



UT4406

Power MOSFET

N-CHANNEL ENHANCEMENT MODE

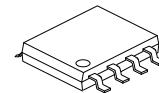
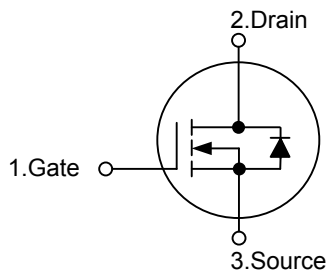
DESCRIPTION

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

- * $R_{DS(ON)} < 14.8m\Omega$ @ $V_{GS}=10V$, $I_D=12A$
 $R_{DS(ON)} < 17.5m\Omega$ @ $V_{GS}=4.5V$, $I_D=10A$
 $R_{DS(ON)} < 26.8m\Omega$ @ $V_{GS}=2.5V$, $I_D=8A$
- * Low capacitance
- * Low gate charge
- * Fast switching capability
- * Avalanche energy specified

SYMBOL



SOP-8

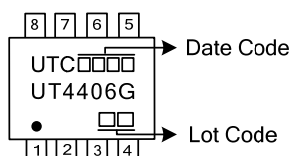
ORDERING INFORMATION

Ordering Number	Package	Pin Assignment								Packing
		1	2	3	4	5	6	7	8	
UT4406G-S08-R	SOP-8	S	S	S	G	D	D	D	D	Tape Reel

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

UT4406G-S08-R		(1)Packing Type	(1) R: Tape Reel
		(2)Package Type	(2) S08: SOP-8
		(3)Green Package	(3) G: Halogen Free and Lead Free

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}	± 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	$^\circ\text{C}$

