



UT4812Z

Power MOSFET

30V, 6.9A DUAL N-CANNEL ENHANCEMENT MODE

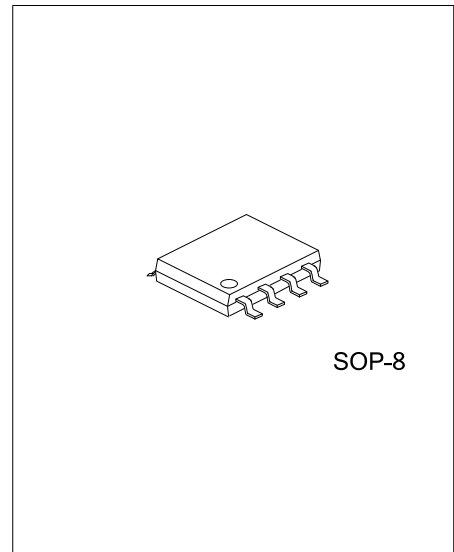
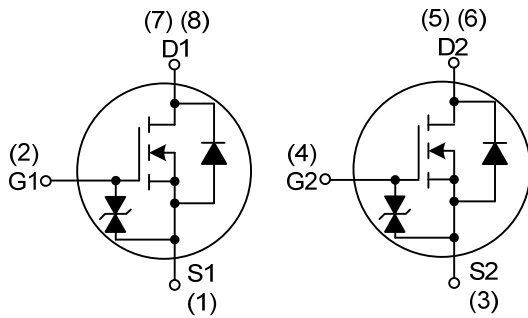
DESCRIPTION

The UTC **UT4812Z** can provide excellent $R_{DS(ON)}$ and low gate charge by using advanced trench technology. The UTC **UT4812Z** is suitable for using as a load switch or in PWM applications.

FEATURES

- * Low $R_{DS(ON)}$
- * Reliable and Rugged

SYMBOL



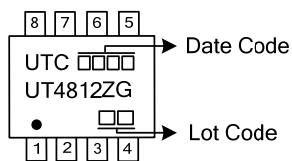
ORDERING INFORMATION

| Ordering Number | Package | Pin Assignment | | | | | | | | Packing |
|-----------------|---------|----------------|---|---|---|---|---|---|---|-----------|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | |
| UT4812ZG-S08-R | SOP-8 | S | G | S | G | D | D | D | D | Tape Reel |

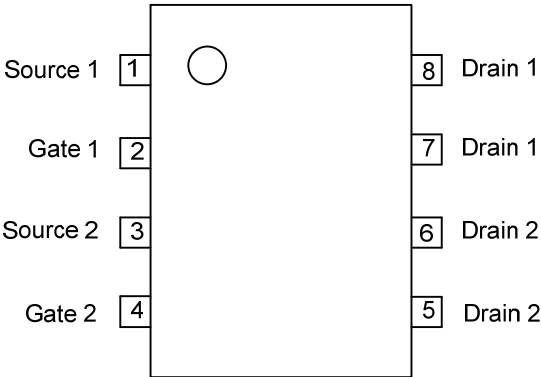
Note: Pin Assignment: G: Gate D: Drain S: Source

| | |
|--|--|
| <p>UT4812ZG-S08-R</p> <p>(1) Packing Type</p> <p>(2) Package Type</p> <p>(3) Green Package</p> | <p>(1) R: Tape Reel</p> <p>(2) S08: SOP-8</p> <p>(3) G: Halogen Free and Lead Free</p> |
|--|--|

MARKING



■ PIN CONFIGURATION



■ ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$, unless otherwise specified)

| PARAMETER | SYMBOL | RATINGS | UNIT |
|-----------------------------------|-----------|------------|------------------|
| Drain-Source Voltage | V_{DSS} | 30 | V |
| Gate-Source Voltage | V_{GSS} | ± 20 | V |
| Continuous Drain Current (Note 2) | I_D | 6.9 | A |
| Pulsed Drain Current (Note 3) | I_{DM} | 30 | A |
| Power Dissipation | P_D | 2 | W |
| Junction Temperature | T_J | +150 | $^\circ\text{C}$ |
| Storage Temperature | T_{STG} | -55 ~ +150 | $^\circ\text{C}$ |

Notes: 1. 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.

