# P-Channel 30-V(D-S) MOSFET

| V(BR)DSS | RDS(on)MAX | ID |
|---|---|---|
| -30 V | 98mΩ@-10V | -3.0A |
| | 165mΩ@-4.5V | |

**FEATURE**

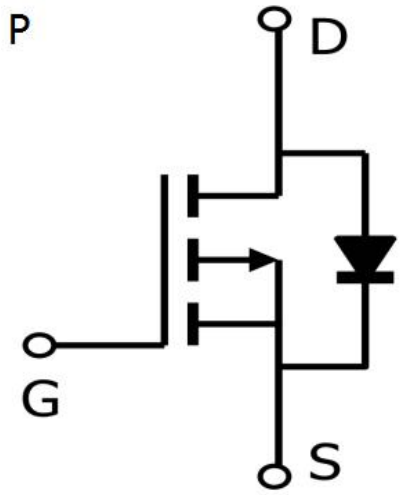
- TrenchFET Power MOSFET
- Ultra Low On-Resistance
- Available in Tape and Reel

**APPLICATION**

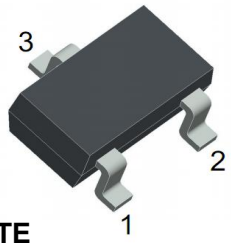
※ Load Switch for Portable Devices

※ DC/DC Converter

**Equivalent Circuit**




**SOT- 23**




**1.GATE**
**2.SOURCE**
**3.DRAIN**

**Maximum ratings ( Ta=25℃ unless otherwise noted)**

| Parameter | Symbol | Value | Unit |
|---|---|---|---|
| Drain-Source Voltage | VDS | -30 | V |
| Gate-Source Voltage | VGS | ±20 | |
| Continuous Drain Current | ID | -3.0 | A |
| Pulsed Diode Curren | IDM | -24 | |
| Power Dissipation | PD | 1.25 | W |
| Thermal Resistance from Junction to Ambient (t≤5s) | RθJA | 100 | ℃/W |
| Operating Junction | TJ | 150 | ℃ |
| Storage Temperature | TSTG | -55~+150 | |

## MOSFET ELECTRICAL CHARACTERISTICS

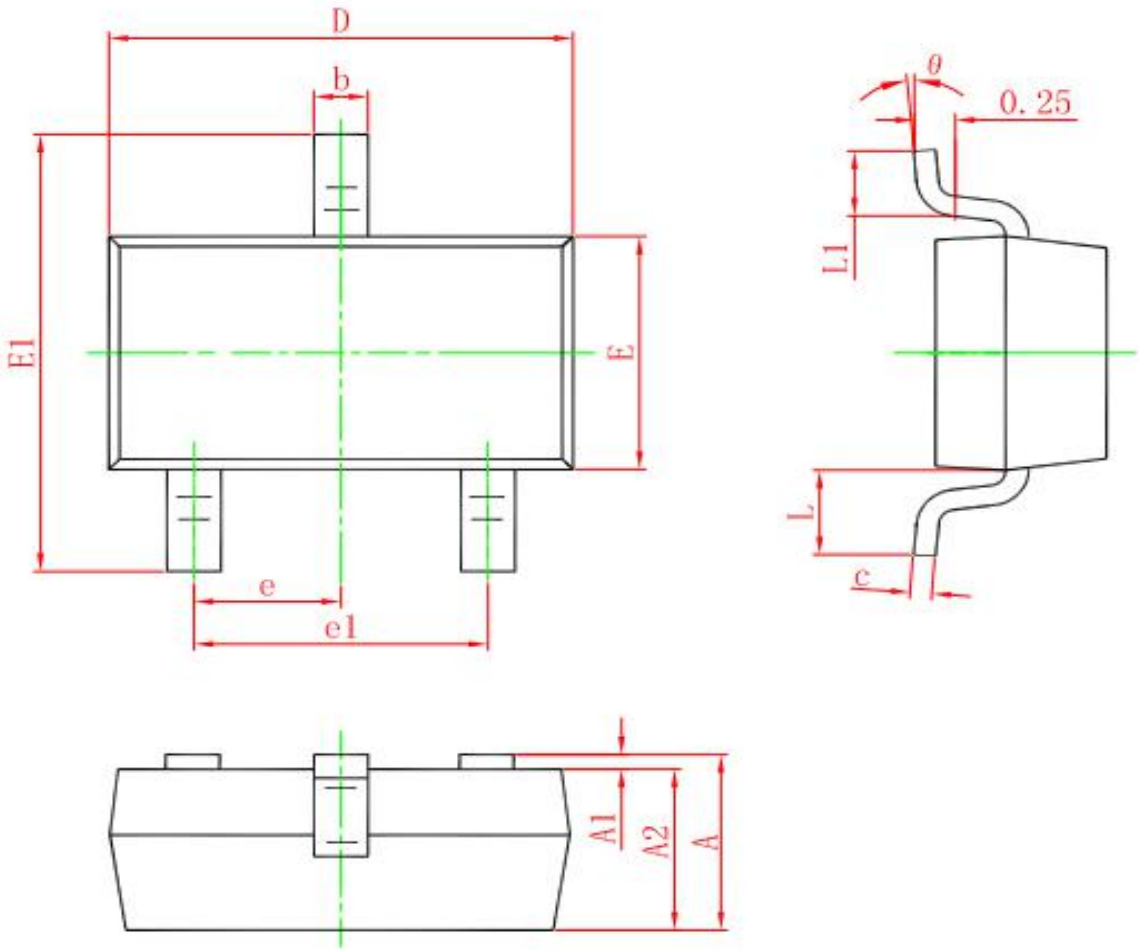
### Static Electrical Characteristics (Ta = 25 ℃ Unless Otherwise Noted)

