# P-Channel 20-V(D-S) MOSFET

| V(BR)DSS | RDS(on)MAX | ID |
|---|---|---|
| -20 V | 90mΩ@-4.5V<br>115mΩ@-2.5V | -3A |

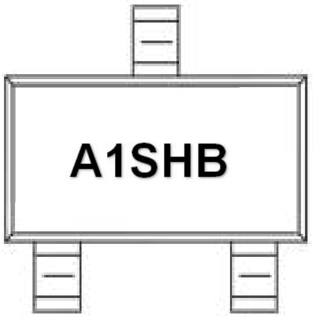
**FEATURE**

※ TrenchFET Power MOSFET

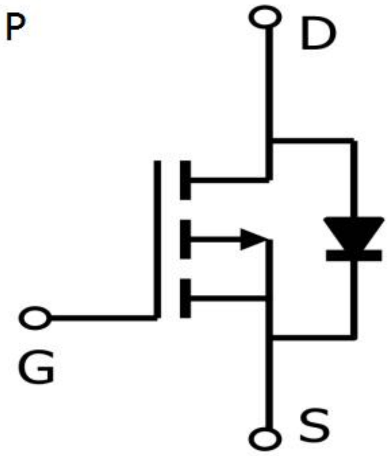
**APPLICATION**

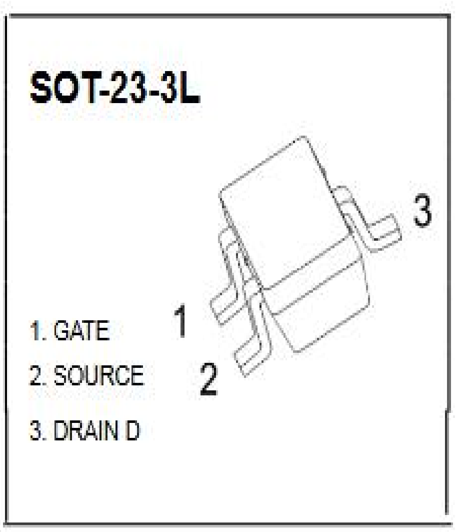
※ Load Switch for Portable Devices
※ DC/DC Converter

**MARKING**



**Equivalent Circuit**





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

| Parameter | Symbol | Value | Unit |
|---|---|---|---|
| Drain-Source Voltage | VDS | -20 | V |
| Gate-Source Voltage | VGS | ±12 | |
| Continuous Drain Current | ID | -3 | A |
| Pulsed Diode Curren | IDM | -15 | |
| Continuous Source-Drain Current(Diode Conduction) | IS | -0.8 | |
| Power Dissipation | PD | 1.25 | W |
| Thermal Resistance from Junction to Ambient (t≤5s) | RθJA | 150 | ℃/W |
| Operating Junction | TJ | 150 | ℃ |
| Storage Temperature | TSTG | -55~+150 | ℃ |

## MOSFET ELECTRICAL CHARACTERISTICS

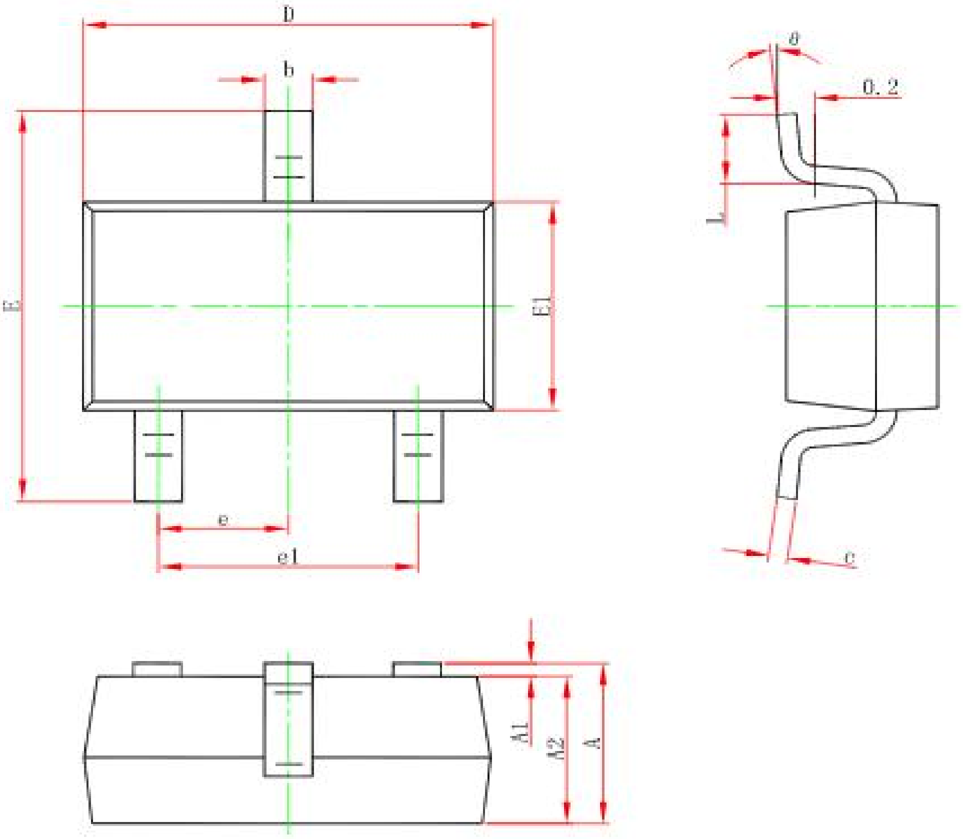
### Static Electrical Characteristics (Ta = 25 ℃ Unless Otherwise Noted)

