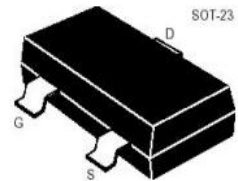
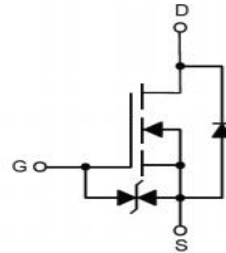




**SOT-23 30V N Channel ESD Protection** 沟道带静电保护  
**MOS Field Effect Transistor** 场效应管



## ■ 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 $T_A = 25^\circ C$ ) | 0.5      | A            |
| Drain Current (pulsed)漏极电流-脉冲          | $I_{DM}$                       | 1.5      | A            |
| Total Device Dissipation 总耗散功率         | $P_D$ (at $T_A = 25^\circ C$ ) | 350      | mW           |
| ESD Protected Up to 人体模式静电保护范围         | ESD(HBM)                       | 2.0      | kV           |
| Thermal Resistance Junction-Ambient 热阻 | $R_{\theta JA}$                | 357      | $^\circ C/W$ |
| Junction/Storage Temperature 结温/储存温度   | $T_J, T_{stg}$                 | -55~150  | $^\circ C$   |

## ■ Device Marking 产品字标

2SK3018-6AF=KN



## ■ Electrical Characteristics 电特性

(T<sub>A</sub>=25°C unless otherwise noted 如无特殊说明, 温度为 25°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 <sub>D</sub> =10uA, 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> =100uA, V <sub>GS</sub> =V <sub>DS</sub> )                                                       | V <sub>GS(th)</sub> | 0.8        | 1.1        | 1.5        | 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>    | —          | —          | ±10        | uA         |
| Static Drain-Source On-State Resistance<br>静态漏源导通电阻(I <sub>D</sub> =0.3A, V <sub>GS</sub> =10V)<br>(I <sub>D</sub> =0.2A, V <sub>GS</sub> =4.5V) | R <sub>DS(ON)</sub> | —          | 380<br>535 | 485<br>700 | m Ω        |
| Diode Forward Voltage Drop<br>内附二极管正向压降(I <sub>SD</sub> =100mA, 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> =30V, f=1MHz)                                                                    | C <sub>ISS</sub>    | —          | 28         | —          | pF         |
| Common Source Output Capacitance<br>共源输出电容(V <sub>GS</sub> =0V, V <sub>DS</sub> =30V, f=1MHz)                                                    | C <sub>OSS</sub>    | —          | 3          | —          | pF         |
| Reverse Transfer Capacitance<br>反馈电容(V <sub>GS</sub> =0V, V <sub>DS</sub> =30V, f=1MHz)                                                          | C <sub>RSS</sub>    | —          | 2          | —          | pF         |
| Total Gate Charge 栅极电荷密度<br>(V <sub>DS</sub> =30V, I <sub>D</sub> =100mA, V <sub>GS</sub> =10V)                                                  | Q <sub>g</sub>      | —          | 1.6        | —          | nC         |
| Gate Source Charge 栅源电荷密度<br>(V <sub>DS</sub> =30V, I <sub>D</sub> =100mA, V <sub>GS</sub> =10V)                                                 | Q <sub>gs</sub>     | —          | 0.5        | —          | nC         |
| Gate Drain Charge 栅漏电荷密度<br>(V <sub>DS</sub> =30V, I <sub>D</sub> =100mA, V <sub>GS</sub> =10V)                                                  | Q <sub>gd</sub>     | —          | 0.3        | —          | nC         |
| Turn-ON Delay Time 开启延迟时间<br>(V <sub>DS</sub> =30V I <sub>D</sub> =100mA, R <sub>GEN</sub> =6 Ω, V <sub>GS</sub> =10V)                           | t <sub>d(on)</sub>  | —          | 4          | —          | ns         |
| Turn-ON Rise Time 开启上升时间<br>(V <sub>DS</sub> =30V I <sub>D</sub> =100mA, R <sub>GEN</sub> =6 Ω, V <sub>GS</sub> =10V)                            | t <sub>r</sub>      | —          | 16         | —          | ns         |
| Turn-OFF Delay Time 关断延迟时间<br>(V <sub>DS</sub> =30V I <sub>D</sub> =100mA, R <sub>GEN</sub> =6 Ω, V <sub>GS</sub> =10V)                          | t <sub>d(off)</sub> | —          | 20         | —          | ns         |
| Turn-OFF Fall Time 关断下降时间<br>(V <sub>DS</sub> =30V I <sub>D</sub> =100mA, R <sub>GEN</sub> =6 Ω, V <sub>GS</sub> =10V)                           | t <sub>f</sub>      | —          | 80         | —          | ns         |

