

SOT-23 Plastic-Encapsulate MOSFETS

N-Channel 20-V(D-S) MOSFET

| $V_{(BR)DSS}$ | $R_{DS(on)MAX}$ | I_D |
|---------------|-----------------|-------|
| 20V | 28 mΩ@4.5V | 5.5A |
| | 36 mΩ@2.5V | |
| | 48 mΩ@1.8V | |

FEATURE

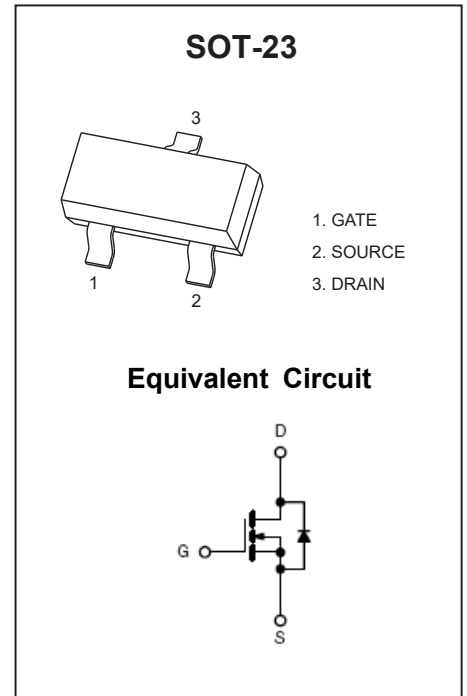
- TrenchFET Power MOSFET

APPLICATION

- DC/DC Converters
- Load Switching for Portable Applications

Marking

- S**



Maximum ratings ($T_a=25^{\circ}\text{C}$ unless otherwise noted)

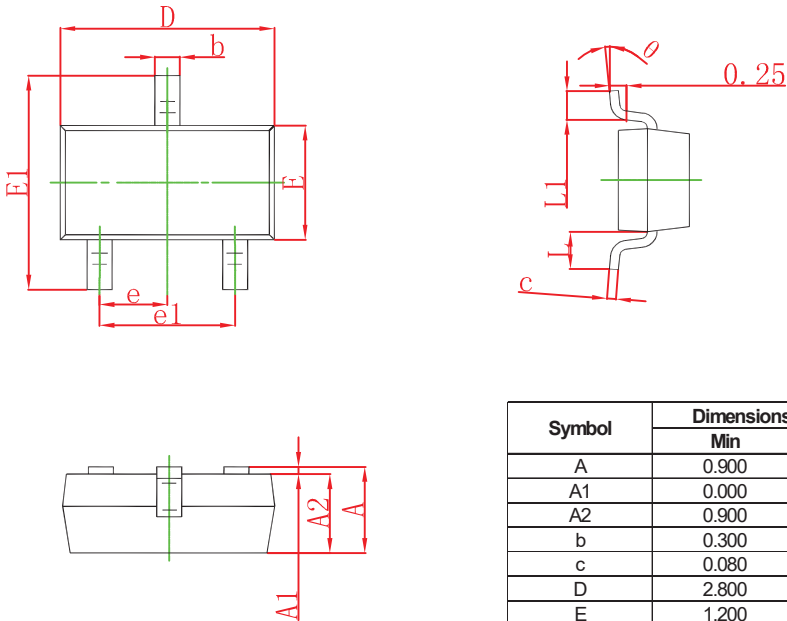
| Parameter | Symbol | Value | Unit |
|---|-----------------|------------|-----------------------------|
| Drain-Source Voltage | V_{DS} | 20 | V |
| Gate-Source Voltage | V_{GS} | ± 10 | |
| Continuous Drain Current | I_{D6} | 5.5 | A |
| Pulsed Drain Current | I_{DM} | 20 | |
| Continuous Source-Drain Diode Current | I_S | 1.04 | W |
| Maximum Power Dissipation | P_D | 0.35 | |
| Thermal Resistance from Junction to Ambient | $R_{\theta JA}$ | 357 | $^{\circ}\text{C}/\text{W}$ |
| Junction Temperature | T_J | 150 | $^{\circ}\text{C}$ |
| Storage Temperature | T_{stg} | -50 ~ +150 | |

MOSFET ELECTRICAL CHARACTERISTICS
T_a=25 °C unless otherwise specified

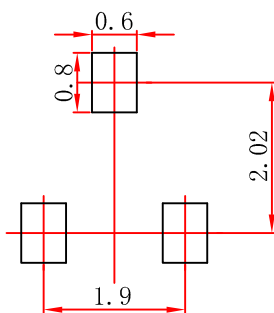
| Parameter | Symbol | Test Condition | Min | Typ | Max | Unit |
|--|----------------------|---|------|-------|-------|------|
| Static | | | | | | |
| Drain-source breakdown voltage | V _{(BR)DSS} | V _{GS} = 0V, I _D =250μA | 20 | | | V |
| Gate-source leakage | I _{GSS} | V _{DS} =0V, V _{GS} =±8V | | | ±100 | nA |
| Zero gate voltage drain current | I _{DSS} | V _{DS} =20V, V _{GS} =0V | | | 1.0 | μA |
| Gate-source threshold voltage | V _{GS(th)} | V _{DS} =V _{GS} , I _D =250μA | 0.55 | 0.7 | 1.1 | V |
| Drain-source on-state resistance ^a | R _{DS(on)} | V _{GS} =4.5V, I _D =5.0A | | 0.020 | 0.028 | Ω |
| | | V _{GS} =2.5V, I _D =4.7A | | 0.025 | 0.036 | |
| | | V _{GS} =1.8V, I _D =4.3A | | 0.035 | 0.048 | |
| Forward tranconductance ^a | g _{fs} | V _{DS} =10V, I _D =5.0A | | 6 | | S |
| Dynamic^b | | | | | | |
| Input capacitance | C _{iss} | V _{DS} =10V, V _{GS} =0V, f =1MHz | | 865 | | pF |
| Output capacitance | C _{oss} | | | 105 | | |
| Reverse transfer capacitance | C _{rss} | | | 55 | | |
| Gate resistance | R _g | f =1MHz | 0.5 | | 4.8 | Ω |
| Turn-on delay Time | t _{d(on)} | V _{GEN} =5V, V _{DD} =10V, I _D =4A, R _G =1Ω, R _L =2.2Ω | | | 10 | ns |
| Rise time | t _r | | | | 20 | |
| Turn-off Delay time | t _{d(off)} | | | | 32 | |
| Fall yime | t _f | | | | 12 | |
| Drain-source body diode characteristics | | | | | | |
| Forward diode voltage | V _{SD} | V _{GS} =0V, I _S =4A | | 0.75 | 1.2 | V |

Notes :

- Pulse Test : pulse width ≤300μs, duty cycle ≤2%.
- These parameters have no way to verify.

SOT-23 Package Information


| 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.