



UT4406

Power MOSFET

N-CHANNEL ENHANCEMENT MODE

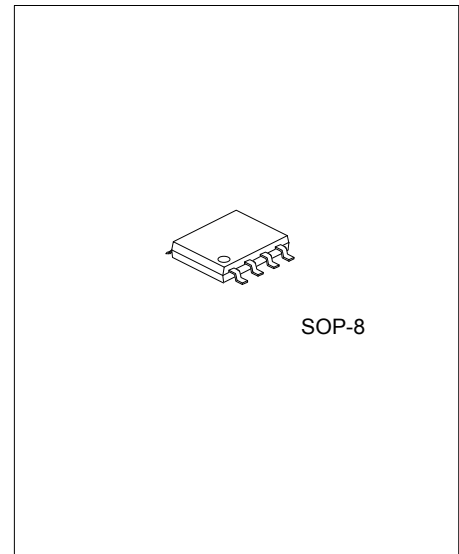
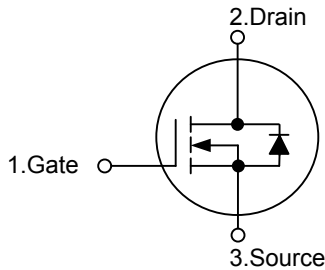
DESCRIPTION

The **UT4406** can provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as 2.5V by using UTC's advanced trench technology which makes an excellent high side switch for notebook CPU core DC-DC conversion.

FEATURES

- * $R_{DS(ON)} < 14m\Omega @V_{GS} = 10 V$
- $R_{DS(ON)} < 16.5m\Omega @V_{GS} = 4.5 V$
- $R_{DS(ON)} < 26m\Omega @V_{GS} = 2.5 V$
- * Low capacitance
- * Low gate charge
- * Fast switching capability
- * Avalanche energy specified

SYMBOL



SOP-8

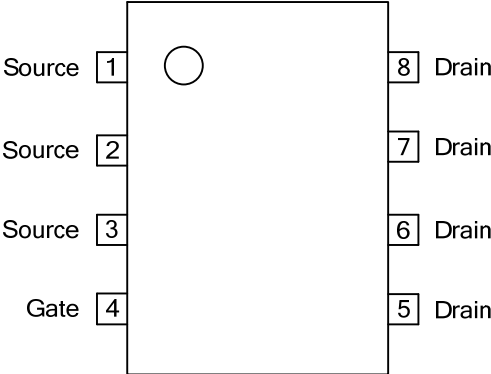
Lead-free: UT4406L
Halogen-free: UT4406G

ORDERING INFORMATION

Ordering Number			Package	Packing
Normal	Lead Free	Halogen Free		
UT4406-S08-R	UT4406L-S08-R	UT4406G-S08-R	SOP-8	Tape Reel
UT4406-S08-T	UT4406L-S08-T	UT4406G-S08-T	SOP-8	Tube

<p>UT4406L-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}	± 12	
Continuous Drain Current	I_D	11.5	A
Pulsed Drain Current	I_{DM}	80	A
Avalanche Current (Note 2)	I_{AV}	25	A
Repetitive Avalanche Energy, $L=0.1\text{mH}$ (Note 2)	E_{AV}	78	mJ
Power Dissipation	$T_C=25^\circ\text{C}$ P_D	3	W
Junction Temperature	T_J	+150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55 ~ +150	$^\circ\text{C}$

