

**-20V,-3A
P-Channel Mosfet**

FEATURES

$R_{DS(ON)} \leq 110m\Omega$ @VGS=-4.5V

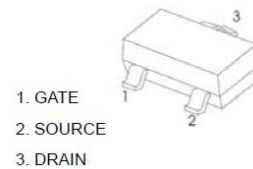
$R_{DS(ON)} \leq 140m\Omega$ @VGS=-2.5V

APPLICATIONS

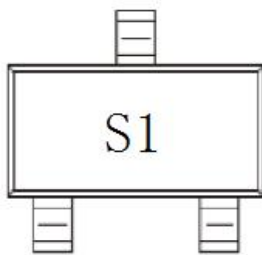
Load Switch for Portable Devices

DC/DC Converter

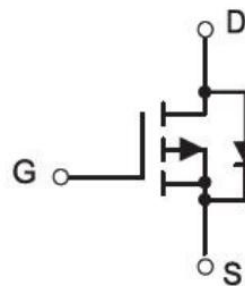
SOT-23



MARKING



P-CHANNEL MOSFET



Maximum ratings (Ta=25°C unless otherwise noted)

| Parameter | Symbol | Value | Unit |
|--|-----------------|-----------|------|
| Drain-Source Voltage | V_{DS} | -20 | V |
| Gate-Source Voltage | V_{GS} | ± 12 | |
| Continuous Drain Current | I_D | -3 | A |
| Pulsed Drain Current | I_{DM} | -12 | |
| Maximum Power Dissipation | P_D | 0.4 | W |
| Thermal Resistance from Junction to Ambient(t ≤5s) | $R_{\theta JA}$ | 312 | °C/W |
| Junction Temperature | T_J | 150 | °C |
| Storage Temperature | T_{stg} | -55 ~+150 | |

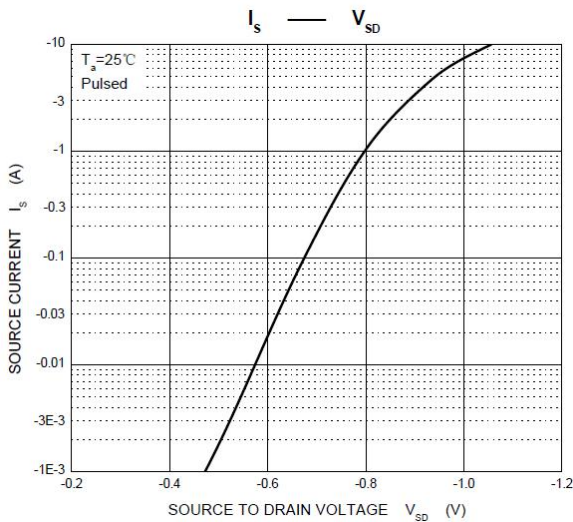
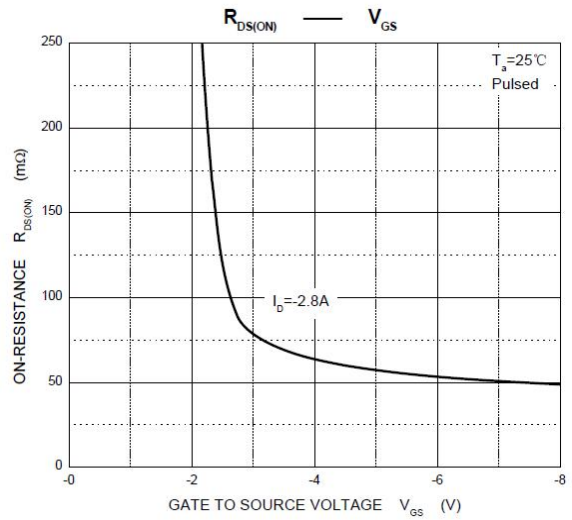
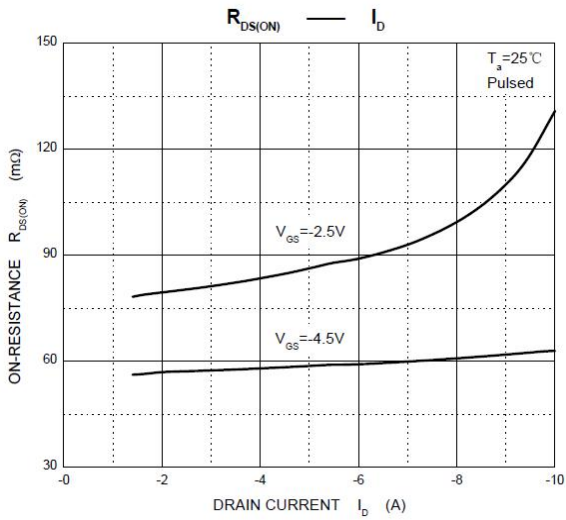
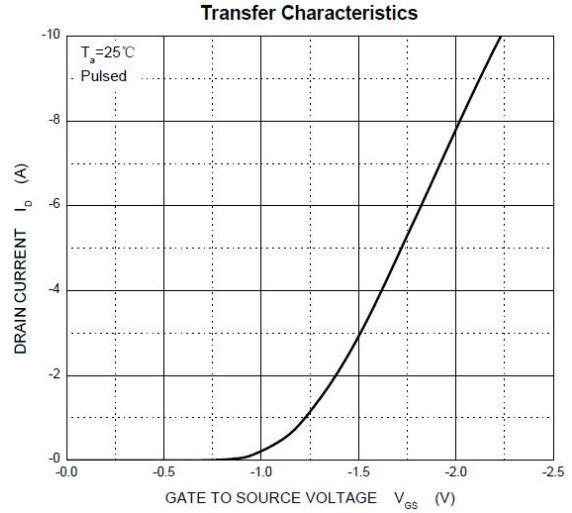
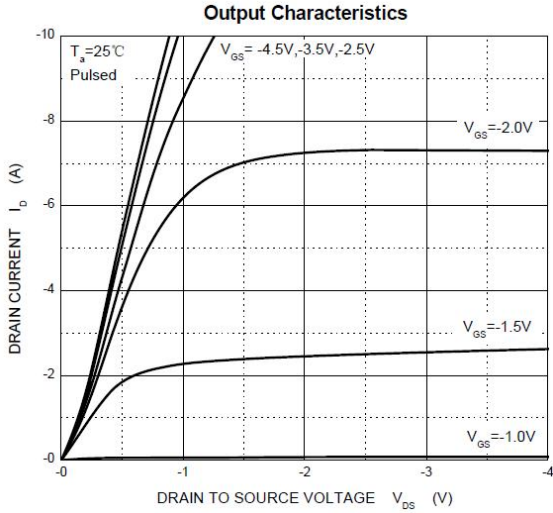
MOSFET ELECTRICAL CHARACTERISTICS $T_a=25\text{ }^\circ\text{C}$ unless otherwise specified

