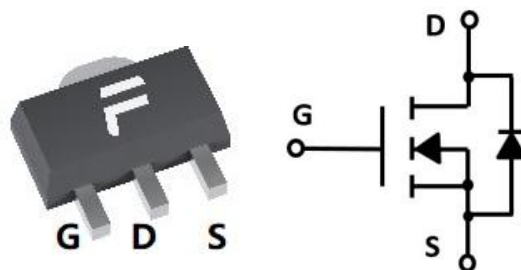


**SOT-89-3L 30V N Channel Enhancement 沟道增强型  
MOS Field Effect Transistor 场效应管**



■ **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           | $BV_{DSS}$                     | 30       | 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 $T_A = 25^\circ C$ ) | 10       | A            |
| Drain Current (pulsed)漏极电流-脉冲          | $I_{DM}$                       | 50       | A            |
| Total Device Dissipation 总耗散功率         | $P_D$ (at $T_A = 25^\circ C$ ) | 3000     | mW           |
| Thermal Resistance Junction-Ambient 热阻 | $R_{\theta JA}$                | 42       | $^\circ C/W$ |
| Junction/Storage Temperature 结温/储存温度   | $T_J, T_{stg}$                 | -55~150  | $^\circ C$   |

■ **Device Marking 产品字标**

**FS10N03F=10N03**

**Electrical Characteristics 电特性**

 (T<sub>A</sub>=25℃ unless otherwise noted 如无特殊说明, 温度为 25℃)

| 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 <sub>D</sub> =250uA, V <sub>GS</sub> =0V)                                                      | BV <sub>DSS</sub>   | 30         | —          | —          | V          |
| Gate Threshold Voltage<br>栅极开启电压(I <sub>D</sub> =250uA, V <sub>GS</sub> = V <sub>DS</sub> )                                                  | V <sub>GS(th)</sub> | 1          | 1.5        | 2.4        | V          |
| Zero Gate Voltage Drain Current<br>零栅压漏极电流(V <sub>GS</sub> =0V, V <sub>DS</sub> = 30V)                                                       | I <sub>DSS</sub>    | —          | —          | 1          | uA         |
| Gate Body Leakage<br>栅极漏电流(V <sub>GS</sub> =±20V, V <sub>DS</sub> =0V)                                                                       | I <sub>GSS</sub>    | —          | —          | ±100       | nA         |
| Static Drain-Source On-State Resistance<br>静态漏源导通电阻(I <sub>D</sub> =5A, V <sub>GS</sub> =10V)<br>(I <sub>D</sub> =3A, V <sub>GS</sub> =4.5V) | R <sub>DS(ON)</sub> | —          | 11<br>18   | 18<br>26   | m Ω        |
| Diode Forward Voltage Drop<br>内附二极管正向压降(I <sub>SD</sub> =5A, V <sub>GS</sub> =0V)                                                            | V <sub>SD</sub>     | —          | —          | 1.2        | V          |
| Input Capacitance 输入电容<br>(V <sub>GS</sub> =0V, V <sub>DS</sub> =15V, f=1MHz)                                                                | C <sub>ISS</sub>    | —          | 750        | —          | pF         |
| Common Source Output Capacitance<br>共源输出电容(V <sub>GS</sub> =0V, V <sub>DS</sub> =15V, f=1MHz)                                                | C <sub>OSS</sub>    | —          | 125        | —          | pF         |
| Reverse Transfer Capacitance<br>反馈电容(V <sub>GS</sub> =0V, V <sub>DS</sub> =15V, f=1MHz)                                                      | C <sub>RSS</sub>    | —          | 70         | —          | pF         |
| Total Gate Charge 栅极电荷密度<br>(V <sub>DS</sub> =15V, I <sub>D</sub> =8A, V <sub>GS</sub> =4.5V)                                                | Q <sub>g</sub>      | —          | 15         | —          | nC         |
| Gate Source Charge 栅源电荷密度<br>(V <sub>DS</sub> =15V, I <sub>D</sub> =8A, V <sub>GS</sub> =4.5V)                                               | Q <sub>gs</sub>     | —          | 2.5        | —          | nC         |
| Gate Drain Charge 栅漏电荷密度<br>(V <sub>DS</sub> =15V, I <sub>D</sub> =8A, V <sub>GS</sub> =4.5V)                                                | Q <sub>gd</sub>     | —          | 3          | —          | nC         |
| Turn-ON Delay Time 开启延迟时间<br>(V <sub>DS</sub> =15V I <sub>D</sub> =1A, R <sub>GEN</sub> =3 Ω, V <sub>GS</sub> =10V)                          | t <sub>d(on)</sub>  | —          | 4.5        | —          | ns         |
| Turn-ON Rise Time 开启上升时间<br>(V <sub>DS</sub> =15V I <sub>D</sub> =1A, R <sub>GEN</sub> =3 Ω, V <sub>GS</sub> =10V)                           | t <sub>r</sub>      | —          | 10         | —          | ns         |
| Turn-OFF Delay Time 关断延迟时间<br>(V <sub>DS</sub> =15V I <sub>D</sub> =1A, R <sub>GEN</sub> =3 Ω, V <sub>GS</sub> =10V)                         | t <sub>d(off)</sub> | —          | 18         | —          | ns         |
| Turn-OFF Fall Time 关断下降时间<br>(V <sub>DS</sub> =15V I <sub>D</sub> =1A, R <sub>GEN</sub> =3 Ω, V <sub>GS</sub> =10V)                          | t <sub>f</sub>      | —          | 6          | —          | ns         |