2. Surface Mounted on 1in^2 pad area, $t \leq 10\text{sec}$

3. Pulse width limited by $T_{J(\text{MAX})}$

■ THERMAL DATA

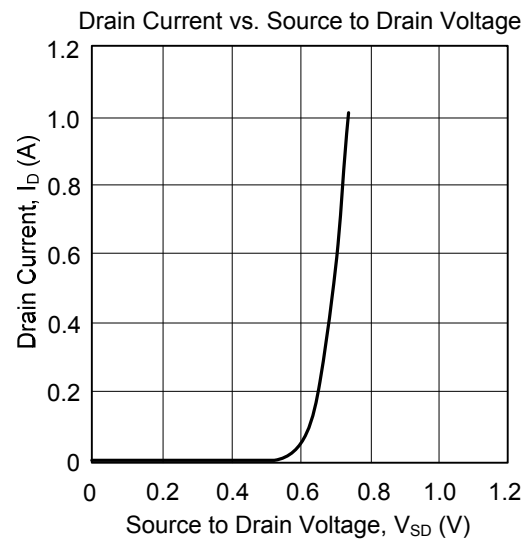
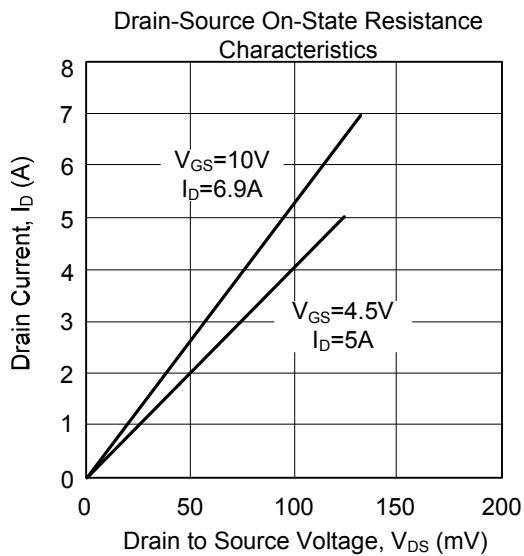
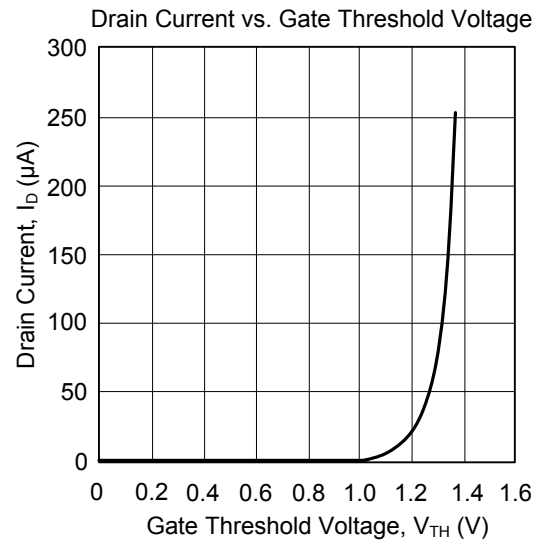
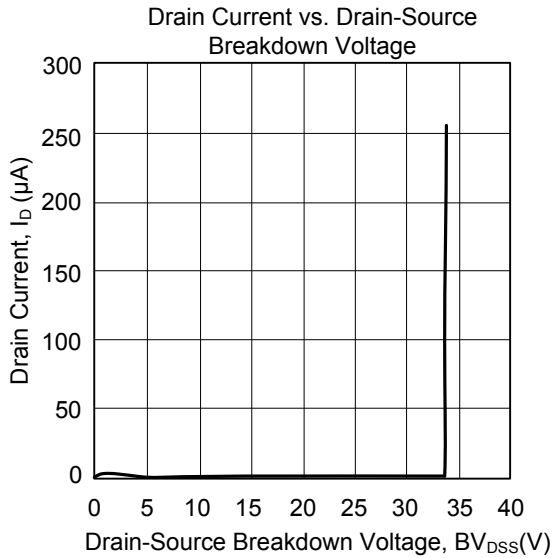
| PARAMETER | SYMBOL | RATINGS | UNIT |
|---------------------|---------------|---------|--------------------|
| Junction to Ambient | θ_{JA} | 110 | $^\circ\text{C/W}$ |