### ■ Typical Characteristic Curve 典型特性曲线

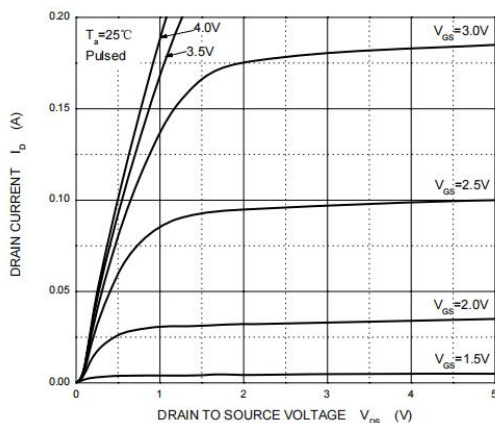


Figure 1: Output Characteristics

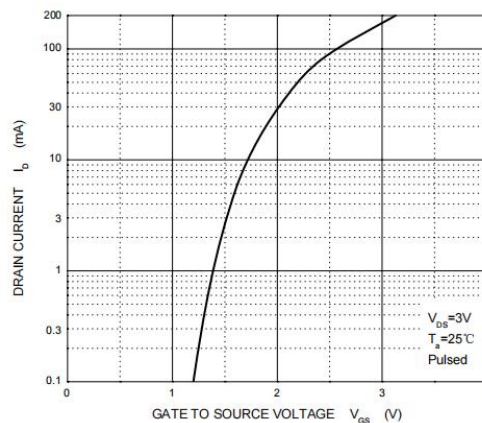


Figure 2: Transfer Characteristics

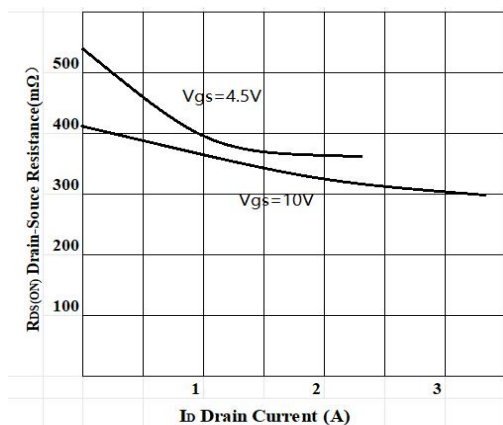


Figure 3: On-Resistance vs. Drain Current

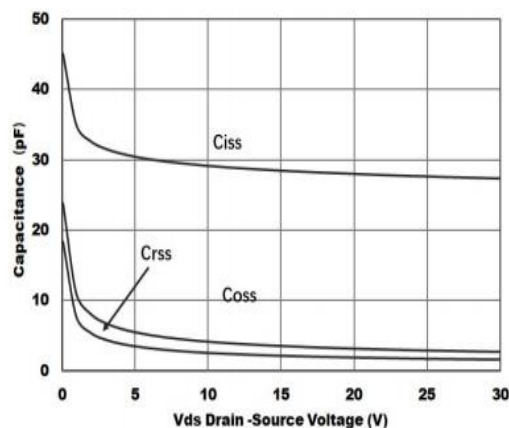


Figure 4: Capacitance Characteristics

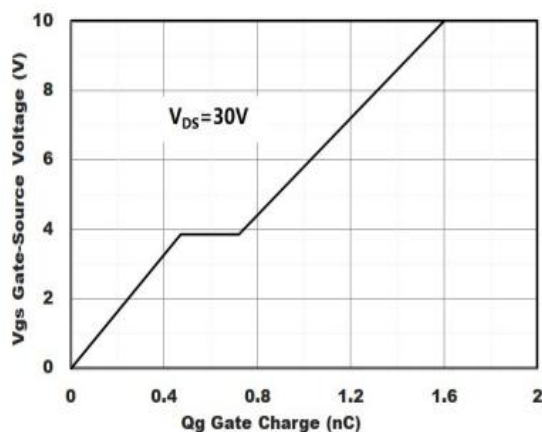
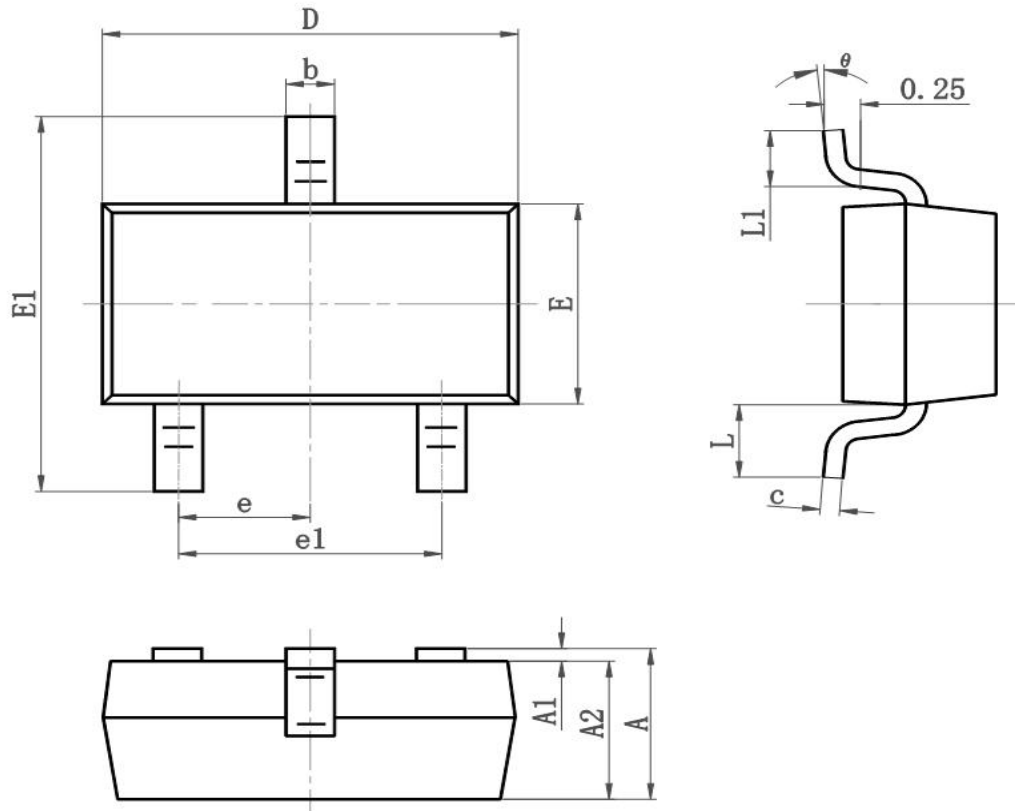


Figure 5: Gate-Charge Characteristics

### ■Dimension 外形封装尺寸



| Symbol   | Dimensions In Millimeters |       | Dimensions In Inches |       |
|----------|---------------------------|-------|----------------------|-------|
|          | Min                       | Max   | Min                  | Max   |
| A        | 0.900                     | 1.150 | 0.035                | 0.045 |
| A1       | 0.000                     | 0.100 | 0.000                | 0.004 |
| A2       | 0.900                     | 1.050 | 0.035                | 0.041 |
| b        | 0.300                     | 0.500 | 0.012                | 0.020 |
| c        | 0.080                     | 0.150 | 0.003                | 0.006 |
| D        | 2.800                     | 3.000 | 0.110                | 0.118 |
| E        | 1.200                     | 1.400 | 0.050                | 0.055 |
| E1       | 2.250                     | 2.550 | 0.089                | 0.100 |
| e        | 0.900                     | 1.00  | 0.035                | 0.039 |
| e1       | 1.800                     | 2.000 | 0.071                | 0.079 |
| L        | 0.500                     | 0.600 | 0.020                | 0.024 |
| L1       | 0.300                     | 0.500 | 0.012                | 0.020 |
| $\theta$ | 0°                        | 8°    | 0°                   | 8°    |