



UT2311

Preliminary

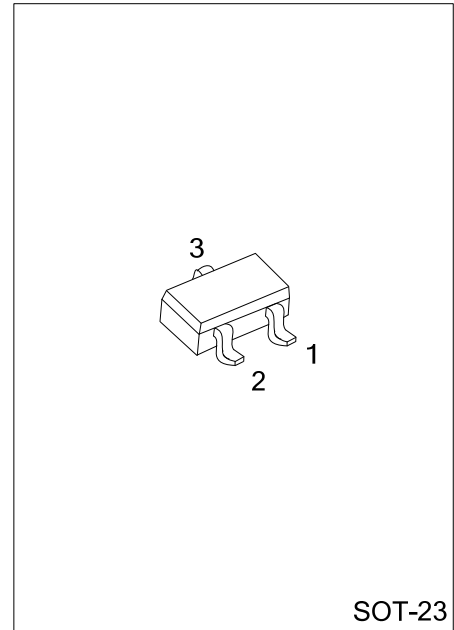
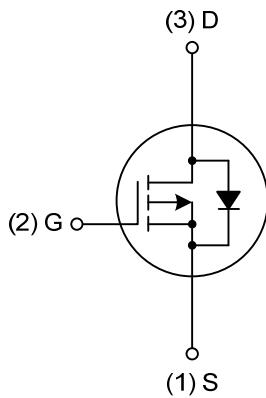
Power MOSFET

20V P-CHANNEL ENHANCEMENT MODE MOSFET

■ FEATURES

- * Extremely low on-resistance due to high density cell
- * Perfect thermal performance and electrical capability
- * With advanced technology of trench process
- * Halogen Free

■ SYMBOL

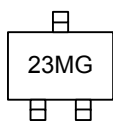


■ ORDERING INFORMATION

| Ordering Number | Package | Pin Assignment | | | Packing |
|-----------------|---------|----------------|---|---|-----------|
| | | 1 | 2 | 3 | |
| UT2311G-AE3-R | SOT-23 | S | G | D | Tape Reel |

| | |
|--|---|
| <p>UT2311G-AE3-R</p> <p>(1) Packing Type (2) Package Type (3) Halogen Free</p> | <p>(1) R: Tape Reel (2) AE3: SOT-23 (3) G: Halogen Free</p> |
|--|---|

■ MARKING



■ ABSOLUTE MAXIMUM RATINGS (Ta = 25°C, unless otherwise noted)

| PARAMETER | SYMBOL | RATINGS | UNIT |
|-----------------------------|------------------|------------|------|
| Drain-Source Voltage | V _{DSS} | -20 | V |
| Gate-Source Voltage | V _{GSS} | ±8 | V |
| Continuous Drain Current | I _D | -4 | A |
| Pulsed Drain Current | I _{DM} | -20 | A |
| Power Dissipation (Ta=25°C) | P _D | 1.25 | W |
| Junction Temperature | T _J | +150 | °C |
| Storage Temperature | T _{STG} | -55 ~ +150 | °C |

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ THERMAL DATA

| PARAMETER | SYMBOL | RATINGS | UNIT |
|-----------------------------------|-----------------|---------|------|
| Junction to Ambient (PCB mounted) | θ _{JA} | 100 | °C/W |

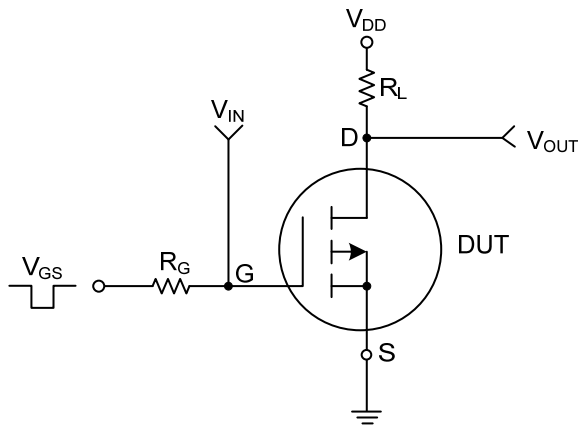
Note: Surface Mounted on FR4 board t ≤ 5sec.

