**SOT-23**

# P沟道30V漏-源电压MOS管
# P-Channel 30V(D-S) Mosfet

| 产品特性总结Product Summary | |
|---|---|
| VDS | -30V |
| RDSON(@$V_{GS}$= -10V) | ＜60mΩ |
| RDSON(@$V_{GS}$= -4.5V) | ＜65mΩ |

**根据客户要求打印 According to customer requirement**

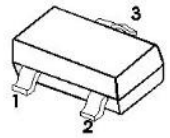
## 特征 Features

- 低导通电阻Low Rds(on)@$V_{GS}$= -10V
- 沟道功率MOS管TrenchFET Power MOSFET
- 无卤、RoHS认证Halogen-free、RoHS Compliant
- 表贴型封装Surface Mount Package

## 应用 Applications

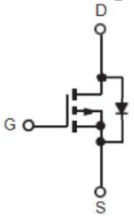
- 负载开关Load Switch
- 开关电路Switching Circuits
- 高速线路驱动High-speed Line Driver
- 电源管理功能Power Management Functions

**脚位定义Pin Definition**




1. Gate
2. Source
3. Drain

**等效电路Equivalent circuit**




**极限值和温度特性**(TA = 25℃ 除非另有规定)

**Maximum Ratings & Thermal Characteristics** (Ratings at 25℃ ambient temperature unless otherwise specified.)

| 参数 Parameters | 符号Symbol | 数值 Value | 单位Unit |
|---|---|---|---|
| 漏源电压Drain-Source Voltage | $V_{DS}$ | -30 | V |
| 栅源电压Gate-Source Voltage | $V_{GS}$ | ±16 | V |
| 漏极连续电流Continuous Drain Current | $I_D$ | -4 | A |
| 漏极脉冲电流Pulsed Drain Current (note 1) | $I_{DM}$ | -16 | A |
| 最大功耗Maximum Power Dissipation | $P_D$ | 1.2 | W |
| 结环热阻Thermal Resistance from Junction to Ambient (note 2) | $R_{\theta JA}$ | 80 | ℃/W |
| 结温和存储温度Junction and Storage Temperature | $T_J$、$T_{STG}$ | -50~+150 | ℃ |

**电特性** (TA = 25℃ 除非另有规定)

**Electrical Characteristics** (Ratings at 25℃ ambient temperature unless otherwise specified).

| 参数 Parameters | 符号 Symbol | 测试条件 Test Condition | 最小值 Min | 典型值 Typ | 最大值 Max | 单位Unit |
|---|---|---|---|---|---|---|
| **静态特性Static Characteristics** | | | | | | |
| 漏源击穿电压 Drain-source breakdown voltage | $V_{(BR)DSS}$ | $V_{GS}$ = 0V, $I_D$ = -250μA | -30 | -- | -- | V |
| 零栅压漏极电流 Zero gate voltage drain current | $I_{DSS}$ | $V_{DS}$ = -30V,$V_{GS}$ = 0V | -- | -- | -1 | μA |
| 栅源漏电流Gate-body leakage current | $I_{GSS}$ | $V_{GS}$ = ± 16V, $V_{DS}$ = 0V | -- | -- | ±100 | nA |
| 栅源阈值电压 Gate threshold voltage (note 3) | $V_{GS(th)}$ | $V_{DS}$ =$V_{GS}$, $I_D$ = -250μA | -0.5 | -0.8 | -1.2 | V |
| 漏源极导通电阻 Drain-source on-resistance (note 3) | $R_{DS(on)}$ | $V_{GS}$ = -10V, $I_D$ = -4A | -- | 44 | 60 | mΩ |
| | | $V_{GS}$ = -4.5V, $I_D$ = -3A | -- | 51 | 65 | mΩ |
| | | $V_{GS}$ = -3.3V, $I_D$ = -3A | -- | 58 | 80 | mΩ |
| 二极管正向电压 Diode forward voltage (note 3) | $V_{SD}$ | $I_S$= -4A, $V_{GS}$ = 0V | -- | -0.88 | -1.2 | V |

