



UT4446

Power MOSFET

N-CHANNEL ENHANCEMENT MODE

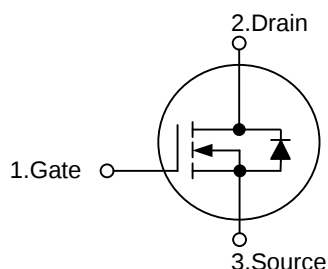
DESCRIPTION

The **UT4446** uses UTC's 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

- * $R_{DS(ON)} < 8.5m\Omega$ @ $V_{GS}=10V$
- * $R_{DS(ON)} < 14.5m\Omega$ @ $V_{GS}=4.5V$
- * Low capacitance
- * Low gate charge
- * Fast switching capability
- * Avalanche energy specified

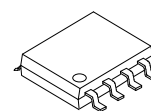
SYMBOL



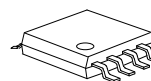
ORDERING INFORMATION

Ordering Number		Package	Packing
Lead Free	Halogen Free		
UT4446L-S08-R	UT4446G-S08-R	SOP-8	Tape Reel
UT4446L-S08-T	UT4446G-S08-T	SOP-8	Tube
UT4446L-P08-R	UT4446G-P08-R	TSSOP-8	Tape Reel

(1) Packing Type	(1) T: Tube, R: Tape Reel
(2) Package Type	(2) S08: SOP-8, P08: TSSOP-8
(3) Lead Plating	(3) L: Lead Free, G: Halogen Free

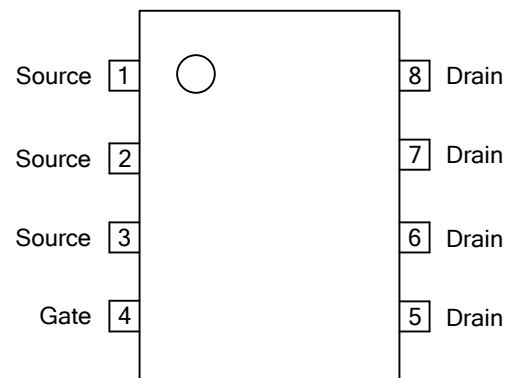


SOP-8



TSSOP-8

■ PIN CONFIGURATION



■ ABSOLUTE MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$, unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	15	A
Pulsed Drain Current	I_{DM}	40	A
Avalanche Current	I_{AR}	20	A
Repetitive avalanche energy $L=0.1\text{mH}$	E_{AR}	50	mJ
Power Dissipation	SOP-8	P_D	1.6
	TSSOP-8		1
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 $T_{J(MAX)}$

