



## UT4411

Power MOSFET

### P-CHANNEL ENHANCEMENT MODE

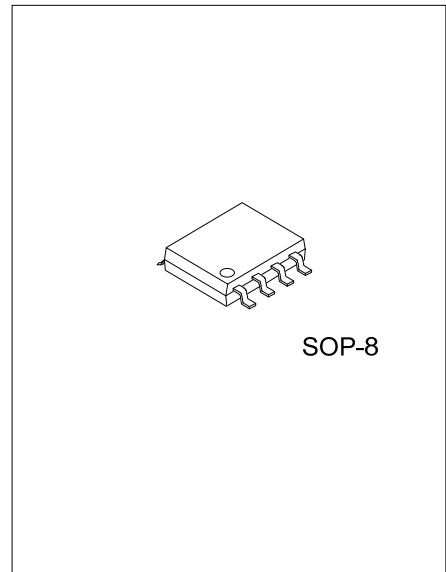
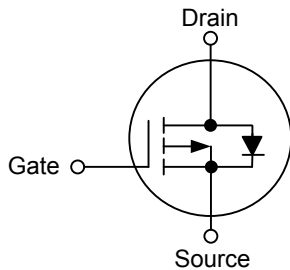
#### DESCRIPTION

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

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

#### SYMBOL



SOP-8

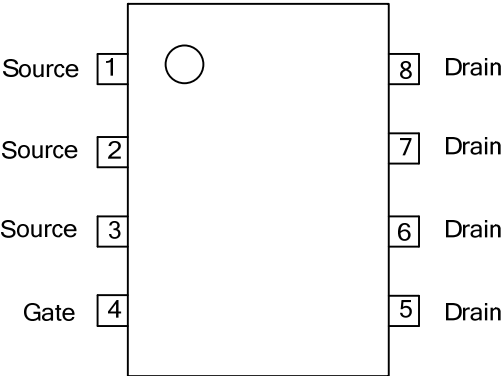
Lead-free: UT4411L  
Halogen-free : UT4411G

#### ORDERING INFORMATION

Normal	Ordering Number		Package	Packing
	Lead Free Plating	Halogen Free		
UT4411-S08-R	UT4411L-S08-R	UT4411G-S08-R	SOP-8	Tape Reel
UT4411-S08-T	UT4411L-S08-T	UT4411G-S08-T	SOP-8	Tube

<p>UT4411L-S08-R</p> <p>(1)Packing Type</p> <p>(2)Package Type</p> <p>(3)Lead Plating</p>	<p>(1) R: Tape Reel, T: Tube</p> <p>(2) S08: SOP-8</p> <p>(3) G: Halogen Free, L: Lead Free, Blank: Pb/Sn</p>
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■ 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	$V_{GSS}$	$\pm 20$	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	$\theta_{JA}$		54	75	$^\circ\text{C}/\text{W}$

