



UT4411

Power MOSFET

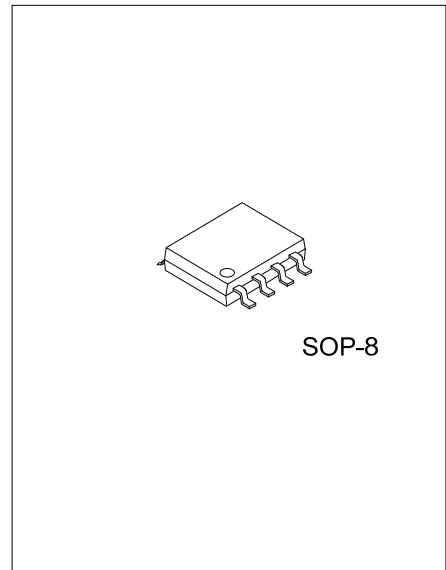
P-CHANNEL ENHANCEMENT MODE

DESCRIPTION

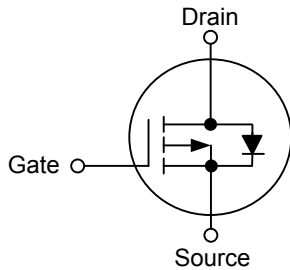
The **UT4411** uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with low gate voltages. This device is suitable for use as a load switch or in PWM applications.

FEATURES

- * $R_{DS(ON)} < 32m\Omega @ V_{GS} = -10V, I_D = -8A$
- * Low capacitance
- * Optimized gate charge
- * Fast switching capability
- * Avalanche energy specified



SYMBOL



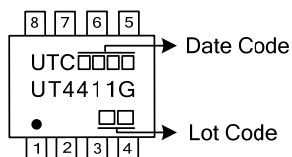
ORDERING INFORMATION

| Ordering Number | Package | Pin Assignment | | | | | | | | Packing |
|-----------------|---------|----------------|---|---|---|---|---|---|---|-----------|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | |
| UT4411G-S08-R | SOP-8 | S | S | S | G | D | D | D | D | Tape Reel |

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

| | |
|---|--|
| <p>UT4411G-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



■ 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 | I_D | -8 | A |
| Pulsed Drain Current | I_{DM} | -40 | A |
| Power Dissipation | P_D | 3 | W |
| Junction Temperature | T_J | +150 | $^\circ\text{C}$ |
| Strong Temperature | T_{STG} | -55 ~ +150 | $^\circ\text{C}$ |