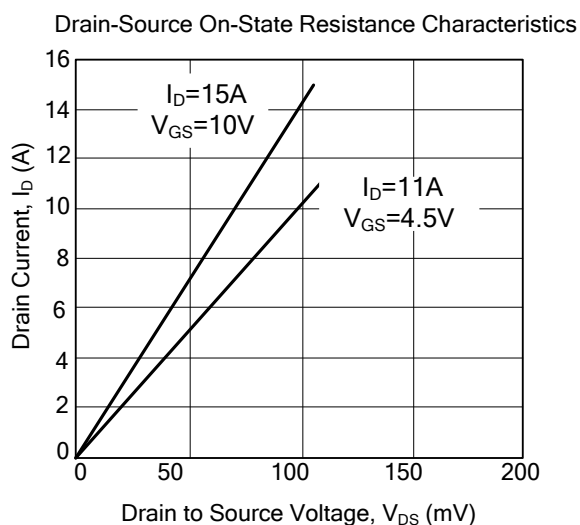
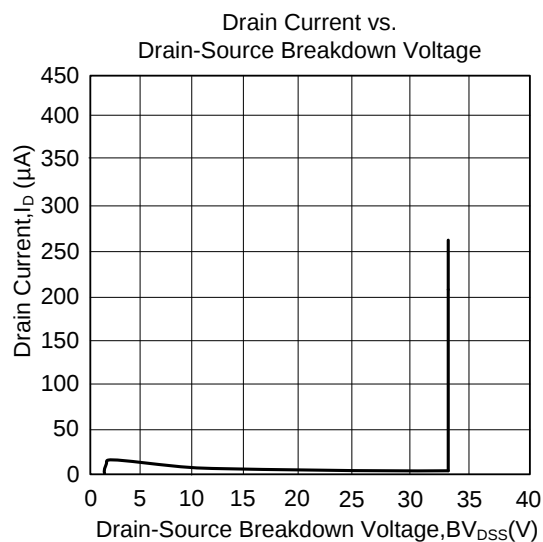
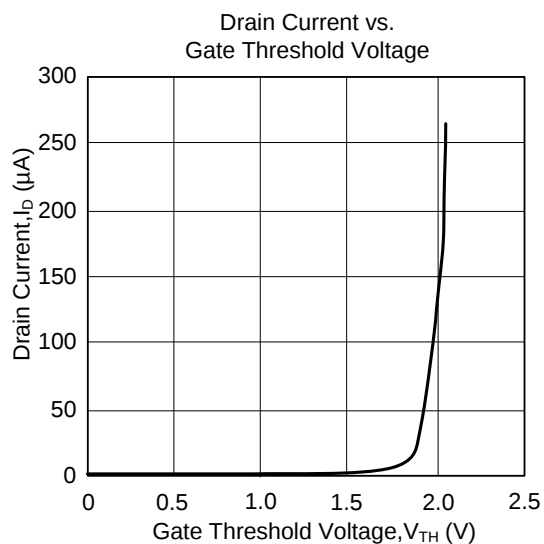
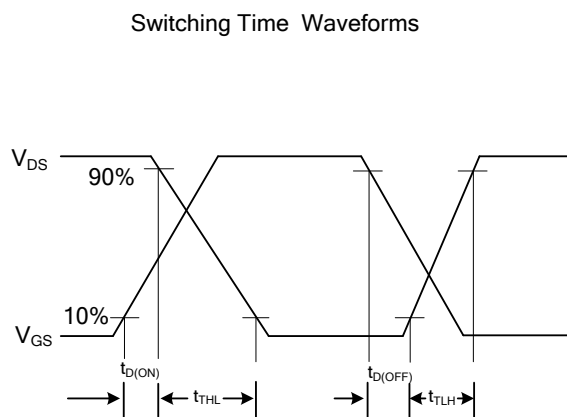
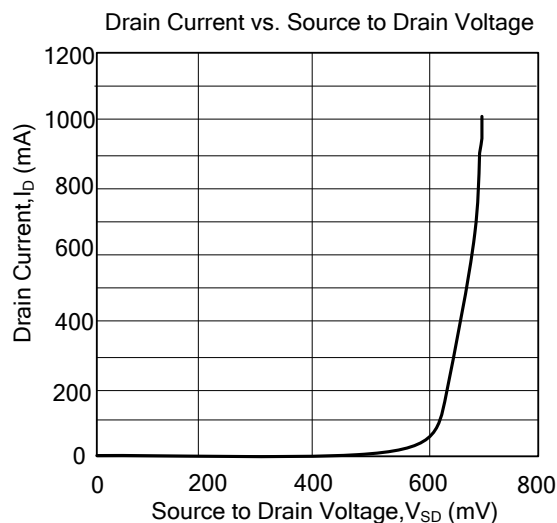
■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction-to-Ambient	SOP-8	θ_{JA}	75
	TSSOP-8		125

■ 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} =±20V			100	nA
ON CHARACTERISTICS							
Gate Threshold Voltage		V _{GS(TH)}	V _{DS} =V _{GS} , I _D =250μA	1	2.2	3	V
On State Drain Current		I _{D(ON)}	V _{DS} =5V, V _{GS} =10V	40			A
Static Drain-Source On-Resistance		R _{DS(ON)}	V _{GS} =10V, I _D =15A		6.9	8.5	mΩ
			V _{GS} =4.5V, I _D =11A		11.8	14.5	
Forward Transconductance		g _{FS}	V _{DS} =5 V, I _D =15 A		27		S
DYNAMIC PARAMETERS							
Input Capacitance		C _{ISS}	V _{DS} =15V, V _{GS} =0V, f=100kHz		1520	1825	pF
Output Capacitance		C _{OSS}			306		pF
Reverse Transfer Capacitance		C _{RSS}			214		pF
SWITCHING PARAMETERS							
Turn-ON Delay Time		t _{D(ON)}	V _{GS} =10V, V _{DS} =15V, R _L =1.0Ω, R _G =3Ω		7.2	56	ns
Turn-ON Rise Time		t _R			8.2	80	ns
Turn-OFF Delay Time		t _{D(OFF)}			22	392	ns
Turn-OFF Fall-Time		t _F			6.7	216	ns
Total Gate Charge	4.5V	Q _G	V _{DS} =15V, V _{GS} =4.5V, I _D =15A		17	20	nC
	10V				33.7	40	
Gate Source Charge		Q _{GS}			6.2		nC
Gate Drain Charge		Q _{GD}			10		nC
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS							
Diode Forward Voltage		V _{SD}	I _S =1A, V _{GS} =0V		0.71	1	V
Maximum Body-Diode Continuous Current		I _S				4	A
Body Diode Reverse Recovery Time		t _{RR}	I _F =15A, dI/dt=100A/μs		24	30	ns
Body Diode Reverse Recovery Charge		Q _{RR}	I _F =15A, dI/dt=100A/μs		19		nC

TYPICAL CHARACTERISTICS



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