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

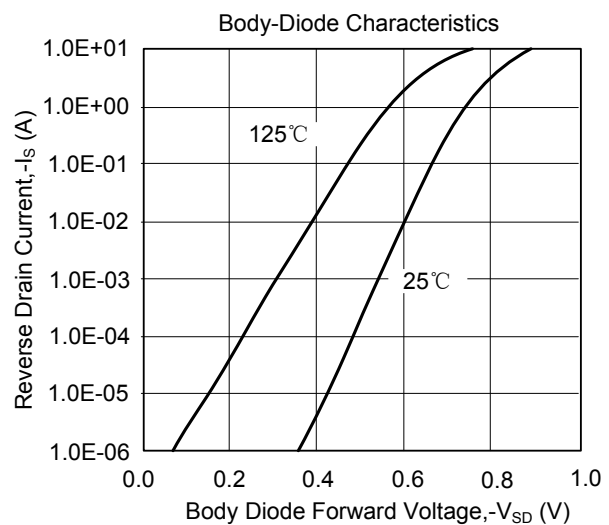
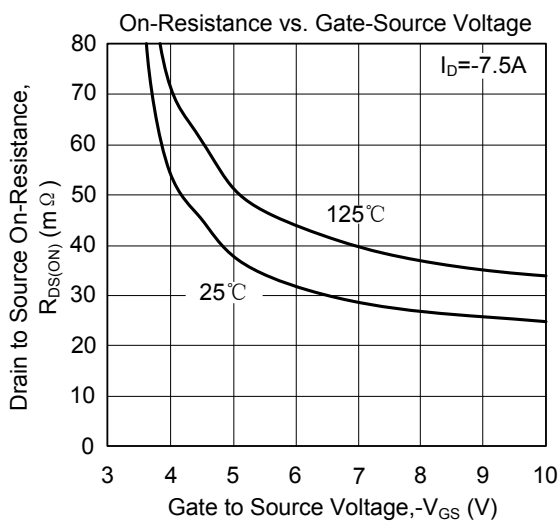
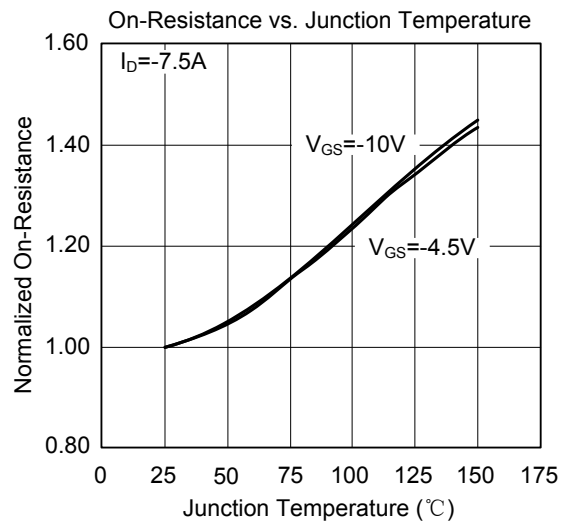
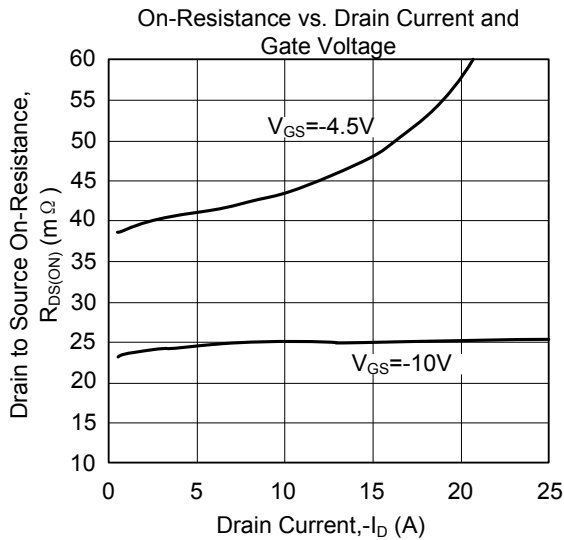
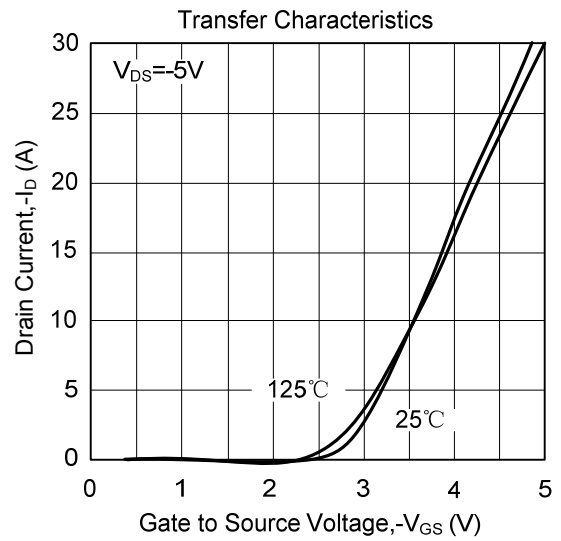
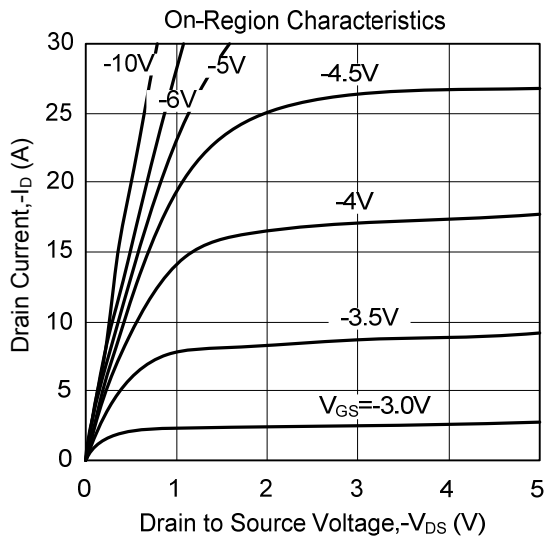
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
<b>OFF CHARACTERISTICS</b>						
Drain-Source Breakdown Voltage	$BV_{DSS}$	$V_{GS} = 0\text{ V}, I_D = -250\ \mu\text{A}$	-30			V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = -24\text{ V}, V_{GS} = 0\text{ V}$			-1	$\mu\text{A}$
Gate-Body Leakage Current	$I_{GSS}$	$V_{DS} = 0\text{ V}, V_{GS} = \pm 20\text{ V}$			$\pm 100$	nA
<b>ON CHARACTERISTICS</b>						
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS} = V_{GS}, I_D = -250\ \mu\text{A}$	-1.2	-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	$R_{DS(ON)}$	$V_{GS} = -10\text{ V}, I_D = -8\text{ A}$		24.5	32	m $\Omega$
