



UT4410

Power MOSFET

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

DESCRIPTION

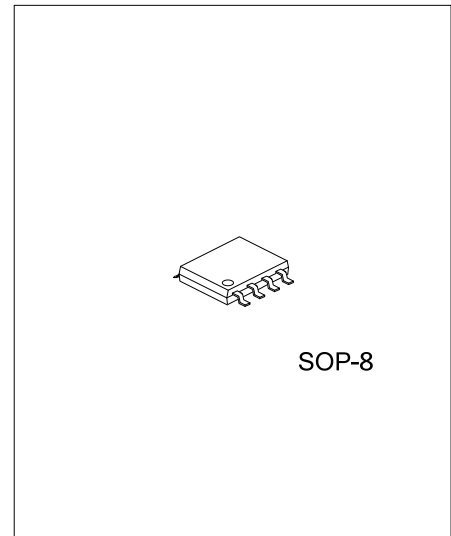
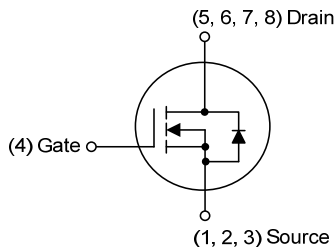
As advanced N-channel logic level enhancement MOSFET, the **UT4410** is produced using UTC's high cell density, DMOS trench technology. which has been specially tailored to minimize the on-resistance and maintain low gate charge for superior switching performance.

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



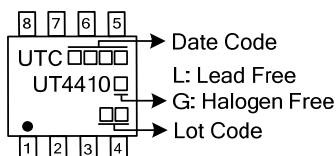
ORDERING INFORMATION

Ordering Number		Package	Pin Assignment								Packing
Lead Free	Halogen Free		1	2	3	4	5	6	7	8	
UT4410L-S08-R	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> <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, L: Lead Free</p>
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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}	± 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	θ_{JA}	60	$^\circ\text{C}/\text{W}$

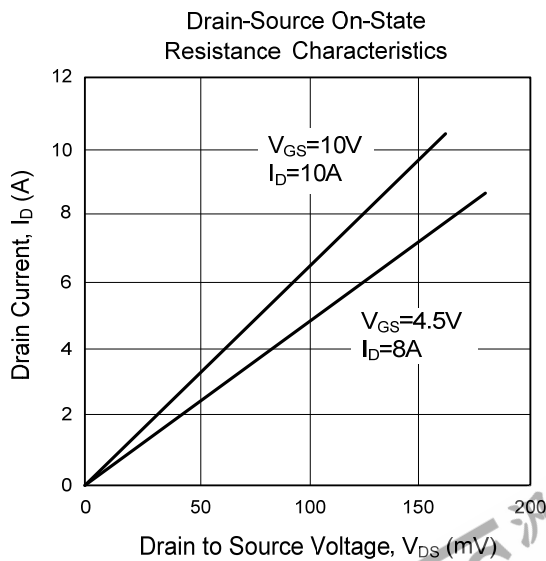
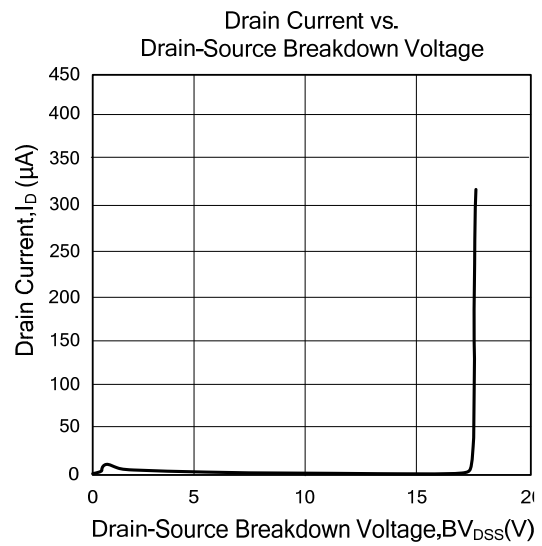
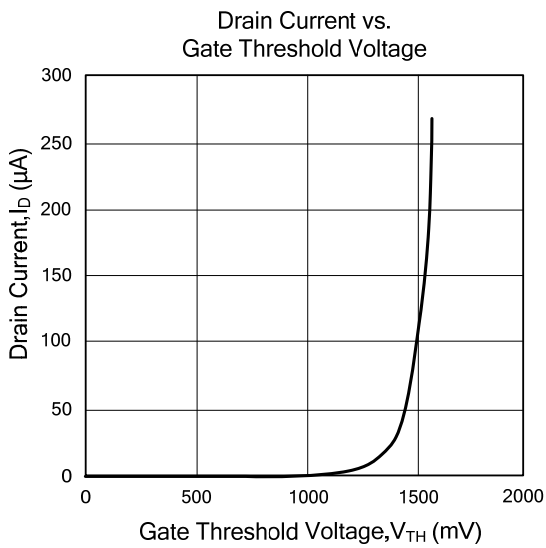
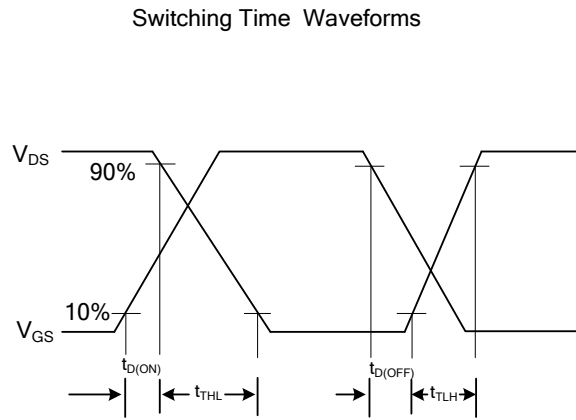
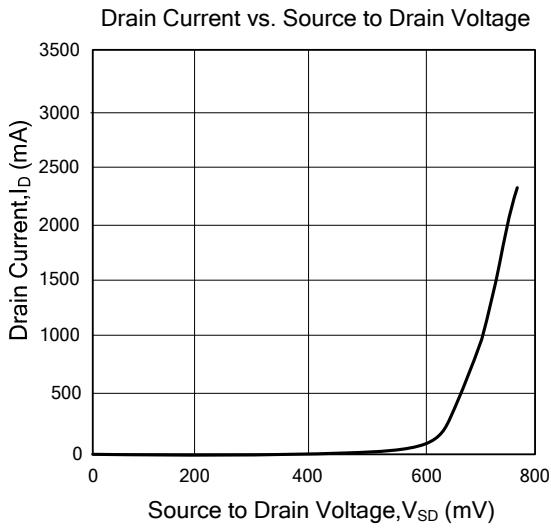
Note: The device mounted on 1in² FR4 board with 2 oz copper

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Leakage Current	I_{DSS}	$V_{DS}=30\text{V}, V_{GS}=0\text{V}$	1			μA
Gate-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 20\text{V}, V_{DS}=0\text{V}$			± 100	nA
ON CHARACTERISTICS						
Gate-Threshold Voltage	$V_{GS(TH)}$	$V_{DS}=V_{GS}, I_D=250\mu\text{A}$	1.0		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 Ω
		$V_{GS}=4.5\text{V}, I_D=8\text{A}$		17	20	
On-State Drain Current(Note)	$I_{D(ON)}$	$V_{DS}=5\text{V}, V_{GS}=10\text{V}$	20			A
DYNAMIC PARAMETERS						
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		Ω
SWITCHING PARAMETERS						
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
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
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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