



UT4446

Power MOSFET

N-CHANNEL ENHANCEMENT MODE

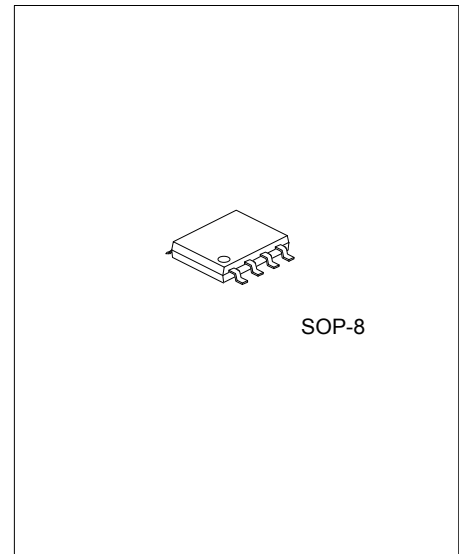
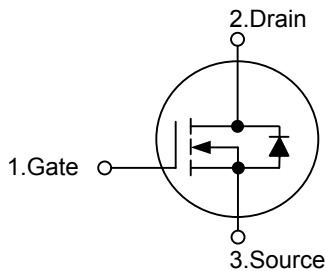
DESCRIPTION

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



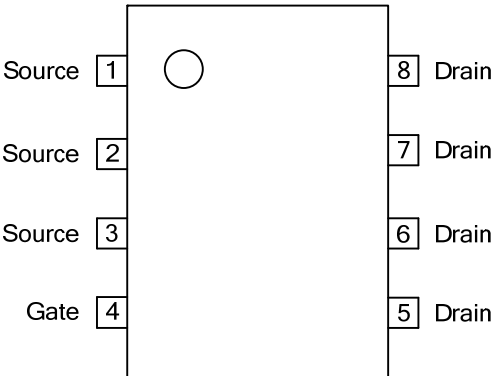
Lead-free: UT4446L
Halogen-free: UT4446G

ORDERING INFORMATION

Ordering Number			Package	Packing
Normal	Lead Free	Halogen Free		
UT4446-S08-R	UT4446L-S08-R	UT4446G-S08-R	SOP-8	Tape Reel
UT4446-S08-T	UT4446L-S08-T	UT4446G-S08-T	SOP-8	Tube

<p>UT4446L-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°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	15	A
Pulsed Drain Current	I _{DM}	40	A
Avalanche Current	I _{AR}	20	A
Repetitive avalanche energy L=0.1mH	E _{AR}	50	mJ
Power Dissipation	P _D	3	W
Junction Temperature	T _J	+150	°C
Storage Temperature	T _{STG}	-55 ~ +150	°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)}