		$V_{GS} = -4.5\text{ V}, I_D = -5\text{ A}$		41	55	
<b>DYNAMIC PARAMETERS</b>						
Input Capacitance	$C_{ISS}$	$V_{DS} = -15\text{ V}, V_{GS} = 0\text{ V}, f = 1\text{ MHz}$		920	1120	pF
Output Capacitance	$C_{OSS}$			190		
Reverse Transfer Capacitance	$C_{RSS}$			122		
<b>SWITCHING PARAMETERS</b>						
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	$t_{D(ON)}$	$V_{GS} = -10\text{ V}, V_{DS} = -15\text{ V}, R_L = 1.8\ \Omega, R_{GEN} = 3\ \Omega$		7.1		ns
Turn-ON Rise Time	$t_R$			3.4		
Turn-OFF Delay Time	$t_{D(OFF)}$			18.9		
Turn-OFF Fall-Time	$t_F$			8.4		
<b>SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS</b>						
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
Body Diode Reverse Recovery Time	$t_{RR}$	$I_F = -8\text{ A}, dI/dt = 100\text{ A}/\mu\text{s}$		21.5	27	ns
Body Diode Reverse Recovery Charge	$Q_{RR}$	$I_F = -8\text{ A}, dI/dt = 100\text{ A}/\mu\text{s}$		12.5		nC

