



## UT4410

Power MOSFET

### N-CHANNEL 30-V (D-S) MOSFET

#### DESCRIPTION

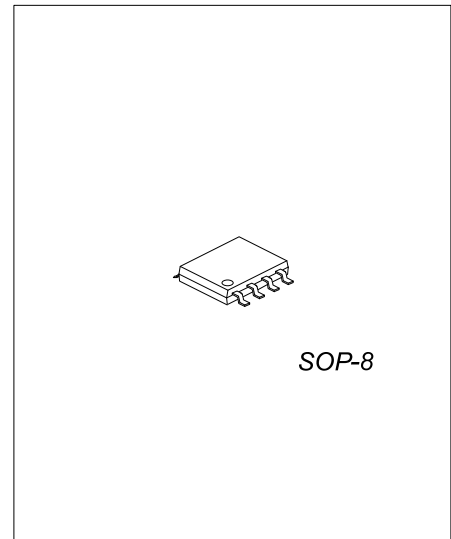
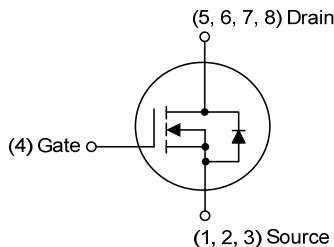
As advanced N-channel logic level enhancement MOSFET, the **UT4410** is produced using UTC's high cell density, DMOS trench technology. which has been specially tailored to minimize the on-resistance and maintain low gate charge for superior switching performance.

These devices can be particularly suited for such low voltage applications: cellular phone and notebook computer power management and other battery powered circuits where high-side switching and low in-line power loss are needed in a very small outline surface mount package.

#### FEATURES

- \*  $R_{DS(ON)} < 18 \text{ m}\Omega @ V_{GS}=10V, I_D=10A$
- \*  $R_{DS(ON)} < 20 \text{ m}\Omega @ V_{GS}=4.5V, I_D=8A$
- \* Ultra low gate charge ( typical 11 nC )
- \* Low reverse transfer capacitance (  $C_{RSS} = \text{typical } 35 \text{ pF}$  )
- \* Fast switching capability
- \* Avalanche energy specified
- \* Improved dv/dt capability, high ruggedness

#### SYMBOL



SOP-8

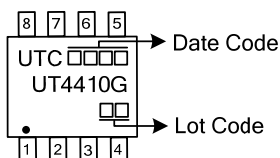
#### ORDERING INFORMATION

Ordering Number	Package	Pin Assignment								Packing
		1	2	3	4	5	6	7	8	
UT4410G-S08-R	SOP-8	S	S	S	G	D	D	D	D	Tape Reel

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

<p>UT4410G-S08-R</p> <ul style="list-style-type: none"> <li>(1) Packing Type</li> <li>(2) Package Type</li> <li>(3) Green Package</li> </ul>	<ul style="list-style-type: none"> <li>(1) R: Tape Reel</li> <li>(2) S08: SOP-8</li> <li>(3) G: Halogen Free and Lead Free</li> </ul>
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#### 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	$V_{GSS}$	$\pm 20$	V
Continuous Drain Current	$I_D$	11.6	A
Pulsed Drain Current	$I_{DM}$	46.4	A
Power Dissipation	$P_D$	3.6	W
Junction Temperature	$T_J$	-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	RATINGS	UNIT
Junction to Ambient	$\theta_{JA}$	60	$^\circ\text{C/W}$

