | 0.022 |
| B1 | 0.35 | 0.48 | 0.014 | 0.019 |
| C | 0.35 | 0.44 | 0.014 | 0.017 |
| D | 4.40 | 4.60 | 0.173 | 0.181 |
| D1 | 1.35 | 1.83 | 0.053 | 0.072 |
| e | 1.45 | 1.55 | 0.057 | 0.061 |
| e1 | 2.95 | 3.05 | 0.116 | 0.120 |
| E | 2.29 | 2.60 | 0.090 | 0.102 |
| H | 3.75 | 4.25 | 0.148 | 0.167 |
| L | 0.80 | 1.20 | 0.031 | 0.047 |