## ■ Typical Characteristic Curve 典型特性曲线

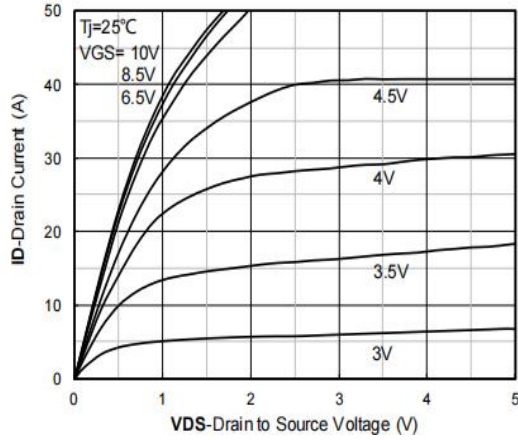


Figure 1: Output Characteristics

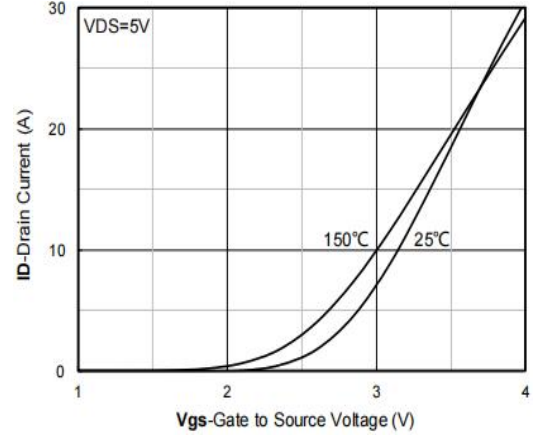


Figure 2: Transfer Characteristics

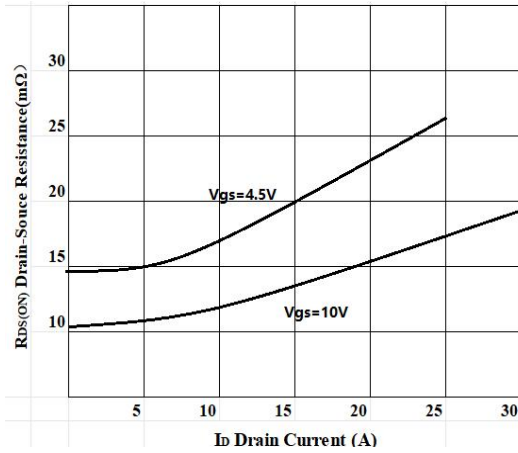


Figure 3: On-Resistance vs. Drain Current