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

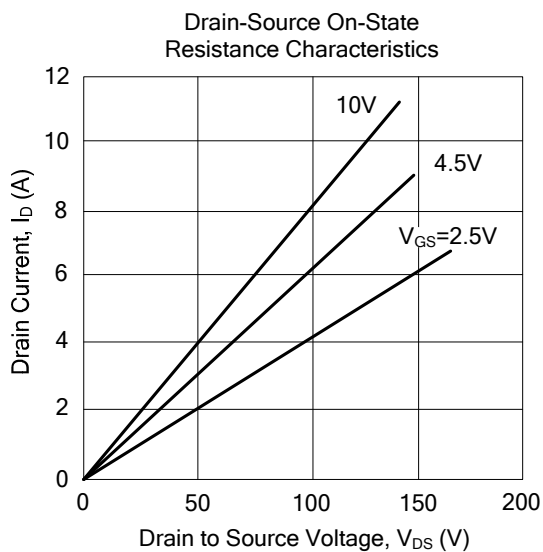
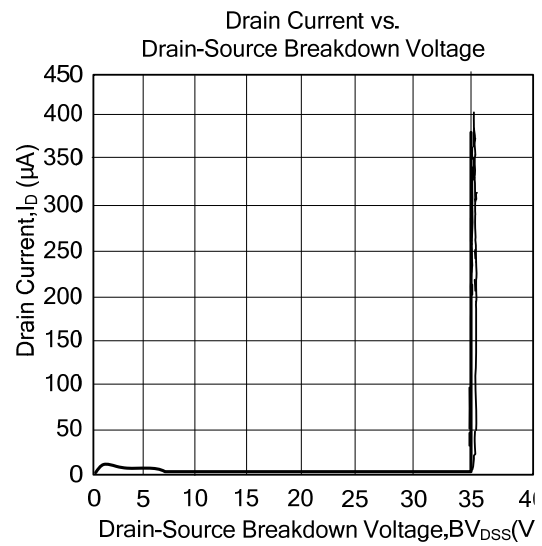
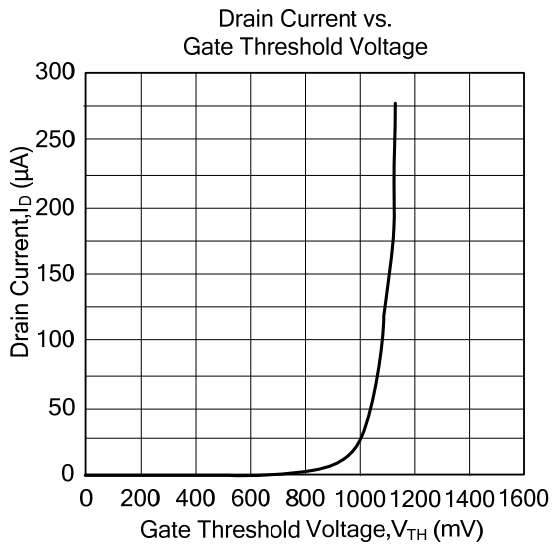
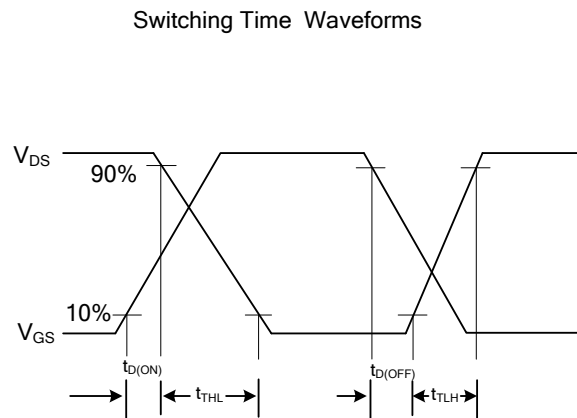
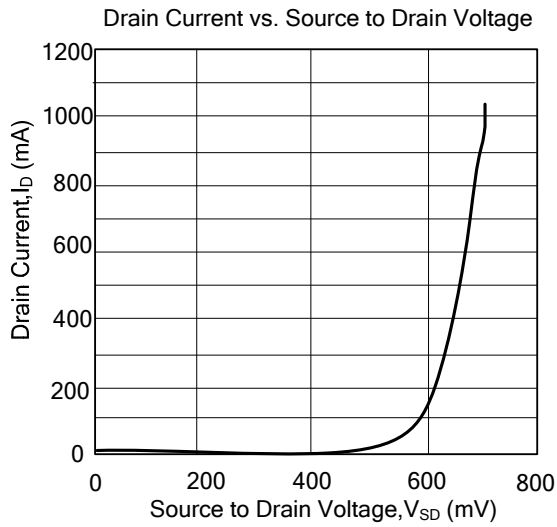
■ THERMAL DATA

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
Junction-to-Ambient	θ_{JA}		48	65	$^\circ\text{C/W}$
Junction-to-Case	θ_{JC}		12	16	

■ 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}	$V_{DS}=0\text{V}, V_{GS}=\pm 12\text{V}$			100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS}=V_{GS}, I_D=250\mu\text{A}$	0.8	1	1.5	V
On State Drain Current	$I_{D(ON)}$	$V_{DS}=5\text{V}, V_{GS}=4.5\text{V}$	60			A
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=10\text{V}, I_D=12\text{A}$		11.5	14.8	m Ω
		$V_{GS}=4.5\text{V}, I_D=10\text{A}$		13.5	17.5	
		$V_{GS}=2.5\text{V}, I_D=8\text{A}$		19.5	26.8	
DYNAMIC PARAMETERS						
Input Capacitance	C_{ISS}	$V_{DS}=15\text{V}, V_{GS}=0\text{V}, f=1\text{MHz}$		1630		pF
Output Capacitance	C_{OSS}			201		pF
Reverse Transfer Capacitance	C_{RSS}			142		pF
SWITCHING PARAMETERS						
Turn-ON Delay Time	$t_{D(ON)}$	$V_{GS}=10\text{V}, V_{DS}=15\text{V}, R_L=1.2\Omega, R_G=3\Omega$		4		ns
Turn-ON Rise Time	t_R			5		ns
Turn-OFF Delay Time	$t_{D(OFF)}$			32		ns
Turn-OFF Fall-Time	t_F			5		ns
Total Gate Charge	Q_G				18	
Gate Source Charge	Q_{GS}	$V_{DS}=15\text{V}, V_{GS}=4.5\text{V}, I_D=11.5\text{A}$		2.5		nC
Gate Drain Charge	Q_{GD}			5.5		nC
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Diode Forward Voltage	V_{SD}	$I_S=10\text{A}, V_{GS}=0\text{V}$		0.83	1	V
Maximum Body-Diode Continuous Current	I_S				4.5	A
Body Diode Reverse Recovery Time	t_{RR}	$I_F=10\text{A}, dI/dt=100\text{A}/\mu\text{s}$		18.7		ns
Body Diode Reverse Recovery Charge	Q_{RR}	$I_F=10\text{A}, dI/dt=100\text{A}/\mu\text{s}$		19.8		nC

TYPICAL CHARACTERISTICS



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