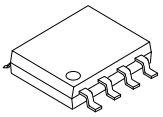
UT4411

Power MOSFET

P-CHANNEL ENHANCEMENT MODE



SOP-8

Lead-free: UT4411L
Halogen-free : UT4411G

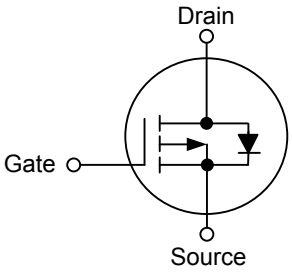
■ DESCRIPTION

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

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

■ SYMBOL

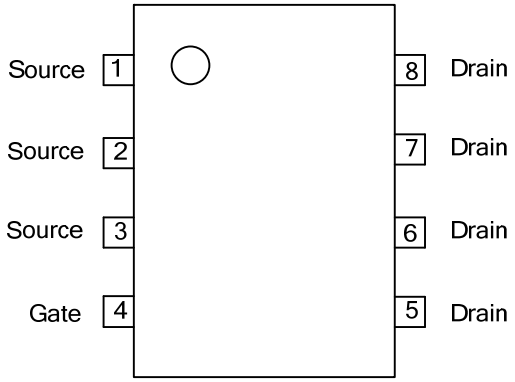


■ ORDERING INFORMATION

Ordering Number			Package	Packing
Normal	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

UT4411L-S08-R (1)Packing Type (2)Package Type (3)Lead Plating	(1) R: Tape Reel, T: Tube (2) S08: SOP-8 (3) G: Halogen Free, L: Lead Free, Blank: Pb/Sn

■ PIN CONFIGURATION



■ ABSOLUTE MAXIMUM RATINGS (T_A = 25℃, 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	℃
Strong Temperature	T_{STG}	-55 ~ +150	℃

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

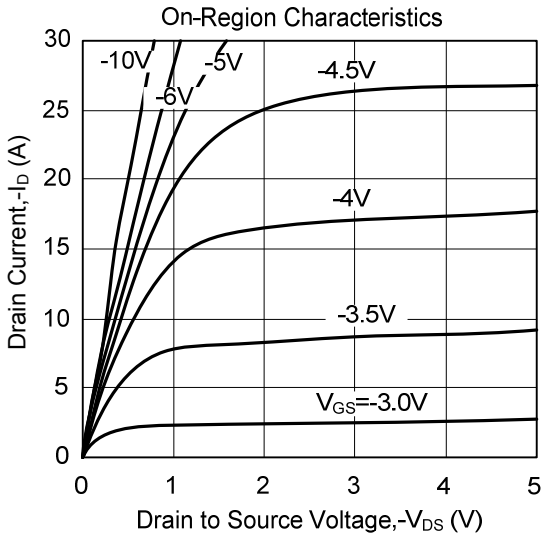
PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
Junction-to-Ambient	θ_{JA}		54	75	℃/W

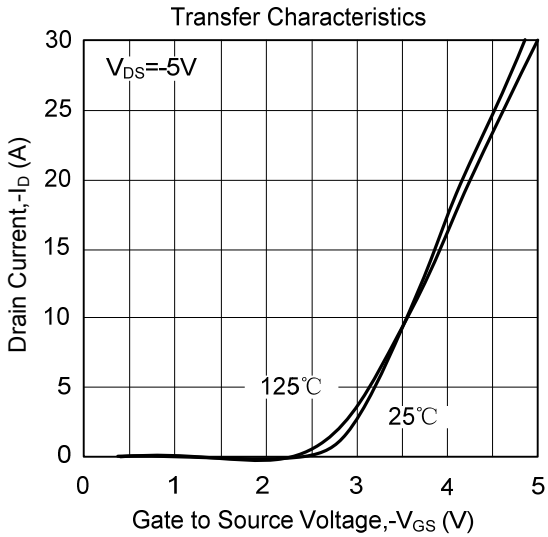
■ ELECTRICAL CHARACTERISTICS (T_J =25°C, unless otherwise specified)