| | | | | | | |
|---|---|---|---|---|---|---|
| **动态特性Dynamic Characteristics** (note4) | | | | | | |
| 输入电容Input Capacitance | $C_{iss}$ | $V_{DS}$= -15V,$V_{GS}$=0V, f=1MHz | -- | 655 | -- | pF |
| 输出电容Output Capacitance | $C_{oss}$ | | -- | 65 | -- | pF |
| 反向传输电容 Reverse Transfer Capacitance | $C_{rss}$ | | -- | 53 | -- | pF |
| **开关特性Switching Characteristics** (note 4) | | | | | | |
| 开启延迟时间Turn-on delay time | td(on) | $V_{DD}$= -15V,$I_D$= -2A,$R_G$= 3.3Ω, $V_{GS}$= -10V | -- | 7 | -- | ns |
| 开启上升沿时间Turn-on rise time | tr | | -- | 3.8 | -- | ns |
| 关断延迟时间Turn-off delay time | td(off) | | -- | 35 | -- | ns |
| 关断下降沿时间Turn-off fall time | tf | | -- | 10.5 | -- | ns |
| 总栅极电荷Total Gate Charge | $Q_g$ | $V_{DS}$= -15V,$I_D$=-4A, $V_{GS}$=-4.5V | -- | 7.2 | -- | nC |
| 栅源电荷Gate-Source Charge | Qgs | | -- | 1.5 | -- | nC |
| 栅漏电荷Gate-Drain Charge | Qgd | | -- | 2.6 | -- | nC |

***Notes :**

1. Repetitive rating：Pluse width limited by maximum junction temperature
2. Surface Mounted on FR4 board，t≤10 sec.
3. Pulse test : Pulse width≤300μs, duty cycle≤2%.
4. Guaranteed by design, not subject to production.

