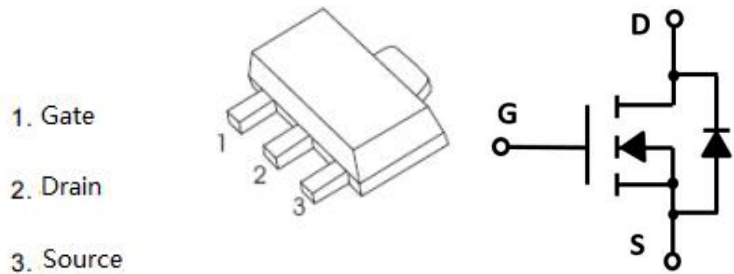


**SOT-89-3L 60V N Channel Enhancement 沟道增强型  
MOS Field Effect Transistor 场效应管**



**■ 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           | $BV_{DSS}$                     | 60       | V            |
| Gate- Source Voltage 栅极-源极电压           | $V_{GS}$                       | $\pm 20$ | 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          | $I_{DM}$                       | 18       | 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**

**FS5N06F=5N06**

■ 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( $I_D=250\mu\text{A}, V_{GS}=0\text{V}$ )  | $BV_{DSS}$   | 60         | —          | —          | V                |
| Gate Threshold Voltage<br>栅极开启电压( $I_D=250\mu\text{A}, V_{GS}=V_{DS}$ )  | $V_{GS(th)}$ | 0.9        | 1.3        | 2          | V                |
| Zero Gate Voltage Drain Current<br>零栅压漏极电流( $V_{GS}=0\text{V}, V_{DS}=60\text{V}$ )  | $I_{DSS}$    | —          | —          | 1          | $\mu\text{A}$    |
| Gate Body Leakage<br>栅极漏电流( $V_{GS}=\pm 20\text{V}, V_{DS}=0\text{V}$ )  | $I_{GSS}$    | —          | —          | $\pm 100$  | nA               |
| Static Drain-Source On-State Resistance<br>静态漏源导通电阻( $I_D=3\text{A}, V_{GS}=10\text{V}$ )<br>( $I_D=3\text{A}, V_{GS}=4.5\text{V}$ ) | $R_{DS(on)}$ | —          | 70<br>83   | 90<br>110  | $\text{m}\Omega$ |
| Diode Forward Voltage Drop<br>内附二极管正向压降( $I_{SD}=3\text{A}, V_{GS}=0\text{V}$ )  | $V_{SD}$     | —          | —          | 1.2        | V                |
| Input Capacitance 输入电容<br>( $V_{GS}=0\text{V}, V_{DS}=30\text{V}, f=1\text{MHz}$ )   | $C_{ISS}$    | —          | 410        | —          | pF               |
| Common Source Output Capacitance<br>共源输出电容( $V_{GS}=0\text{V}, V_{DS}=30\text{V}, f=1\text{MHz}$ )                                   | $C_{OSS}$    | —          | 50         | —          | pF               |
| Reverse Transfer Capacitance<br>反馈电容( $V_{GS}=0\text{V}, V_{DS}=30\text{V}, f=1\text{MHz}$ )   | $C_{RSS}$    | —          | 41         | —          | pF               |
| Total Gate Charge 栅极电荷密度<br>( $V_{DS}=30\text{V}, I_D=3\text{A}, V_{GS}=10\text{V}$ )  | $Q_g$        | —          | 11         | —          | nC               |
| Gate Source Charge 栅源电荷密度<br>( $V_{DS}=30\text{V}, I_D=3\text{A}, V_{GS}=10\text{V}$ )   | $Q_{gs}$     | —          | 2          | —          | nC               |
| Gate Drain Charge 栅漏电荷密度<br>( $V_{DS}=30\text{V}, I_D=3\text{A}, V_{GS}=10\text{V}$ )  | $Q_{gd}$     | —          | 2          | —          | nC               |
| Turn-ON Delay Time 开启延迟时间<br>( $V_{DS}=30\text{V}, I_D=3\text{A}, R_{GEN}=3\Omega, V_{GS}=10\text{V}$ )                              | $t_{d(on)}$  | —          | 4          | —          | ns               |
| Turn-ON Rise Time 开启上升时间<br>( $V_{DS}=30\text{V}, I_D=3\text{A}, R_{GEN}=3\Omega, V_{GS}=10\text{V}$ )                               | $t_r$        | —          | 18         | —          | ns               |
| Turn-OFF Delay Time 关断延迟时间<br>( $V_{DS}=30\text{V}, I_D=3\text{A}, R_{GEN}=3\Omega, V_{GS}=10\text{V}$ )                             | $t_{d(off)}$ | —          | 13         | —          | ns               |
| Turn-OFF Fall Time 关断下降时间<br>( $V_{DS}=30\text{V}, I_D=3\text{A}, R_{GEN}=3\Omega, V_{GS}=10\text{V}$ )                              | $t_f$        | —          | 23         | —          | ns               |