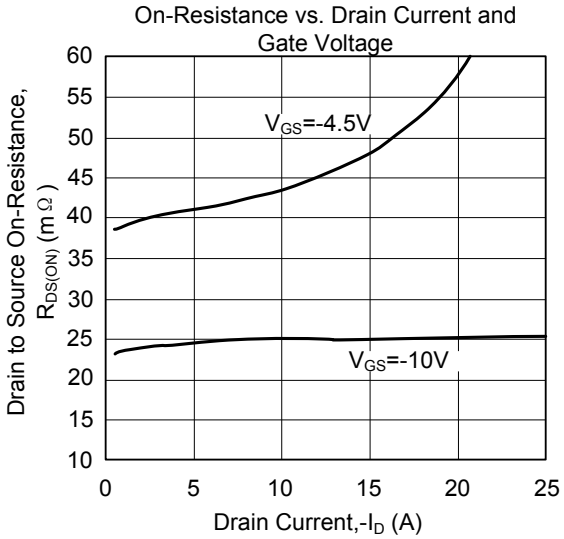
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS} =0 V, I_D =-250 μA	-30			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} =-24 V, V_{GS} =0 V			-1	μA
Gate-Body Leakage Current	I_{GSS}	V_{DS} =0 V, V_{GS} = ±20 V			±100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(TH)}$	V_{DS} =V_{GS}, I_D =-250 μA	-1.2	-2	-2.4	V
On State Drain Current	$I_{D(ON)}$	V_{DS} =-5V, V_{GS} =-10 V	-40			A
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS} =-10 V, I_D =-8 A		24.5	32	mΩ
		V_{GS} =-4.5 V, I_D =-5 A		41	55	
DYNAMIC PARAMETERS						
Input Capacitance	C_{ISS}	V_{DS} =-15V, V_{GS} =0V, f=1MHz		920	1120	pF
Output Capacitance	C_{OSS}			190		
Reverse Transfer Capacitance	C_{RSS}			122		
SWITCHING PARAMETERS						
Total Gate Charge	Q_G	V_{DS} =-15V, V_{GS} =-10V, I_D =-8A		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}=-10V,V_{DS}=-15V, R_L=1.8Ω, R_{GEN} =3Ω		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		
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Diode Forward Voltage	V_{SD}	I_S=-1A,V_{GS}=0V		-0.76	-1	V
Maximum Body-Diode Continuous Current	I_S				-4.2	A
Body Diode Reverse Recovery Time	t_{RR}	I_F=-8A, dI/dt=100A/μs		21.5	27	ns
Body Diode Reverse Recovery Charge	Q_{RR}	I_F=-8 A, dI/dt=100A/μs		12.5		nC

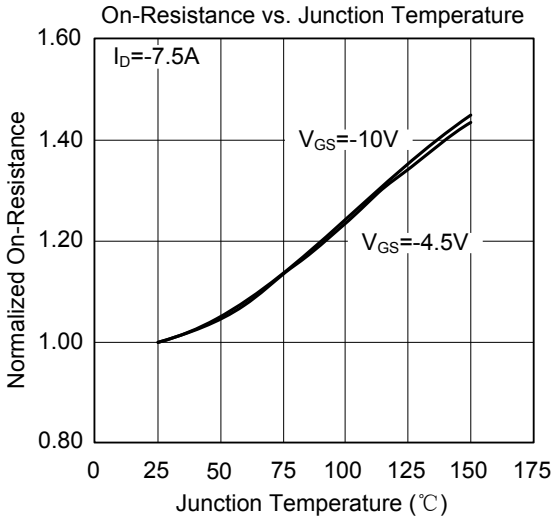
Notes: 1. Pulse width limited by $T_{J(MAX)}$
2. Pulse width ≤300us, duty cycle ≤0.5% max.
3. Surface mounted on 1 in ^{2} copper pad of FR4 board, t≤10s.