Notes: 1. Pulse width limited by  $T_{J(MAX)}$

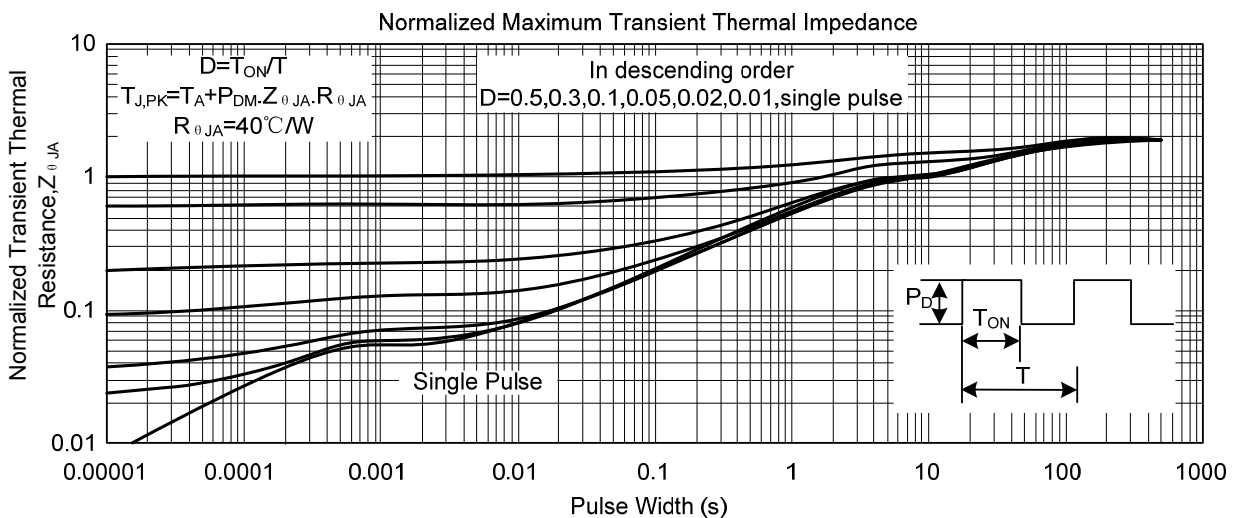
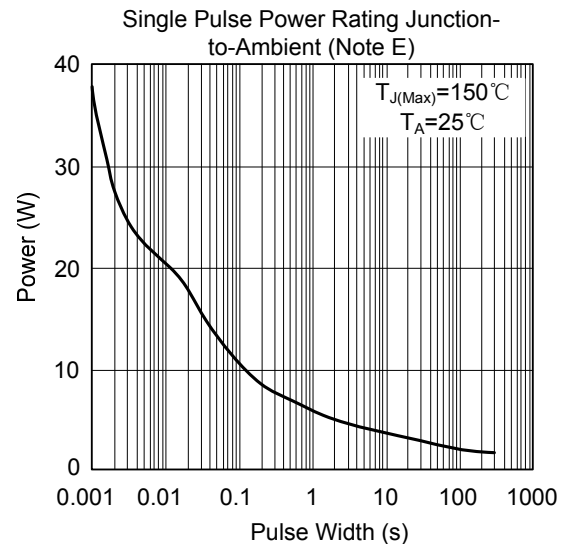
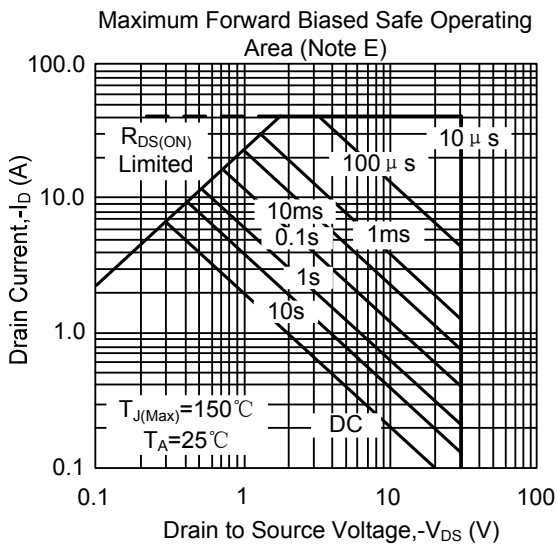
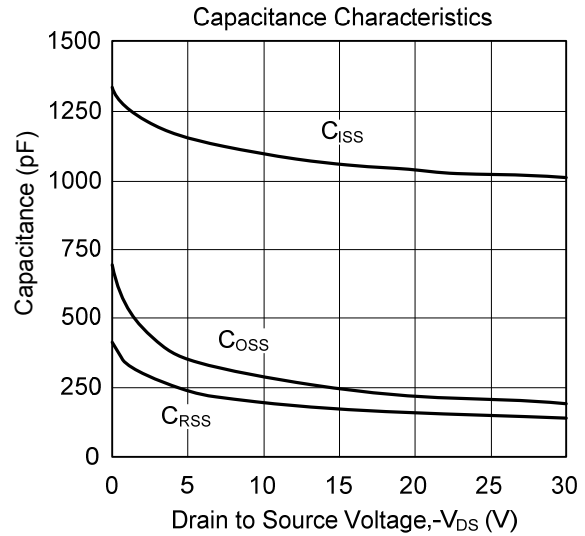
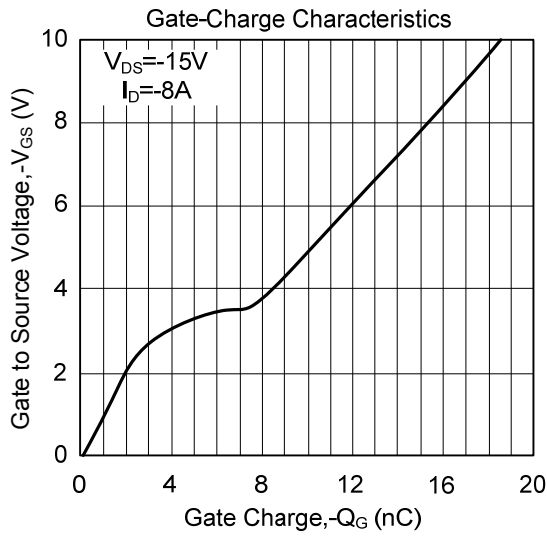
2. Pulse width  $\leq 300\ \mu\text{s}$ , duty cycle  $\leq 0.5\%$  max.

3. Surface mounted on 1 in<sup>2</sup> copper pad of FR4 board,  $t \leq 10\text{ s}$ .

## TYPICAL CHARACTERISTICS



## ■ TYPICAL CHARACTERISTICS(Cont.)



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