| Parameter | Symbol | Test Condition | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| **Static** | | | | | | |
| Drain-source breakdown voltage | V(BR)DSS | VGS = 0V, ID = -250μA | -20 | | | V |
| Gate-source threshold voltage | VGS(th) | VDS =VGS, ID = -250μA | -0.4 | | -1. | V |
| Gate-source leakage | IGSS | VDS =0V, VGS = ±12V | | | ±100 | nA |
| Zero gate voltage drain current | IDSS | VDS = -20V, VGS =0V | | | -1 | μA |
| Drain-source on-state resistancea | RDS(on) | VGS = -4.5V, ID = -2.8A | | 66 | 90 | mΩ |
| | | VGS = -2.5V, ID = -2A | | 83 | 115 | mΩ |
| Forward transconductancea | gfs | VDS = -4.5V, ID = -3A | | 4 | | S |
| Diode forward voltage | VSD | IS=-1A,VGS=0V | | -0.8 | -1.3 | V |
| **Dynamic** | | | | | | |
| Input capacitance | Ciss | VDS = -16V,VGS =0V, f=1MHz | | 589 | | pF |
| Output capacitance | Coss | | | 92 | | pF |
| Reverse transfer capacitanceb | Crss | | | 68 | | pF |
| Total gate charge | Qg | VDS = -16V,VGS = -4.5V, ID =-3A | | 5.5 | 10 | nC |
| Gate-source charge | Qgs | | | 0.8 | | nC |
| Gate-drain charge | Qgd | | | 1.3 | | nC |
| Gate resistance | Rg | f=1MHz | | 6 | | Ω |
| **Switchingb** | | | | | | |
| Turn-on delay time | td(on) | VDD= -10V RL=6Ω, ID ≈ -3A, VGEN= -4.5V,Rg=6Ω | | 10 | 20 | ns |
| Rise time | tr | | | 35 | 60 | ns |
| Turn-off delay time | td(off) | | | 30 | 50 | ns |
| Fall time | tf | | | 10 | 20 | ns |
| **Drain-source body diode characteristics** | | | | | | |
| Continuous Source-Drain Diode Current | IS | Tc=25℃ | | | -1.3 | A |
| Pulsed Diode forward Curren | ISM | | | | -20 | A |

**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-23-3L PACKAGE OUTLINE DIMENSIONS



| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|---|---|---|---|---|
| | Min. | Max. | Min. | Max. |
| A | 1.050 | 1.250 | 0.041 | 0.049 |
| A1 | 0.000 | 0.100 | 0.000 | 0.004 |
| A2 | 1.050 | 1.150 | 0.041 | 0.045 |
| b | 0.300 | 0.500 | 0.012 | 0.020 |
| c | 0.100 | 0.200 | 0.004 | 0.008 |
| D | 2.820 | 3.020 | 0.111 | 0.119 |
| E1 | 1.500 | 1.700 | 0.059 | 0.067 |
| E | 2.650 | 2.950 | 0.104 | 0.116 |
| e | 0.950(BSC) | | 0.037(BSC) | |
| e1 | 1.800 | 2.000 | 0.071 | 0.079 |
| L | 0.300 | 0.600 | 0.012 | 0.024 |
| θ | 0° | 8° | 0° | 8° |