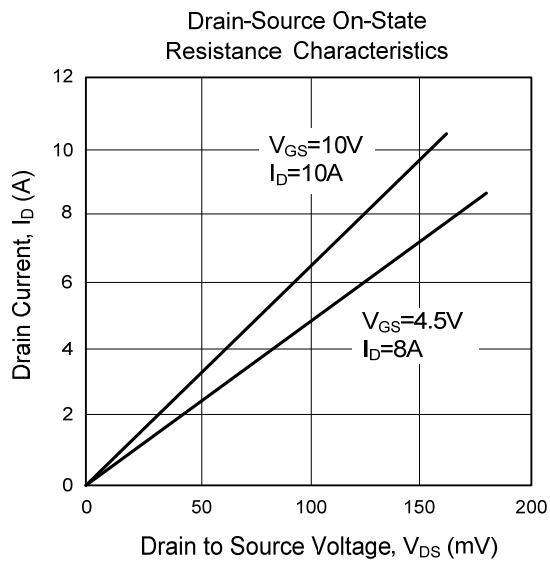
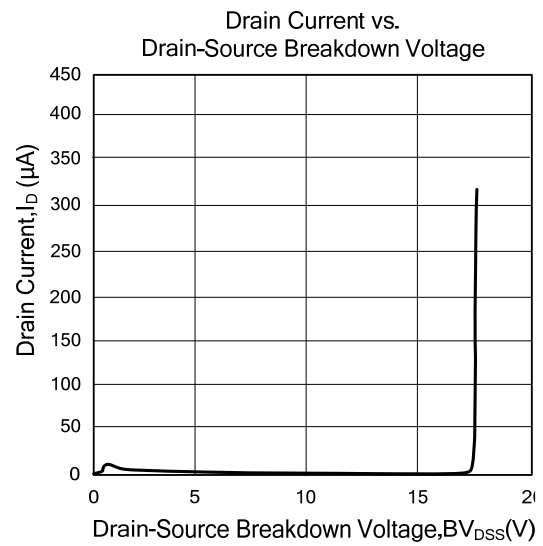
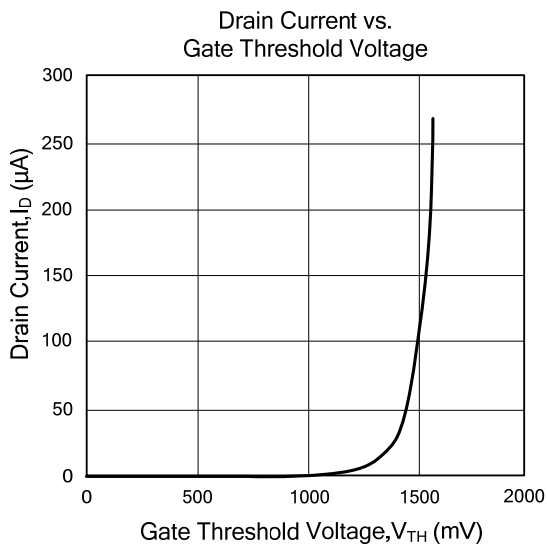
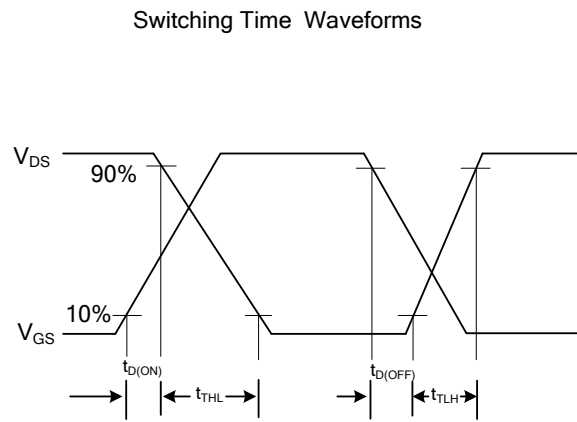
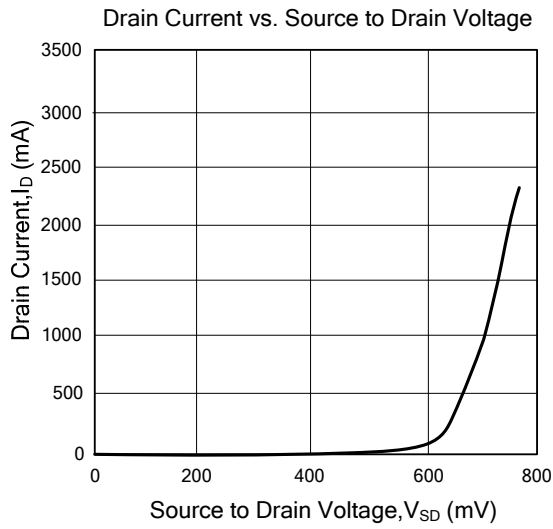
Note: The device mounted on 1in<sup>2</sup> FR4 board with 2 oz copper

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
<b>OFF CHARACTERISTICS</b>						
Drain-Source Leakage Current	$I_{DSS}$	$V_{DS}=30\text{V}, V_{GS}=0\text{V}$	1			$\mu\text{A}$
Gate-Source Leakage Current	$I_{GSS}$	$V_{GS}=\pm 20\text{V}, V_{DS}=0\text{V}$			$\pm 100$	nA
<b>ON CHARACTERISTICS</b>						
Gate-Threshold Voltage	$V_{GS(TH)}$	$V_{DS}=V_{GS}, I_D=250\mu\text{A}$	1.3	1.6	3.0	V
Static Drain-Source On-Resistance(Note)	$R_{DS(ON)}$	$V_{GS}=10\text{V}, I_D=10\text{A}$		12	18	m $\Omega$
		$V_{GS}=4.5\text{V}, I_D=8\text{A}$		17	20	
On-State Drain Current(Note)	$I_{D(ON)}$	$V_{DS}=5\text{V}, V_{GS}=10\text{V}$	20			A
<b>DYNAMIC PARAMETERS</b>						
Input Capacitance	$C_{ISS}$	$V_{DS}=15\text{V}, V_{GS}=0\text{V}, f=1.0\text{MHz}$		700	800	pF
Output Capacitance	$C_{OSS}$			120		pF
Reverse Transfer Capacitance	$C_{RSS}$			35		pF
Gate Resistance	$R_G$	$V_{DS}=0\text{V}, V_{GS}=0\text{V}, f=1.0\text{MHz}$		0.9		$\Omega$
<b>SWITCHING PARAMETERS</b>						
Turn-ON Delay Time	$t_{D(ON)}$	$V_{DD}=25\text{V}, I_D=1\text{A}, R_L=25\Omega$ $V_{GEN}=10\text{V}, R_G=6\Omega$		14	32	ns
Turn-ON Rise Time	$t_R$			12	64	ns
Turn-OFF Delay Time	$t_{D(OFF)}$			43	280	ns
Turn-OFF Fall-Time	$t_F$		4	192	ns	
Total Gate Charge	$Q_G$	$V_{DS}=15\text{V}, V_{GS}=4.5\text{V}, I_D=10\text{A}$		11	15	nC
Total Gate Charge	$Q_{GT}$	$V_{DS}=15\text{V}, V_{GS}=10\text{V}, I_D=10\text{A}$		20	26	nC
Gate Source Charge	$Q_{GS}$			5		nC
Gate Drain Charge	$Q_{GD}$			4.9		nC
<b>SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS</b>						
Drain-Source Diode Forward Voltage	$V_{SD}$	$I_S=2.3\text{A}, V_{GS}=0\text{V}$		0.7	1.1	V

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

■ TYPICAL CHARACTERISTICS



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