Notes: 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 $T_{J(MAX)}$

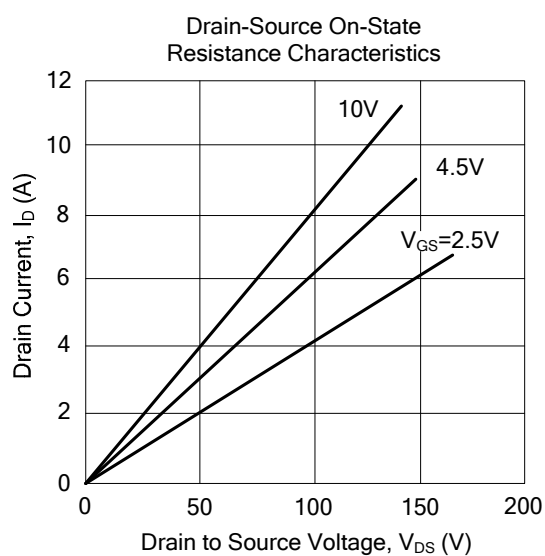
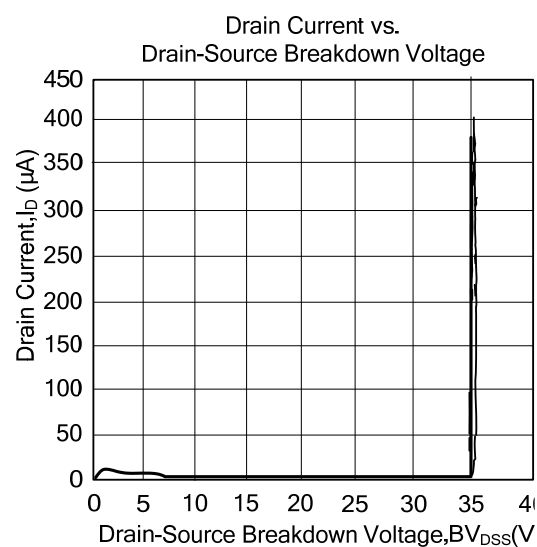
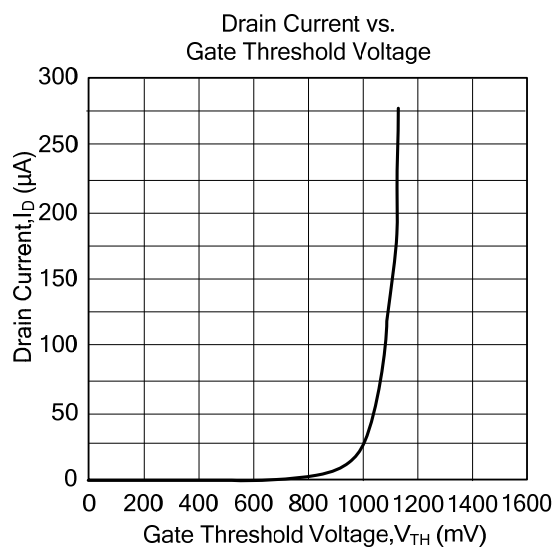
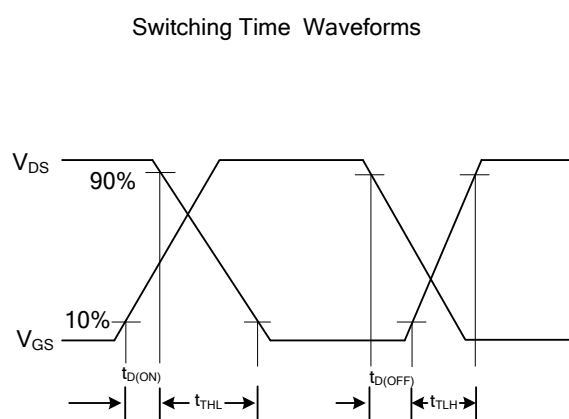
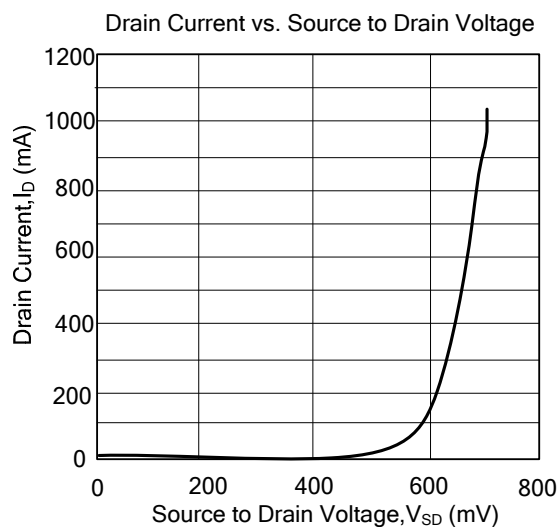
■ THERMAL DATA

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} =0V, I _D =250μA	30			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =24V, V _{GS} =0V			1	μA
Gate-Body Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±12V			100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} , I _D =250μA	0.8	1	1.5	V
On State Drain Current	I _{D(ON)}	V _{DS} =5V, V _{GS} =4.5V	60			A
Static Drain-Source On-Resistance	R _{DS(ON)}	V _{GS} =10V, I _D =12A		11.5	14.8	mΩ
		V _{GS} =4.5V, I _D =10A		13.5	17.5	
		V _{GS} =2.5V, I _D =8A		19.5	26.8	
DYNAMIC PARAMETERS						
Input Capacitance	C _{ISS}	V _{DS} =15V, V _{GS} =0V, f=1MHz		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} =10V, V _{DS} =15V, R _L =1.2Ω, R _G =3Ω		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	V _{DS} =15V, V _{GS} =4.5V, I _D =11.5A		18		nC
Gate Source Charge	Q _{GS}			2.5		nC
Gate Drain Charge	Q _{GD}			5.5		nC
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Diode Forward Voltage	V _{SD}	I _S =10A, V _{GS} =0V		0.83	1	V
Maximum Body-Diode Continuous Current	I _S				4.5	A
Body Diode Reverse Recovery Time	t _{RR}	I _F =10A, dI/dt=100A/μs		18.7		ns
Body Diode Reverse Recovery Charge	Q _{RR}	I _F =10A, dI/dt=100A/μs		19.8		nC

■ TYPICAL CHARACTERISTICS



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