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

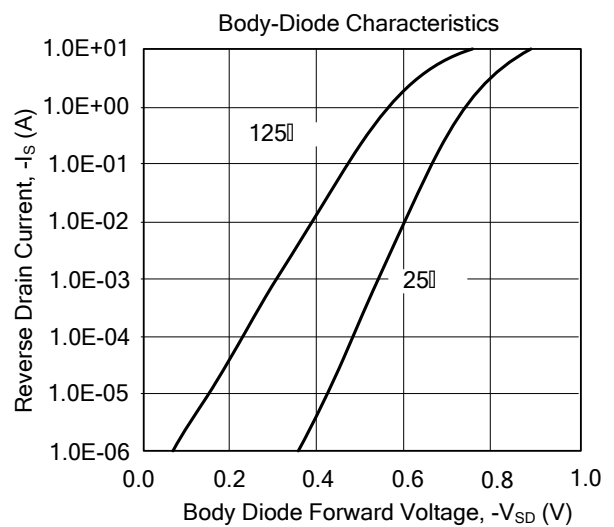
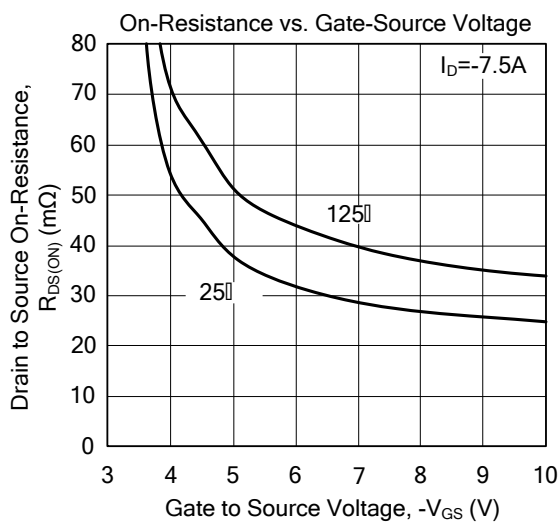
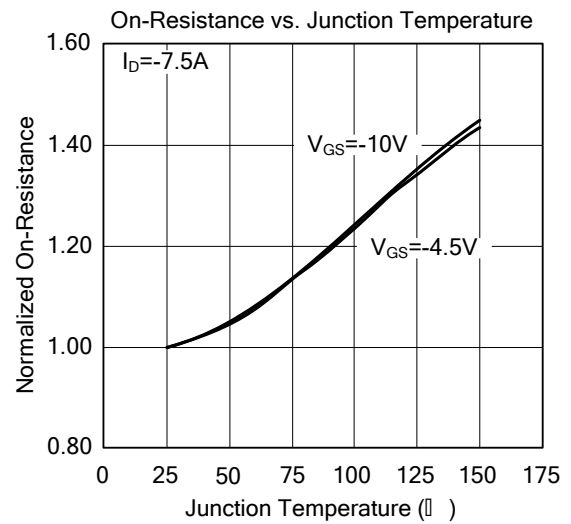
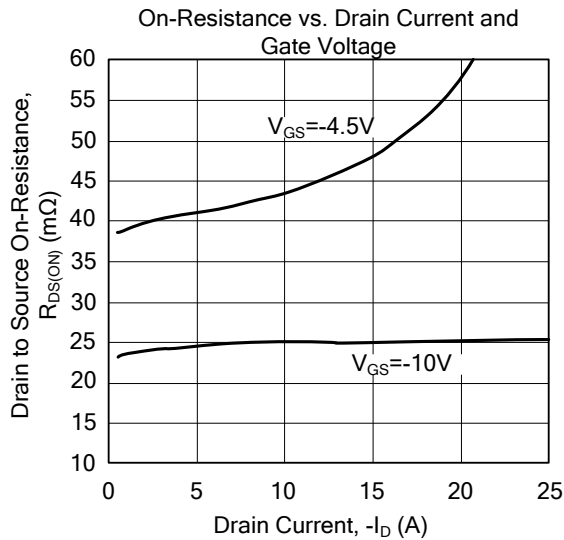
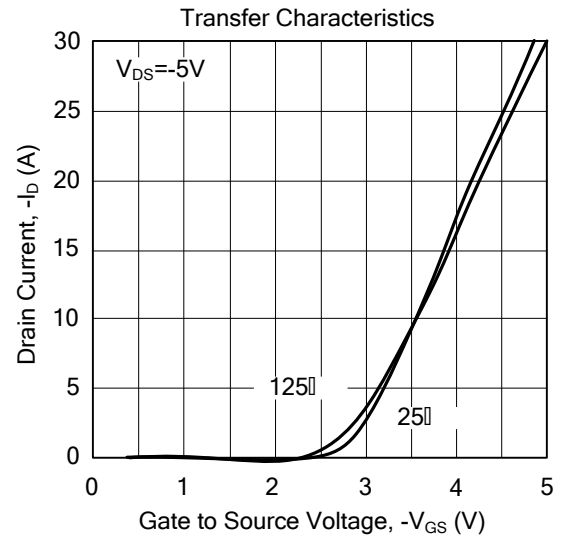
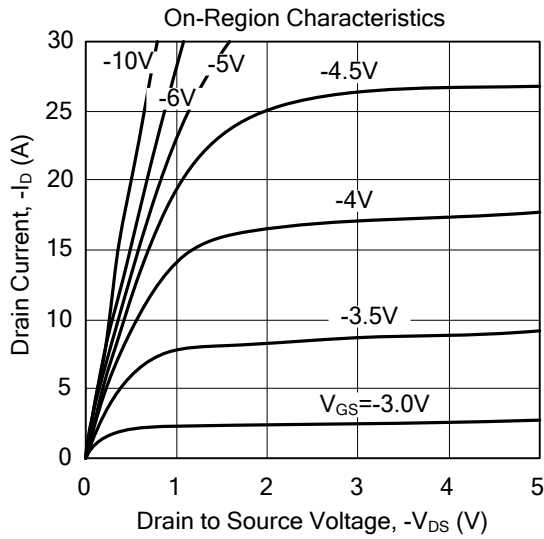
| PARAMETER | SYMBOL | MIN | TYP | MAX | UNIT |
|---------------------|---------------|-----|-----|-----|--------------------|
| Junction-to-Ambient | θ_{JA} | | 54 | 75 | $^\circ\text{C/W}$ |