## 典型特性曲线 Typical characteristics

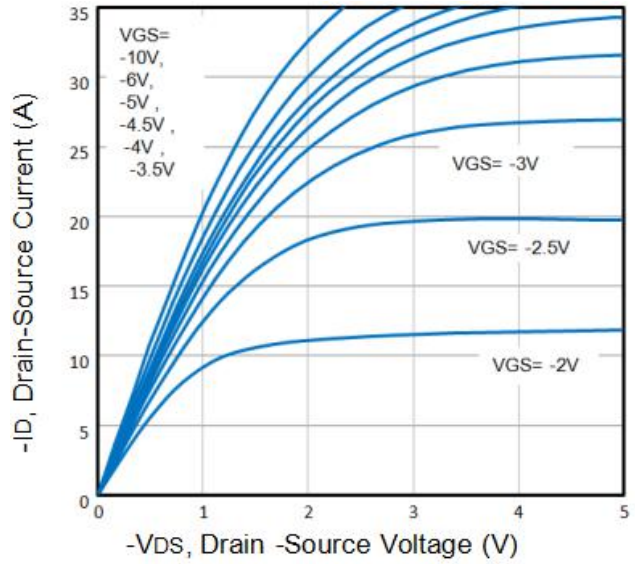



**Fig1.** Typical Output Characteristics

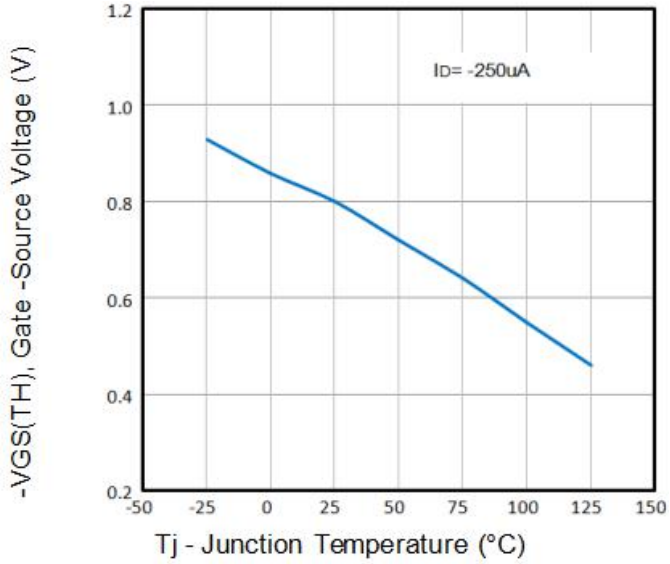



**Fig2.** Normalized Threshold Voltage Vs. Temperature

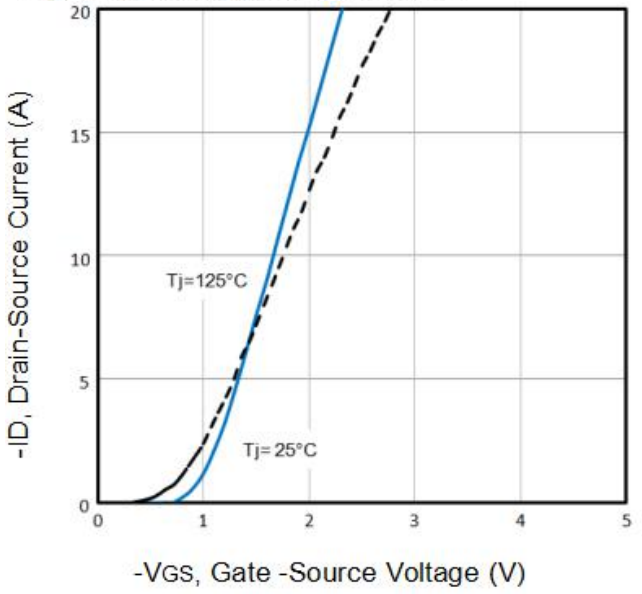



**Fig3.** Typical Transfer Characteristics

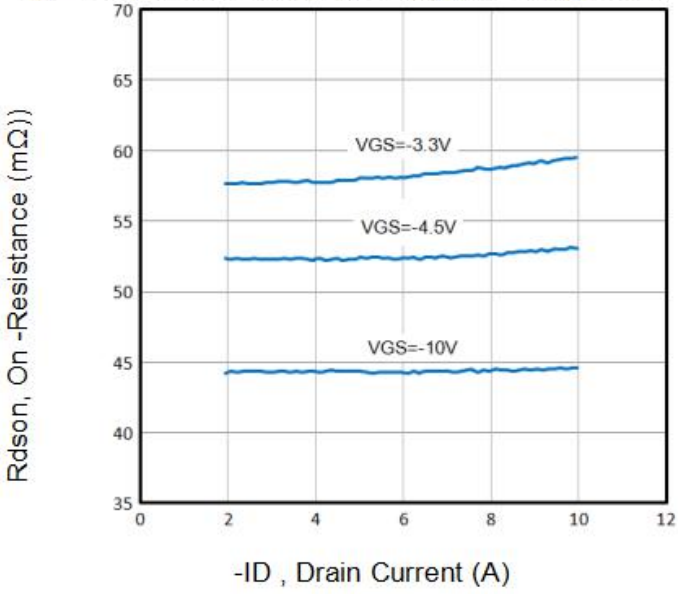



**Fig4.** On-Resistance vs. Drain Current and Gate

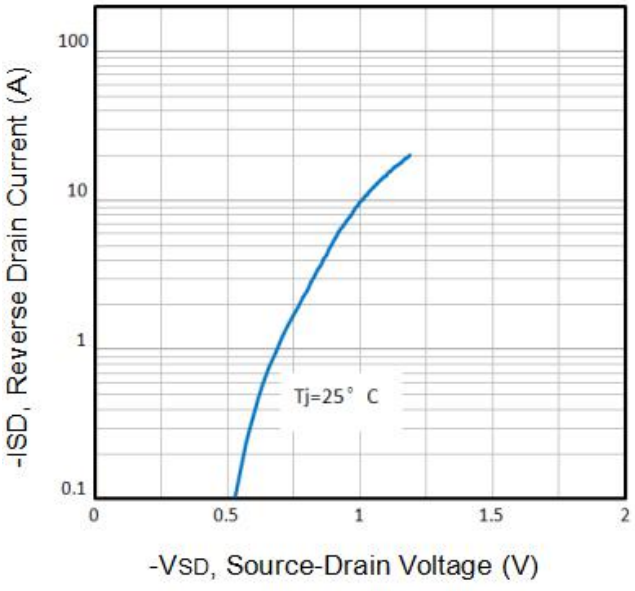



**Fig5.** Typical Source-Drain Diode Forward Voltage

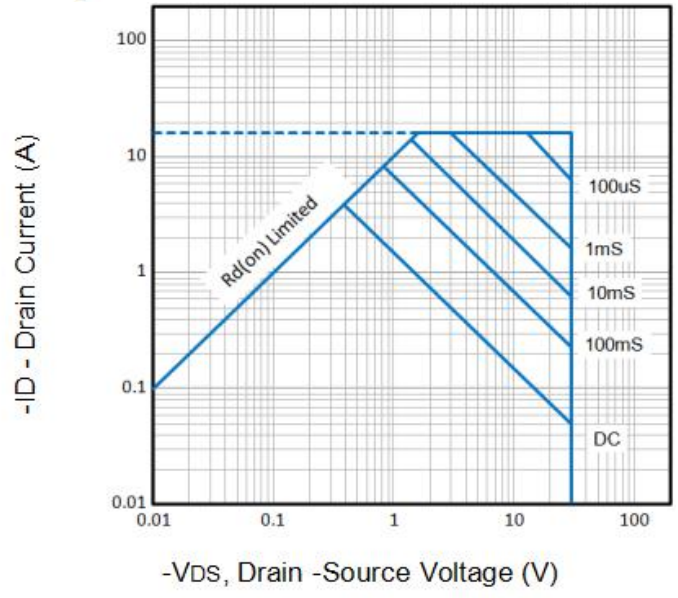



**Fig6.** Maximum Safe Operating Area

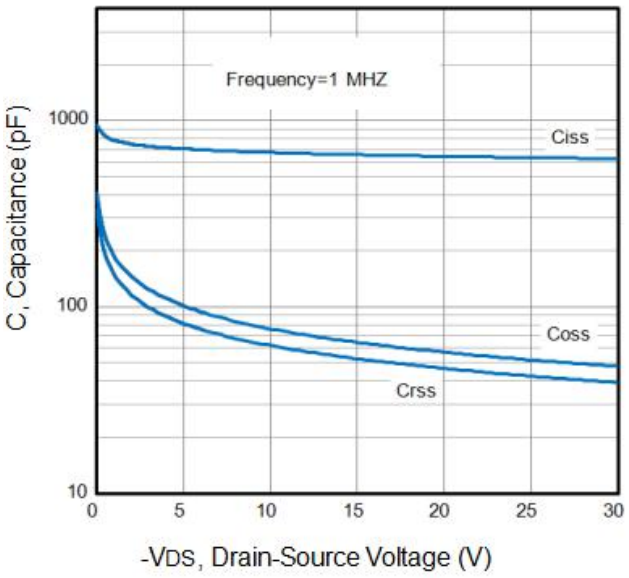



**Fig7.** Typical Capacitance Vs. Drain-Source Voltage

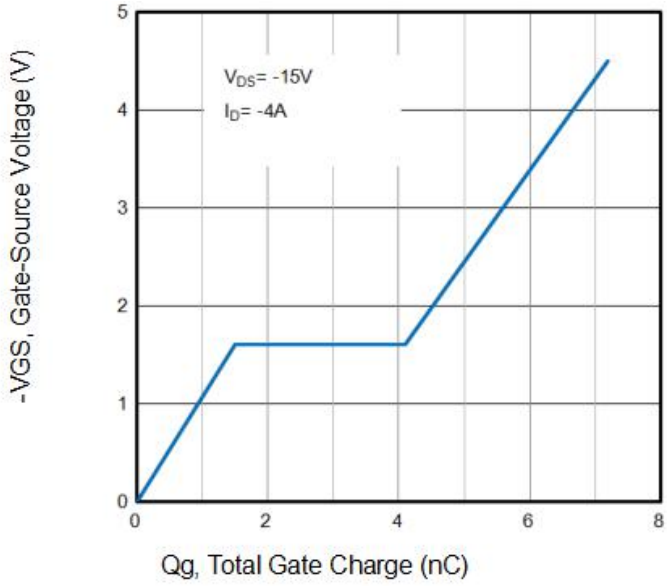