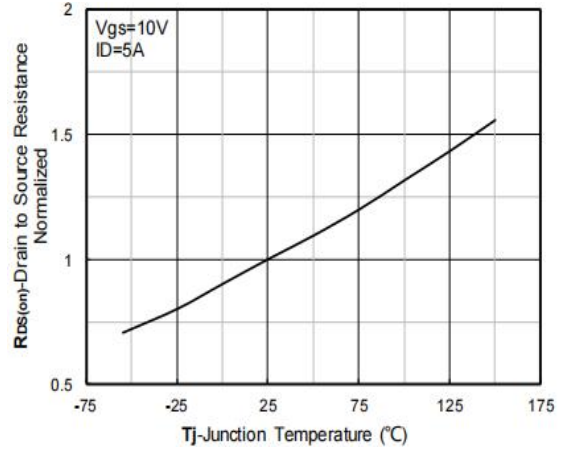


Figure 4: On-Resistance vs. Temperature

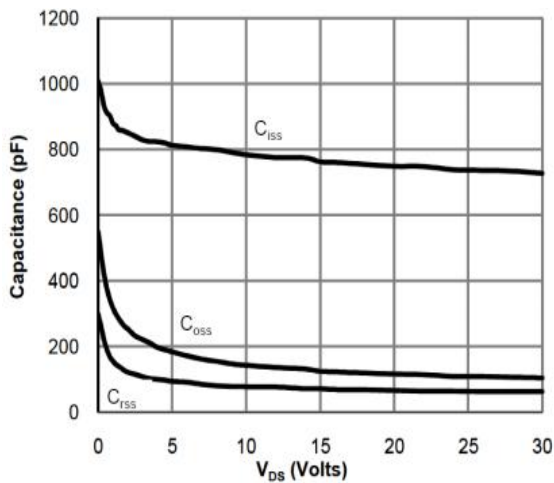


Figure 5: Capacitance Characteristics

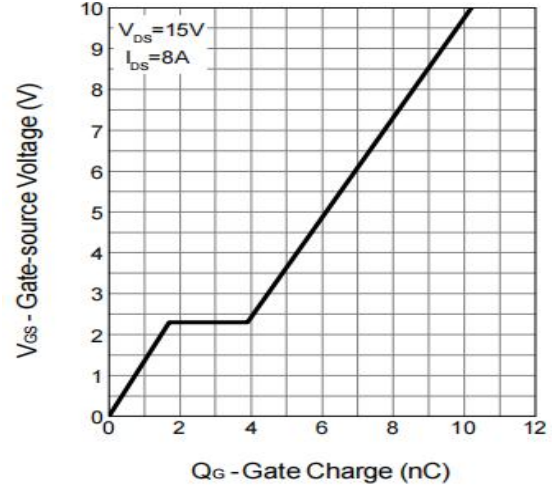


Figure 6: Gate-Charge Characteristics

■ Typical Characteristic Curve 典型特性曲线

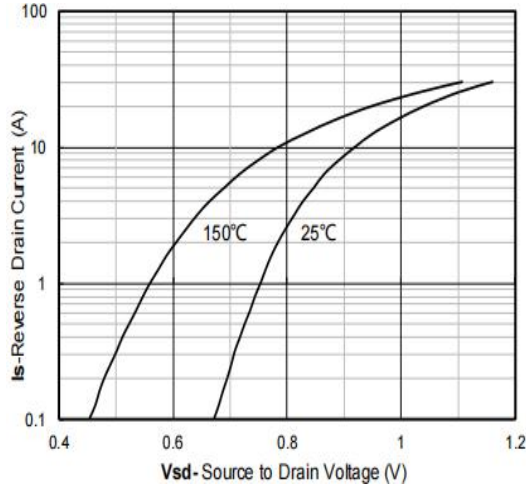