| Parameter | Symbol | Test Condition | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| **Static** | | | | | | |
| Drain-source breakdown voltage | V(BR)DSS | VGS = 0V, ID = -250μA | -30 | | | V |
| Gate-source threshold voltage | VGS(th) | VDS =VGS, ID = -250μA | -1 | | -2.5 | V |
| Gate-source leakage | IGSS | VDS =0V, VGS = ±20V | | | ±100 | nA |
| Zero gate voltage drain current | IDSS | VDS = -24V, VGS =0V | | | -1 | μA |
| Drain-source on-state resistancea | RDS(on) | VGS = -10V, ID = -3.0A | | | 98 | mΩ |
| | | VGS = -4.5V, ID = -2.5A | | | 165 | mΩ |
| Forward transconductancea | gfs | VDS = -10V, ID = -3A | 3.1 | | | S |
| Diode forward voltage | VSD | IS=1A, VGS=0V | | -0.8 | -1.2 | V |
| Continuous Source-Drain Diode Current | IS | | | | -1.3 | A |
| **Dynamic** | | | | | | |
| Input capacitance | Ciss | VDS = -15V,VGS =0V, f=1MHz | | 510 | | pF |
| Output capacitance | Coss | | | 71 | | pF |
| Reverse transfer capacitanceb | Crss | | | 43 | | pF |
| Total gate charge | Qg | VDS = -15V,VGS = -10V, ID = -3A | | 9.5 | | nC |
| Gate-source charge | Qgs | | | 2.3 | | nC |
| Gate-drain charge | Qgd | | | 1.6 | | nC |
| Gate resistance | Rg | f=1MHz | | 6.5 | | Ω |
| **Switchingb** | | | | | | |
| Turn-on delay time | td(on) | VDS= -15V RL=6Ω, ID ≈ -1A, VGEN= -10V,Rg=3Ω | | 12 | | ns |
| Rise time | tr | | | 18 | | ns |
| Turn-off delay time | td(off) | | | 88 | | ns |
| Fall time | tf | | | 52 | | ns |
| Body Diode Reverse Recovery Time | Trr | IF= -3.0A, dI/dt=100A/μs | | 17 | | ns |
| Body Diode Reverse Recovery Charge | Qrr | IF= -3.0A, dI/dt=100A/μs | | 12 | | nC |

**Note :**

1. Repetitive Rating : Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t < 5 sec.
3. Pulse Test : Pulse Width≤300μs, Duty Cycle ≤ 2%.
4. Guaranteed by design, not subject to production testing.

## SOT-23 PACKAGE OUTLINE DIMENSIONS




| 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 | 0.047 | 0.055 |
| E1 | 2.250 | 2.550 | 0.089 | 0.100 |
| e | 0.950 TYP. | | 0.037 TYP. | |
| e1 | 1.800 | 2.000 | 0.071 | 0.079 |
| L | 0.550 REF. | | 0.022 REF. | |
| L1 | 0.300 | 0.500 | 0.012 | 0.020 |
| θ | 0° | 8° | 0° | 8° |