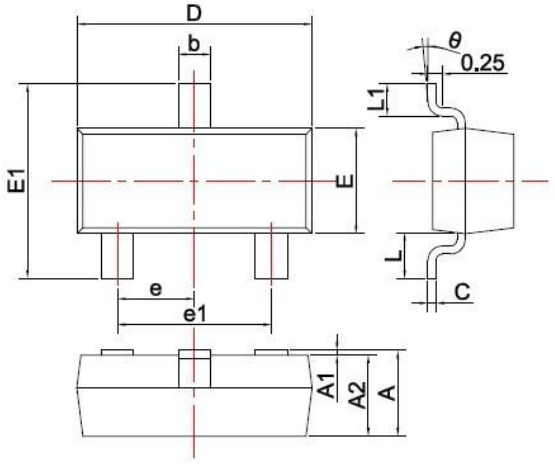



**Fig8.** Typical Gate Charge Vs. Gate-Source Voltage

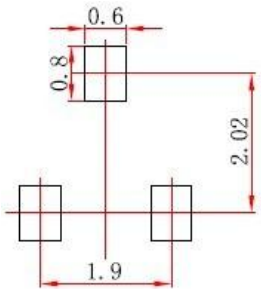
## 封装外形图 SOT-23 Package Outline Dimensions




| SYMBOL | DIMENSIONS | |
|---|---|---|
| | MIN. | MAX. |
| A | 0.900 | 1.150 |
| A1 | 0.000 | 0.100 |
| A2 | 0.900 | 1.050 |
| b | 0.300 | 0.500 |
| c | 0.080 | 0.150 |
| D | 2.800 | 3.000 |
| E | 1.200 | 1.400 |
| E1 | 2.250 | 2.550 |
| e | 0.950TYP | |
| e1 | 1.800 | 2.000 |
| L | 0.550REF | |
| L1 | 0.300 | 0.500 |
| θ | 0° | 8° |

Unit: mm

## 焊盘设计参考Precautions: PCB Design




Note:
1.Controlling dimension:In millimeters.
2.General tolerance:± 0.05mm.
3.The pad layout is for reference purposes only.