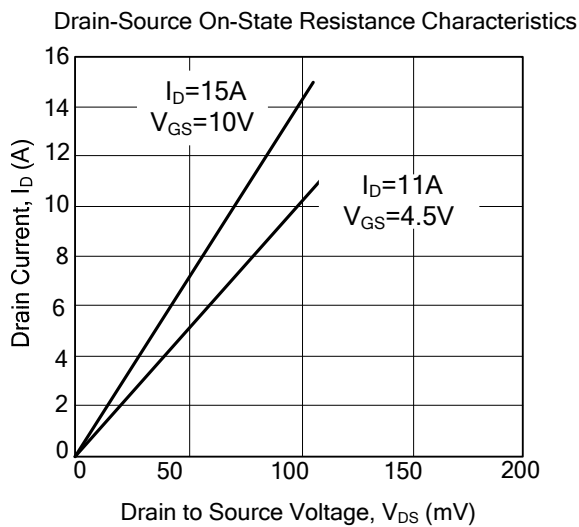
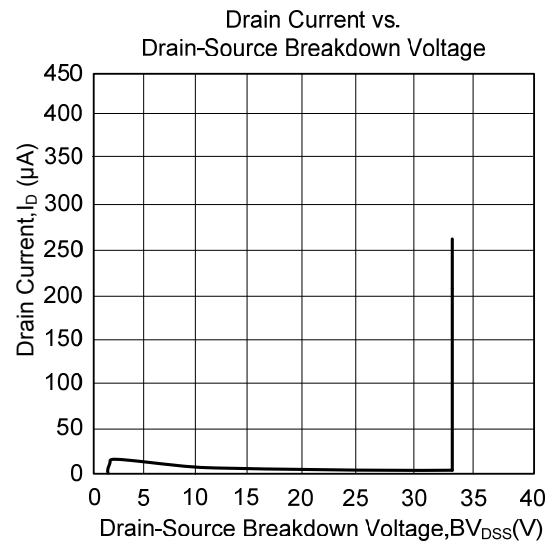
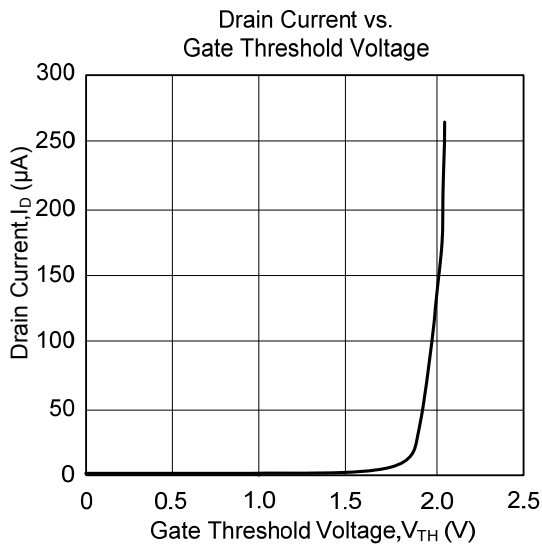
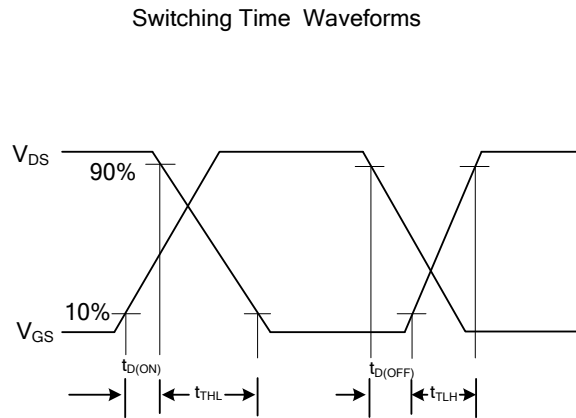
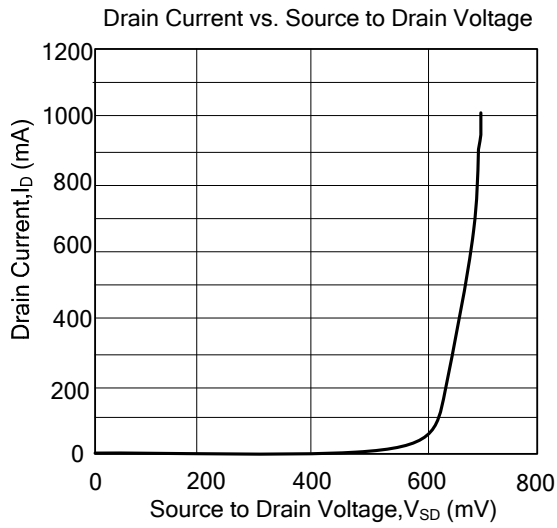
■ THERMAL DATA

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
Junction-to-Ambient	θ _{JA}		59	75	°C/W
Junction-to-Case	θ _{JC}		16	24	°C/W

■ ELECTRICAL CHARACTERISTICS (T_J=25°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	Q _G	V _{DS} =15V, V _{GS} =4.5V, I _D =15A	4.5V	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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