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

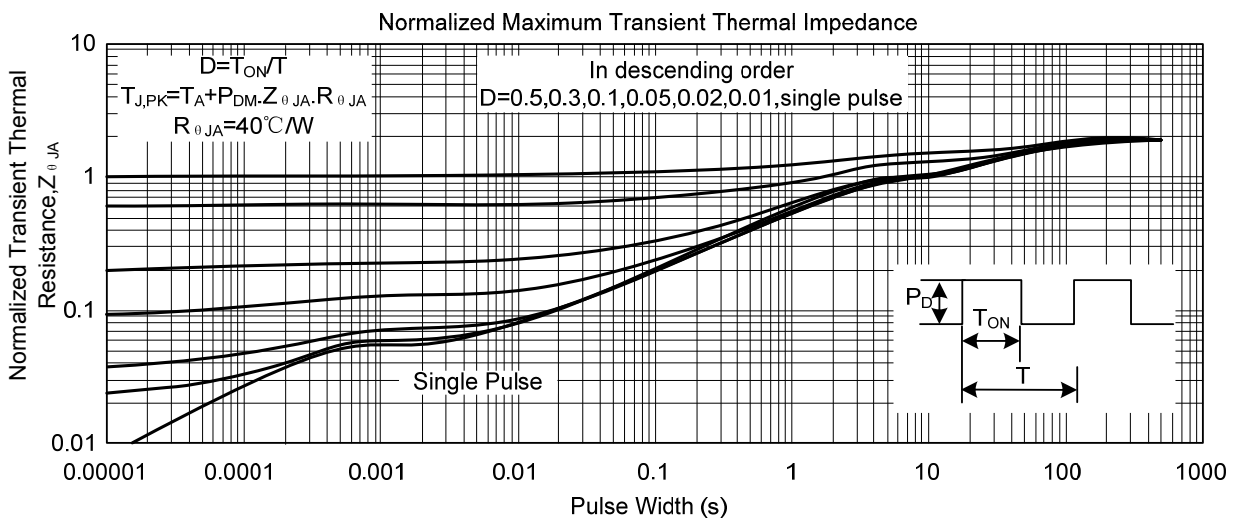
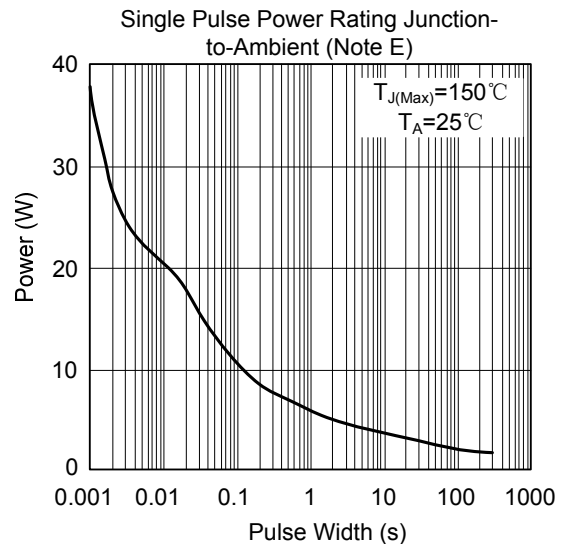
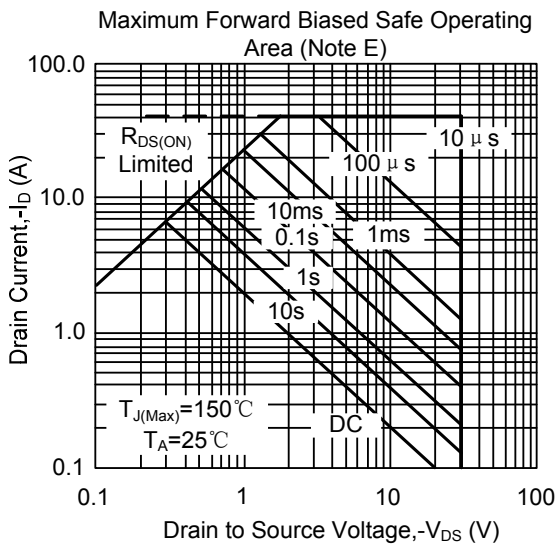
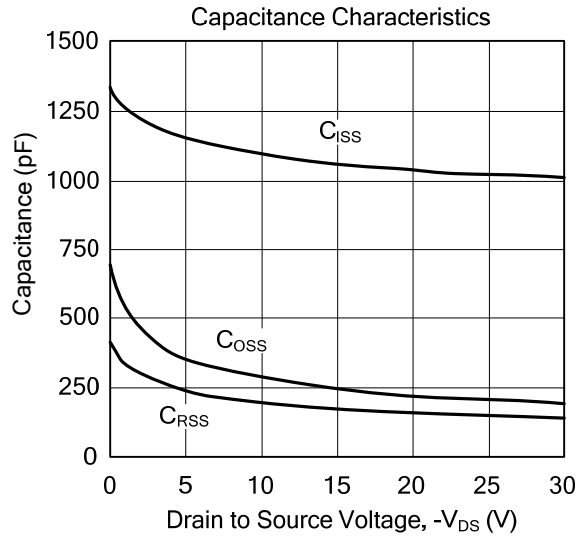
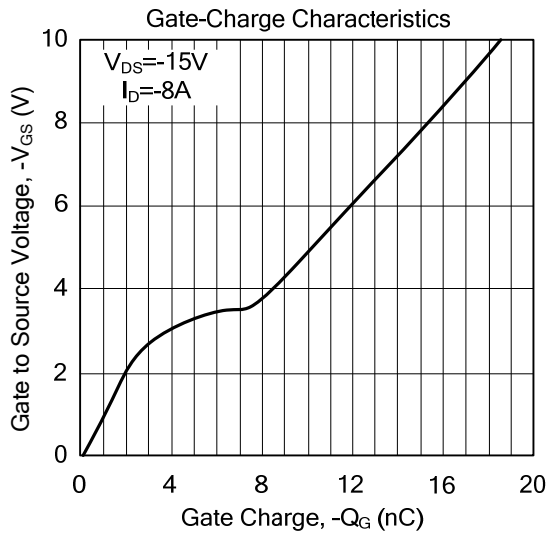
| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|--|--------------|--|------|-------|-----------|---------------|
| OFF CHARACTERISTICS | | | | | | |
| Drain-Source Breakdown Voltage | BV_{DSS} | $V_{GS} = 0\text{ V}, I_D = -250\ \mu\text{A}$ | -30 | | | V |
| Zero Gate Voltage Drain Current | I_{DSS} | $V_{DS} = -24\text{ V}, V_{GS} = 0\text{ V}$ | | | -1 | μA |
| Gate-Body Leakage Current | I_{GSS} | $V_{DS} = 0\text{ V}, V_{GS} = \pm 20\text{ V}$ | | | ± 100 | nA |
| ON CHARACTERISTICS | | | | | | |
| Gate Threshold Voltage | $V_{GS(TH)}$ | $V_{DS} = V_{GS}, I_D = -250\ \mu\text{A}$ | -1.2 | | -2.4 | V |
| On State Drain Current | $I_{D(ON)}$ | $V_{DS} = -5\text{ V}, V_{GS} = -10\text{ V}$ | -40 | | | A |
| Static Drain-Source On-Resistance | $R_{DS(ON)}$ | $V_{GS} = -10\text{ V}, I_D = -8\text{ A}$ | | 26 | 32 | m Ω |
| | | $V_{GS} = -4.5\text{ V}, I_D = -5\text{ A}$ | | 50 | 55 | |
| DYNAMIC PARAMETERS | | | | | | |