■ Typical Characteristic Curve 典型特性曲线

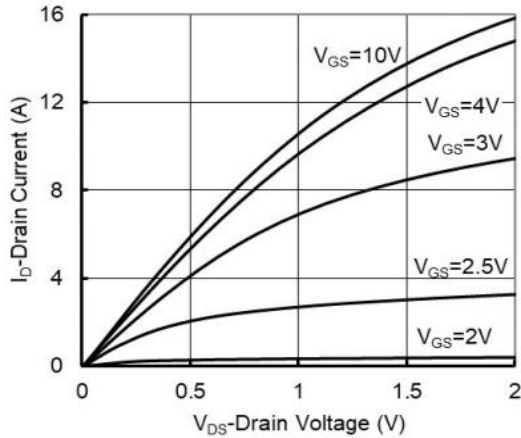


Figure 1: Output Characteristics

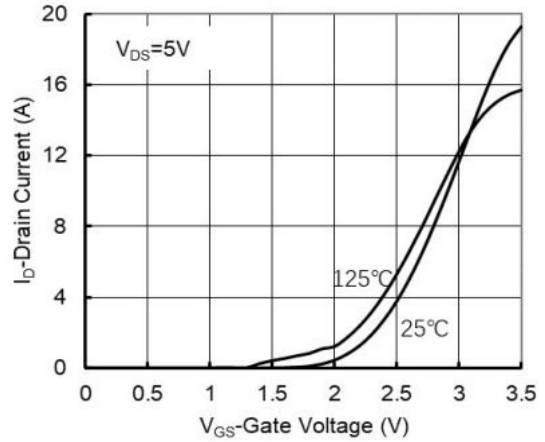


Figure 2: Transfer Characteristics

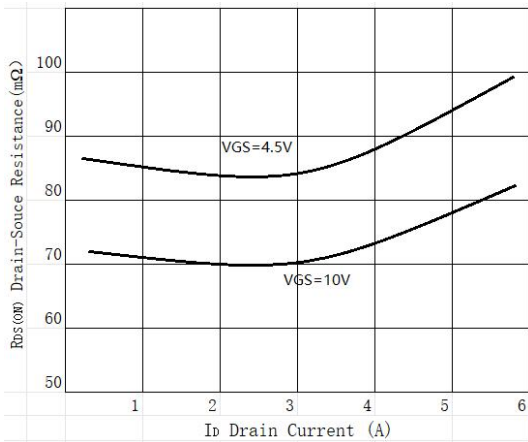


Figure 3: On-Resistance vs. Drain Current

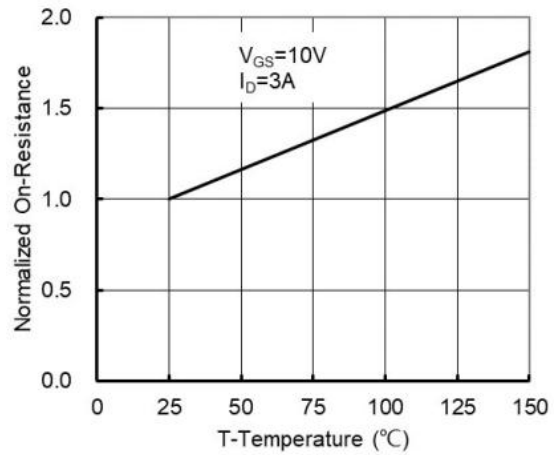