■ ELECTRICAL CHARACTERISTICS (Ta = 25°C, unless otherwise specified)

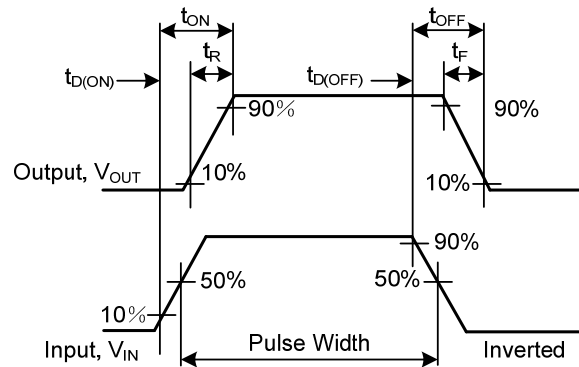
| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|--|---------------------|---|-------|------|------|------|
| OFF CHARACTERISTICS | | | | | | |
| Drain-Source Breakdown Voltage | BV _{DSS} | V _{GS} = 0V, I _D = -250μA | -20 | | | V |
| Drain-Source Leakage Current | I _{DSS} | V _{DS} = -16V, V _{GS} = 0V | | | -1.0 | μA |
| Gate-Source Leakage Current | I _{GSS} | V _{GS} = ±8V, V _{DS} = 0V | | | ±100 | nA |
| ON CHARACTERISTICS | | | | | | |
| Gate Threshold Voltage | V _{GS(TH)} | V _{DS} = V _{GS} , I _D = -250μA | -0.45 | | | V |
| Static Drain-Source On-State Resistance | R _{DS(ON)} | V _{GS} = -4.5V, I _D = -4.0 A | | 45 | 55 | mΩ |
| | | V _{GS} = -2.5V, I _D = -2.5 A | | 75 | 85 | mΩ |
| On-State Drain Current | I _{D(ON)} | V _{DS} ≥ -10V, V _{GS} = -4.5V | -6 | | | A |
| DYNAMIC PARAMETERS^b | | | | | | |
| Input Capacitance | C _{ISS} | V _{DS} = -6V, V _{GS} = 0 V, f = 1.0MHz | | 970 | | pF |
| Output Capacitance | C _{OSS} | | | 485 | | pF |
| Reverse Transfer Capacitance | C _{RSS} | | | 160 | | pF |
| SWITCHING PARAMETERS^b | | | | | | |
| Turn-ON Delay Time | t _{D(ON)} | V _{DD} = -4V, V _{GEN} = -4.5V, I _D = -1A R _L = 4Ω, R _G = 6Ω | | 18 | | ns |
| Turn-ON Rise Time | t _R | | | 45 | | ns |
| Turn-OFF Delay Time | t _{D(OFF)} | | | 95 | | ns |
| Turn-OFF Fall-Time | t _F | | | 65 | | ns |
| Total Gate Charge | Q _G | V _{GS} = -4.5V, V _{DS} = -6V, I _D = -4.0A | | 8.5 | 12 | nC |
| Gate Source Charge | Q _{GS} | | | 1.5 | | nC |
| Gate Drain Charge | Q _{GD} | | | 2.1 | | nC |
| SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS | | | | | | |
| Drain-Source Diode Forward Voltage | V _{SD} | V _{GS} = 0 V, I _S = -1.6A, | | -0.8 | -1.2 | V |
| Maximum Continuous Drain-Source Diode Forward Current | I _S | | | | -1.6 | A |

Note: Pulse test; pulse width ≤ 300μs, duty cycle ≤ 2%.

■ TEST CIRCUITS AND WAVEFORMS



Switching Test Circuit



Switching Waveforms

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