■ ELECTRICAL CHARACTERISTICS ($T_J = 25^\circ\text{C}$, unless otherwise specified)

| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|---|---------------------|--|-----|-------|-----|------------------|
| OFF CHARACTERISTICS | | | | | | |
| Drain-Source Breakdown Voltage | BV_{DSS} | $V_{GS} = 0\text{V}$, $I_D = 250\mu\text{A}$ | 30 | | | V |
| Drain-Source Leakage Current | I_{DSS} | $V_{DS} = 30\text{V}$, $V_{GS} = 0\text{V}$ | | | 1 | μA |
| Gate-Source Leakage Current | I_{GSS} | $V_{DS} = 0\text{V}$, $V_{GS} = \pm 20\text{V}$ | | | 5 | μA |
| ON CHARACTERISTICS | | | | | | |
| Gate Threshold Voltage | $V_{GS(\text{TH})}$ | $V_{DS} = V_{GS}$, $I_D = 250\mu\text{A}$ | 1 | 1.9 | 3 | V |
| Drain-Source On-State Resistance (Note) | $R_{DS(\text{ON})}$ | $V_{GS} = 10\text{V}$, $I_D = 6.9\text{A}$ | | 22.5 | 28 | $\text{m}\Omega$ |
| | | $V_{GS} = 4.5\text{V}$, $I_D = 5.0\text{A}$ | | 34.5 | 42 | $\text{m}\Omega$ |
| DYNAMIC PARAMETERS | | | | | | |
| Input Capacitance | C_{ISS} | $V_{DS} = 15\text{V}$, $V_{GS} = 0\text{V}$, $f = 1\text{MHz}$ | | 680 | 820 | pF |
| Output Capacitance | C_{OSS} | | | 102 | | pF |
| Reverse Transfer Capacitance | C_{RSS} | | | 77 | 108 | pF |
| SWITCHING PARAMETERS | | | | | | |
| Turn-ON Delay Time | $t_{D(\text{ON})}$ | $V_{GS} = 10\text{V}$, $V_{DS} = 15\text{V}$, $R_L = 2.2\Omega$, $R_{GEN} = 3\Omega$ | | 4.6 | 7 | ns |
| Turn-ON Rise Time | t_R | | | 4.1 | 6.2 | ns |
| Turn-OFF Delay Time | $t_{D(\text{OFF})}$ | | | 20.6 | 30 | ns |
| Turn-OFF Fall-Time | t_F | | | 5.2 | 7.5 | ns |
| Total Gate Charge | Q_G | $V_{DS} = 15\text{V}$, $V_{GS} = 10\text{V}$, $I_D = 6.9\text{A}$ | | 13.84 | 17 | nC |
| Gate Source Charge | Q_{GS} | | | 1.82 | | nC |
| Gate Drain Charge | Q_{GD} | | | 3.2 | | nC |
| SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS | | | | | | |
| Drain-Source Diode Forward Voltage (Note) | V_{SD} | $I_S = 1\text{A}$ | | 0.76 | 1 | V |
| Maximum Continuous Drain-Source Diode Forward Current | I_S | | | | 3 | A |
| Body Diode Reverse Recovery Time | t_{rr} | $I_F = 6.9\text{A}$, $dI/dt = 100\text{A}/\mu\text{s}$ | | 16.5 | 20 | ns |
| Body Diode Reverse Recovery Charge | Q_{RR} | $I_F = 6.9\text{A}$, $dI/dt = 100\text{A}/\mu\text{s}$ | | 7.8 | 10 | nC |

Note: Pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$.

■ TYPICAL CHARACTERISTICS



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