Figure 4: On-Resistance vs. Temperature

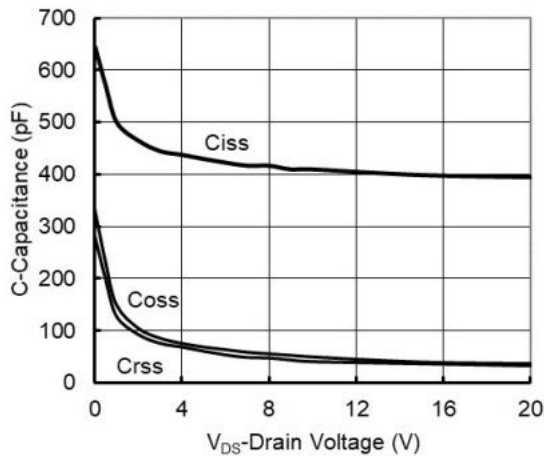


Figure 5: Capacitance Characteristics

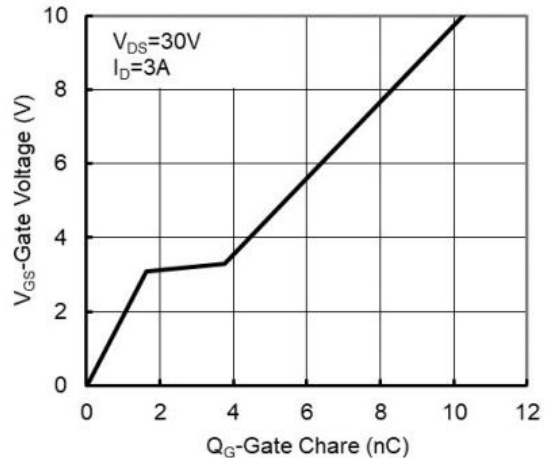


Figure 6: Gate-Charge Characteristics

■ Typical Characteristic Curve 典型特性曲线

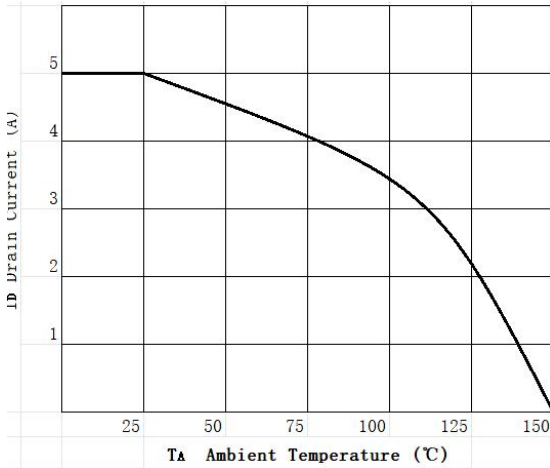