| Input Capacitance | C_{ISS} | $V_{DS} = -15\text{ V}, V_{GS} = 0\text{ V}, f = 1\text{ MHz}$ | | 1200 | 1400 | pF |
| Output Capacitance | C_{OSS} | | | 170 | | |
| Reverse Transfer Capacitance | C_{RSS} | | | 122 | | |
| SWITCHING PARAMETERS | | | | | | |
| Total Gate Charge | Q_G | $V_{DS} = -15\text{ V}, V_{GS} = -10\text{ V}, I_D = -8\text{ A}$ | | 18.4 | 23 | nC |
| Gate Source Charge | Q_{GS} | | | 2.7 | | |
| Gate Drain Charge | Q_{GD} | | | 4.9 | | |
| Turn-ON Delay Time | $t_{D(ON)}$ | $V_{GS} = -10\text{ V}, V_{DS} = -10\text{ V}, I_D = -0.25\text{ A}, R_{GEN} = 25\ \Omega$ | | 38 | | ns |
| Turn-ON Rise Time | t_R | | | 47 | | |
| Turn-OFF Delay Time | $t_{D(OFF)}$ | | | 300 | | |
| Turn-OFF Fall-Time | t_F | | | 130 | | |
| SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS | | | | | | |
| Diode Forward Voltage | V_{SD} | $I_S = -1\text{ A}, V_{GS} = 0\text{ V}$ | | -0.76 | -1 | V |
| Maximum Body-Diode Continuous Current | I_S | | | | -4.2 | A |

- Notes: 1. Pulse width limited by $T_{J(MAX)}$
 2. Pulse width $\leq 300\ \mu\text{s}$, duty cycle $\leq 0.5\%$ max.
 3. Surface mounted on 1 in² copper pad of FR4 board, $t \leq 10\text{s}$.