| Parameter | Symbol | Test Condition | Min | Typ | Max | Units |
|---|---------------|--|------|-------|-----------|------------|
| Static | | | | | | |
| Drain-source breakdown voltage | $V_{(BR)DSS}$ | $V_{GS} = 0V, I_D = -250\mu A$ | -20 | -24.5 | | V |
| Gate-source threshold voltage | $V_{GS(th)}$ | $V_{DS} = V_{GS}, I_D = -250\mu A$ | -0.4 | -0.6 | -1 | |
| Gate-source leakage | I_{GSS} | $V_{DS} = 0V, V_{GS} = \pm 8V$ | | | ± 100 | nA |
| Zero gate voltage drain current | I_{DSS} | $V_{DS} = -20V, V_{GS} = 0V$ | | | -1 | μA |
| Drain-source on-state resistance ^a | $R_{DS(on)}$ | $V_{GS} = -4.5V, I_D = -1A$ | | 76 | 110 | m Ω |
| | | $V_{GS} = -2.5V, I_D = -1A$ | | 102 | 140 | |
| Body diode voltage | V_{SD} | $I_S = -0.7A$ | | -0.75 | -1.2 | V |
| Dynamic^b | | | | | | |
| Input capacitance | C_{iss} | $V_{DS} = -10V, V_{GS} = 0V, f = 1MHz$ | | 405 | | pF |
| Output capacitance | C_{oss} | | | 75 | | |
| Reverse transfer capacitance | C_{rss} | | | 55 | | |
| Total gate charge | Q_g | $V_{DS} = -10V, V_{GS} = -2.5V$ $I_D = -3A$ | | | 6 | nC |
| Gate-source charge | Q_{gs} | | | 0.7 | | |
| Gate-drain charge | Q_{gd} | | | 1.3 | | |
| Turn-on delay time | $t_{d(on)}$ | $V_{DD} = -10V,$ $R_L = 10\Omega, I_D = -1A,$ $V_{GEN} = -4.5V, R_g = 1\Omega$ | | 11 | 20 | ns |
| Rise time | t_r | | | 35 | 60 | |
| Turn-off delay time | $t_{d(off)}$ | | | 30 | 50 | |
| Fall time | t_f | | | 10 | 20 | |

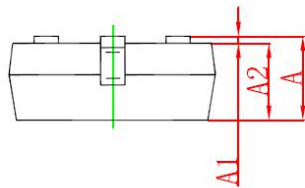
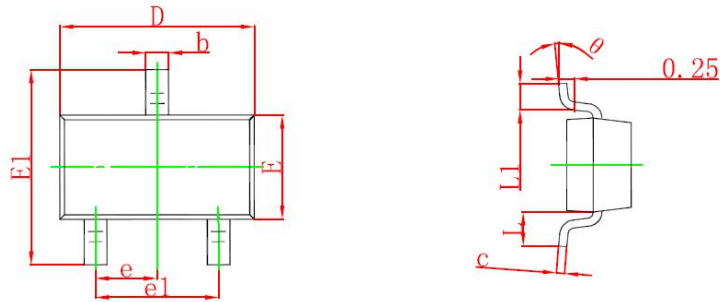
Notes :

- Pulse Test : Pulse Width < 300 μs , Duty Cycle $\leq 2\%$.
- Guaranteed by design, not subject to production testing.

P-Channel -20V (D-S) MOSFET Typical Characteristics

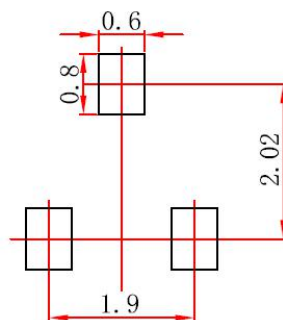


SOT-23 package



| 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° |

SOT-23 Suggested Pad Layout



- Note:
1. Controlling dimension: in millimeters.
 2. General tolerance: $\pm 0.05\text{mm}$.
 3. The pad layout is for reference purposes only.