Figure 7: Drain Current vs. Temperature

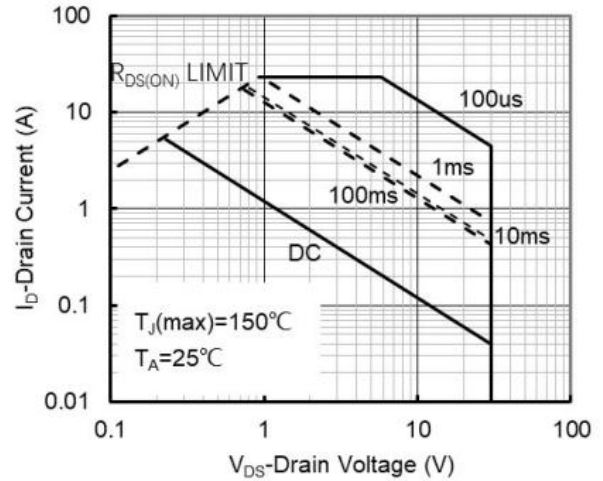


Figure 8: Safe Operating Area

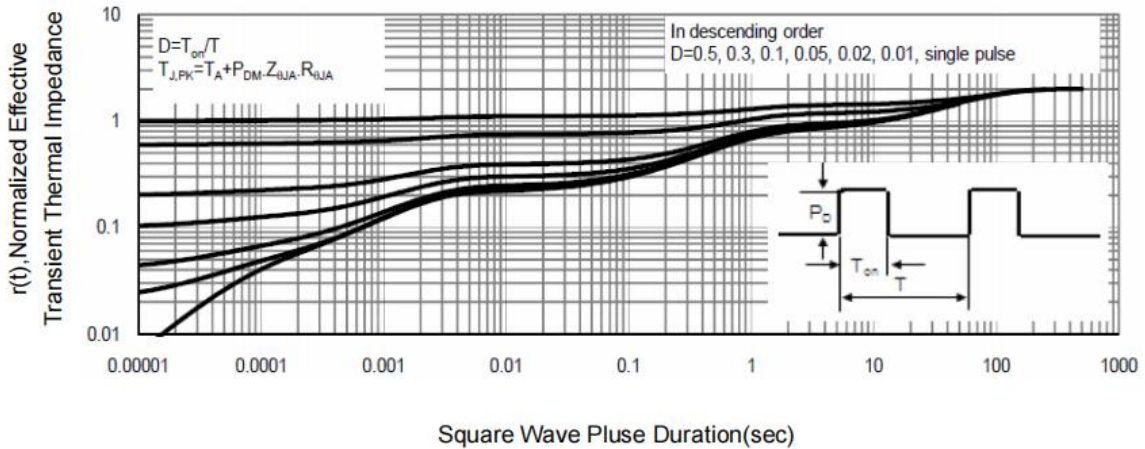
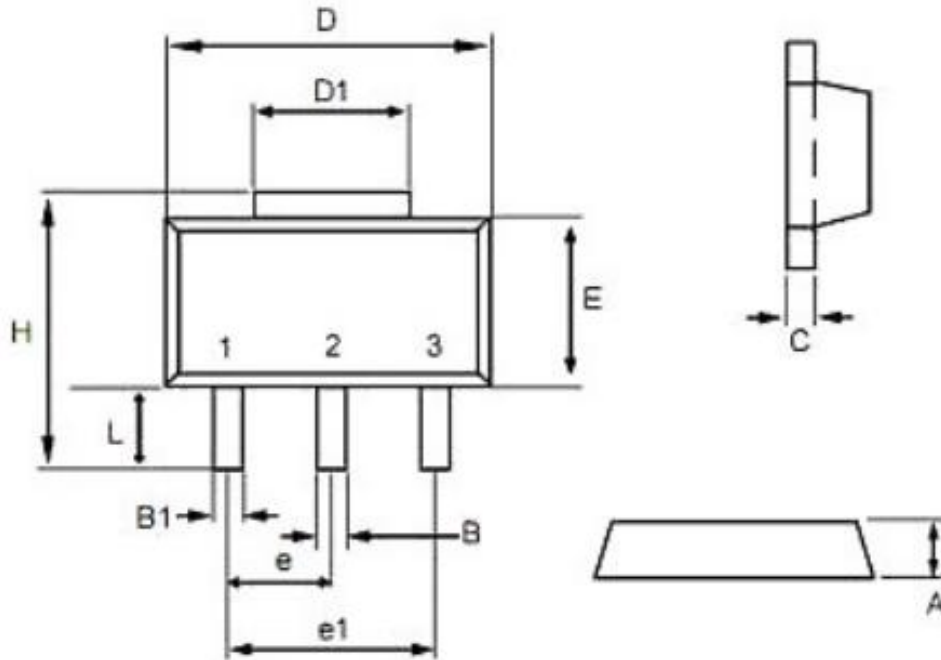


Figure 9: Transient Thermal Response Curve

■ 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 |