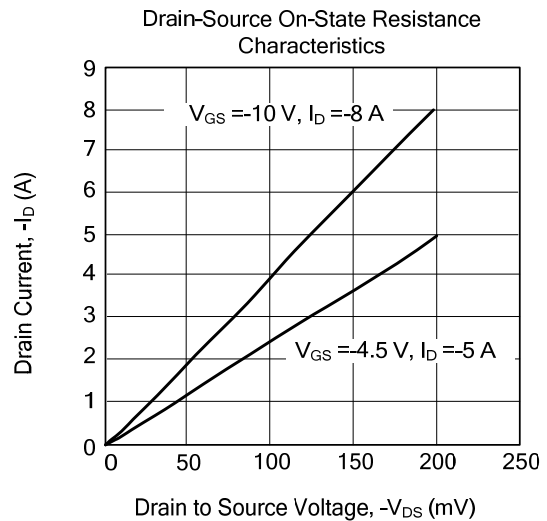
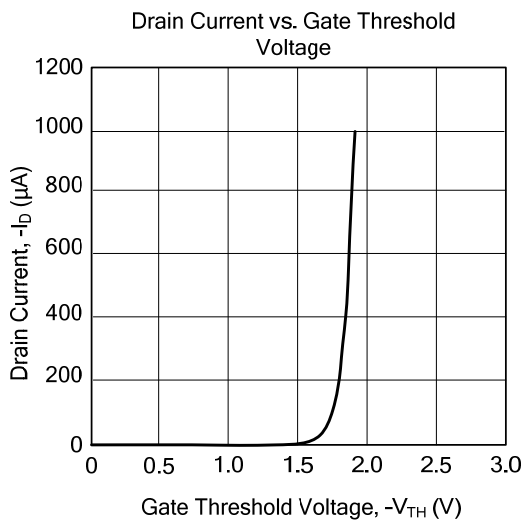
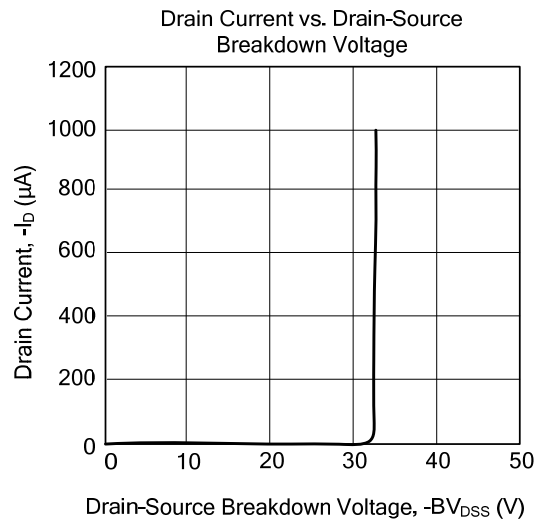
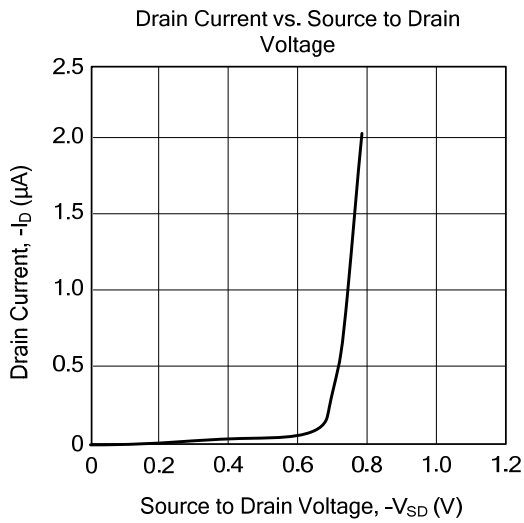
TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS(Cont.)



■ TYPICAL CHARACTERISTICS (Cont.)



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