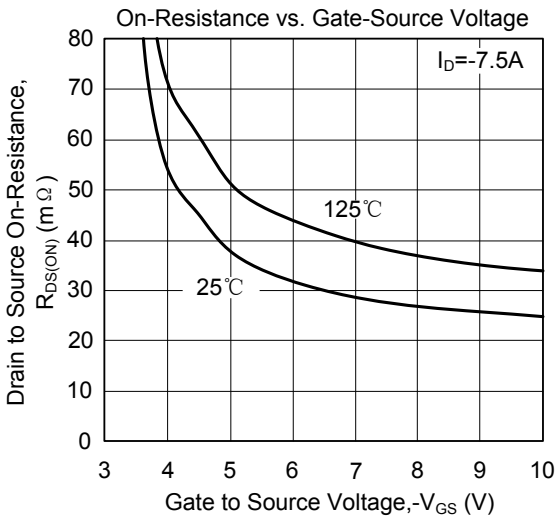
■ TYPICAL CHARACTERISTICS

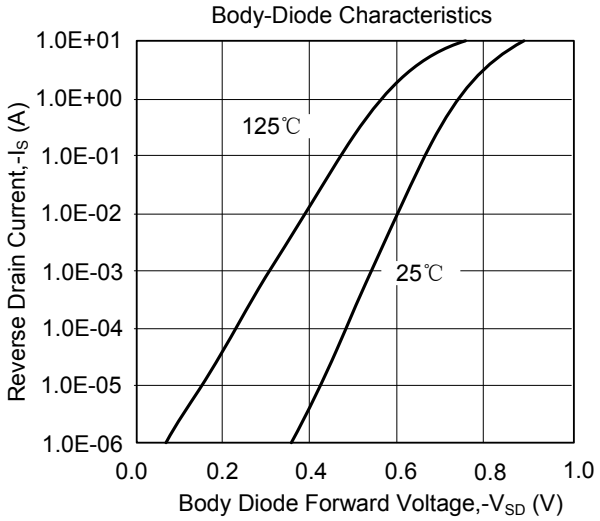






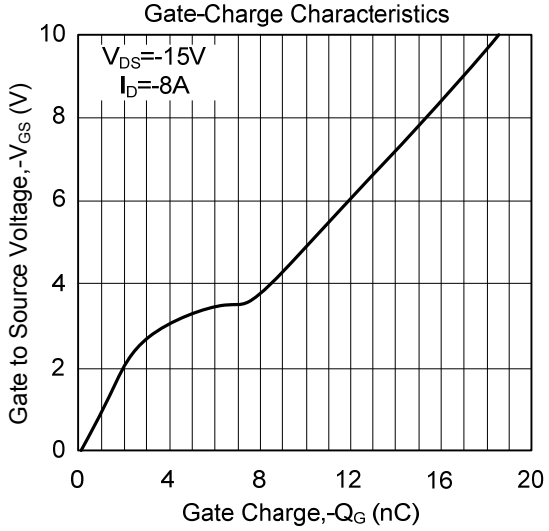




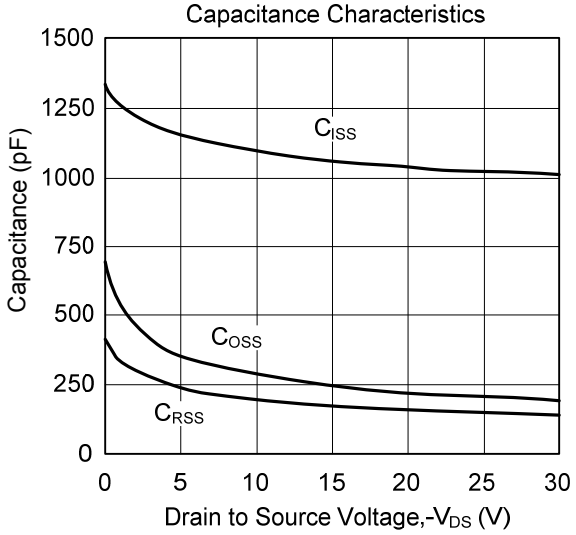


■ TYPICAL CHARACTERISTICS(Cont.)

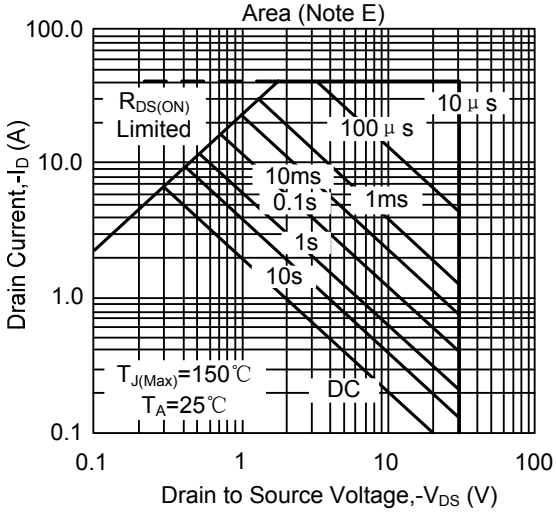
Gate-Charge Characteristics



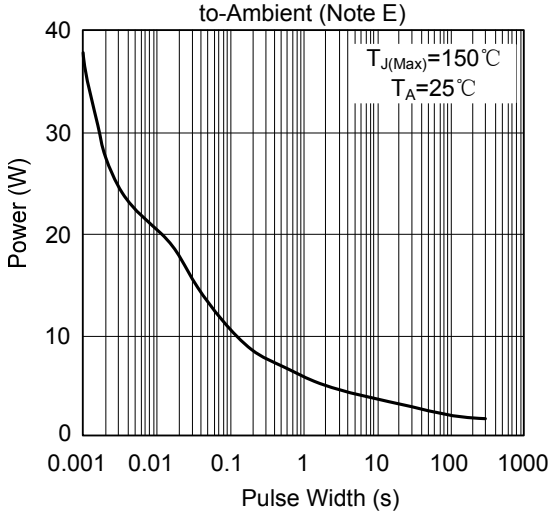
Capacitance Characteristics



Maximum Forward Biased Safe Operating Area (Note E)



Single Pulse Power Rating Junction-to-Ambient (Note E)



Normalized Maximum Transient Thermal Impedance