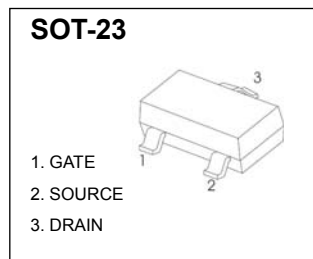


SOT-23 Plastic-Encapsulate MOSFETS

UMW AO3415A P-Channel 20-V(D-S) MOSFET

| $V_{(BR)DSS}$ | $R_{DS(on)MAX}$ | I_D |
|---------------|-----------------|-------|
| -20V | 36mΩ@-4.5V | -4A |
| | 60mΩ@-2.5V | |



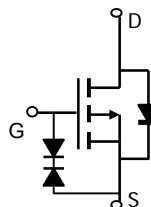
FEATURE

- Excellent $R_{DS(ON)}$, low gate charge, low gate voltages

APPLICATION

- Load switch and in PWM applications

Equivalent Circuit



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

| Parameter | Symbol | Value | Unit |
|---|-----------------|------------|---------------|
| Drain-Source Voltage | V_{DS} | -20 | V |
| Gate-Source Voltage | V_{GS} | ±8 | |
| Continuous Drain Current ($t \leq 10s$) | I_D | -4.0 | A |
| Maximum Power Dissipation ($t \leq 10s$) | P_D | 0.35 | W |
| Thermal Resistance from Junction to Ambient | $R_{\theta JA}$ | 357 | $^{\circ}C/W$ |
| Operating Junction Temperature | T_J | 150 | $^{\circ}C$ |
| Storage Temperature | T_{STG} | -55 ~ +150 | $^{\circ}C$ |

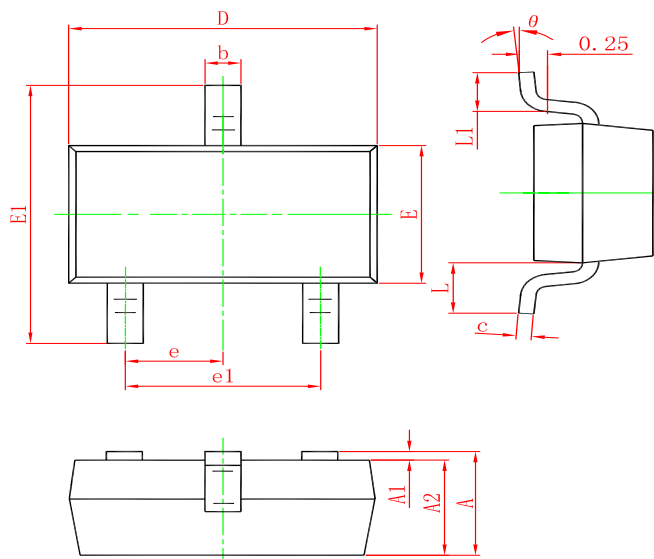
SOT-23 Plastic-Encapsulate MOSFETS
T_a=25 °C unless otherwise specified

| Parameter | Symbol | Test Condition | Min | Typ | Max | Units |
|---|----------------------|--|------|-------|-----|-------|
| Static Parameters | | | | | | |
| Drain-source breakdown voltage | V _{(BR)DSS} | V _{GS} = 0V, I _D = -250μA | -20 | | | V |
| Gate threshold voltage | V _{GS(th)} | V _{DS} = V _{GS} , I _D = -250μA | -0.3 | -0.56 | -1 | |
| Gate-body leakage current | I _{GSS} | V _{DS} = 0V, V _{GS} = ±8V | | | ±10 | μA |
| | | V _{DS} = 0V, V _{GS} = ±4.5V | | | ±1 | |
| Zero gate voltage drain current | I _{DSS} | V _{DS} = -16V, V _{GS} = 0V | | | -1 | |
| Drain-source on-state resistance(note1) | R _{DS(on)} | V _{GS} = -4.5V, I _D = -4A | | 34 | 36 | mΩ |
| | | V _{GS} = -2.5V, I _D = -4A | | 43 | 60 | |
| Forward transconductance(note2) | g _{FS} | V _{DS} = -5V, I _D = -4A | 8 | | | S |
| Body diode voltage(note2) | V _{SD} | I _S = -1A, V _{GS} = 0V | | | -1 | V |
| Dynamic Parameters (note3) | | | | | | |
| Input capacitance | C _{iss} | V _{DS} = -10V, V _{GS} = 0V, f = 1MHz | | 1450 | | pF |
| Output capacitance | C _{oss} | | | 205 | | |
| Reverse transfer capacitance | C _{rss} | | | 160 | | |
| Gate resistance | R _g | V _{DS} = 0V, V _{GS} = 0V, f = 1MHz | | 6.5 | | Ω |
| Switching Parameters | | | | | | |
| Total gate charge | Q _g | V _{DS} = -10V, V _{GS} = -4.5V, I _D = -4A | | 17.2 | | nC |
| Gate-Source charge | Q _{gs} | | | 1.3 | | |
| Gate-drain charge | Q _{gd} | | | 4.5 | | |
| Turn-on delay time (note3) | t _{d(on)} | V _{DS} = -10V, V _{GS} = -4.5V R _{GEN} = 3Ω, R _L = 2.5Ω, | | 9.5 | | ns |
| Turn-on rise time(note3) | t _r | | | 17 | | |
| Turn-off delay time(note3) | t _{d(off)} | | | 94 | | |
| Turn-off fall time(note3) | t _f | | | 35 | | |

Notes:

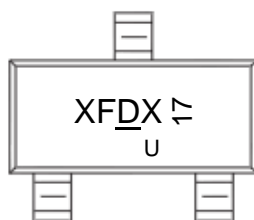
1. Repetitive rating, pulse width limited by junction temperature.
2. Pulse Test : Pulse width ≤ 300μs, duty cycle ≤ 2%.
3. These parameters have no way to verify.

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° |

Marking



Ordering information

| Order code | Package | Baseqty | Deliverymode |
|-------------|---------|---------|---------------|
| UMW AO3415A | SOT-23 | 3000 | Tape and reel |