Figure 7: Diode Characteristics

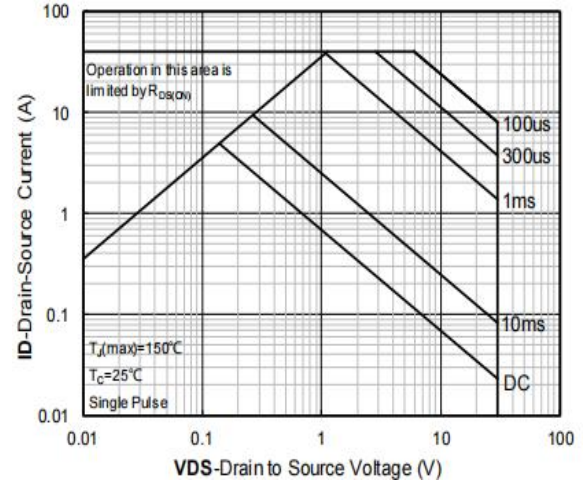


Figure 8: Safe Operating Area

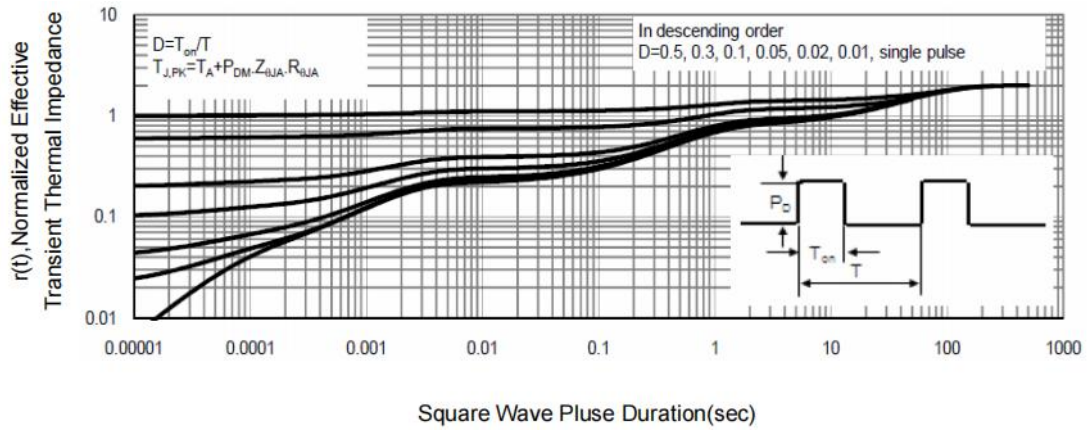
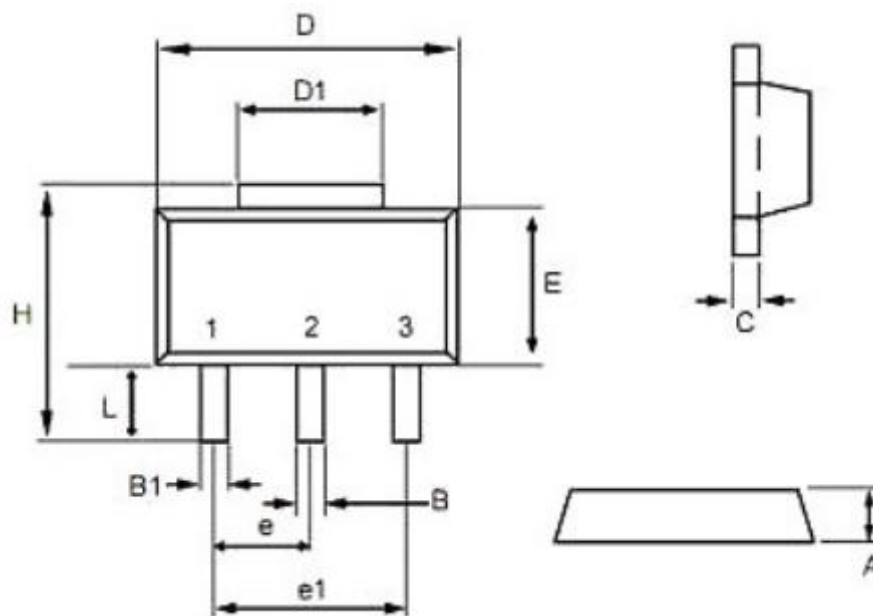


Figure 9: Transient Thermal Response Curve

■ 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 |