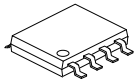
UTL1426

Power MOSFET

N-CHANNEL ENHANCEMENT MODE FIELD EFFECT TRANSISTOR



SOP-8

Lead-free: UTL1426L
Halogen-free: UTL1426G

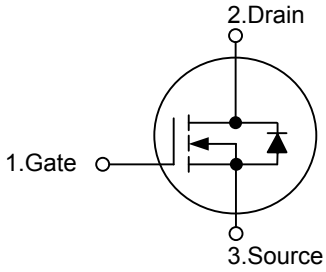
■ DESCRIPTION

The **UTL1426** 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

* $R_{DS(ON)}$< 10.5 mΩ @V_{GS}=10V
  $R_{DS(ON)}$< 12.5 mΩ @V_{GS}=4.5V
* Low capacitance
* Low gate charge
* Fast switching capability
* Avalanche energy specified

■ SYMBOL

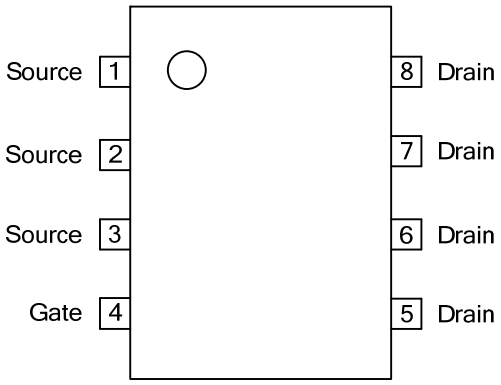


■ ORDERING INFORMATION

Ordering Number			Package	Packing
Normal	Lead Free Plating	Halogen Free		
UTL1426-S08-R	UTL1426L-S08-R	UTL1426G-S08-R	SOP-8	Tape Reel

UTL1426L-S08-R (1)Packing Type (2)Package Type (3)Lead Plating	(1) R: Tape Reel (2) S08: SOP-8 (3) G: Halogen Free, L: Lead Free, Blank: Pb/Sn

■ PIN CONFIGURATION



■ ABSOLUTE MAXIMUM RATINGS (T_a=25℃, unless otherwise specified)

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		V_{DSS}	30	V
Gate-Source Voltage		V_{GSS}	±12	V
Continuous Drain Current		I_D	46	A
Pulsed Drain Current		I_{DM}	120	A
Avalanche Current		I_{AR}	35	A
Repetitive avalanche energy L=0.3mH		E_{AR}	184	mJ
Power Dissipation	T_C=25°C	P_D	43	W
Junction Temperature		T_J	+175	°C
Storage Temperature		T_{STG}	-55 ~ +175	°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

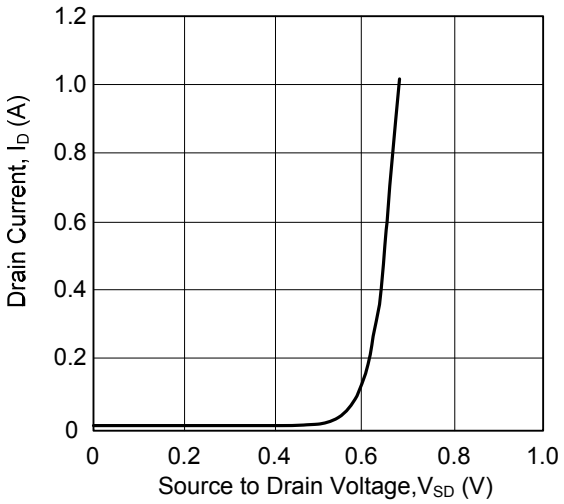
PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
Junction-to-Ambient	θ_{JA}		53	64	°C/W
Junction-to-Case	θ_{JC}		2.4	3.5	

■ ELECTRICAL CHARACTERISTICS (T_J=25°C, unless otherwise specified

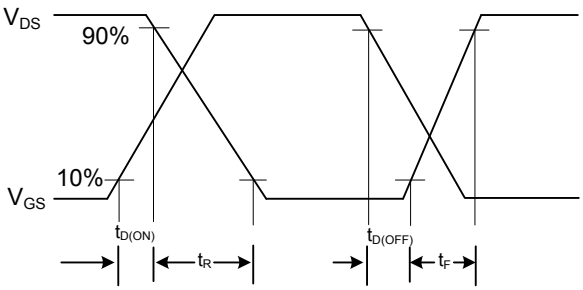
PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS							
Drain-Source Breakdown Voltage		BV_{DSS}	V_{GS}=0V, I_D=250μA	30			V
Zero Gate Voltage Drain Current		I_{DSS}	V_{DS}=24V, V_{GS}=0V			1	uA
Gate-Body Leakage Current		I_{GSS}	V_{DS}=0V, V_{GS}=±12V			0.1	μA
ON CHARACTERISTICS							
Gate Threshold Voltage		$V_{GS(TH)}$	V_{DS}=V_{GS}, I_D=250μA	1	1.55	2.5	V
On State Drain Current		$I_{D(ON)}$	V_{DS}=5V, V_{GS}=10V	120			A
Static Drain-Source On-Resistance		$R_{DS(ON)}$	V_{GS}=10V, I_D=20A		8.5	10.5	mΩ
			V_{GS}=4.5V, I_D=20A		10.2	12.5	
DYNAMIC PARAMETERS							
Input Capacitance		C_{ISS}	V_{DS}=15V, V_{GS}=0V, f=1MHz		1210	1452	pF
Output Capacitance		C_{OSS}			330		pF
Reverse Transfer Capacitance		C_{RSS}			85		pF
SWITCHING PARAMETERS							
Turn-ON Delay Time		$t_{D(ON)}$	V_{GS}=10V, V_{DS}=15V, R_L=0.75Ω, R_{GEN}=3Ω		10		ns
Turn-ON Rise Time		t_R			6.3		ns
Turn-OFF Delay Time		$t_{D(OFF)}$			21		ns
Turn-OFF Fall-Time		t_F			2.8		ns
Total Gate Charge	10V	Q_G	V_{DS}=15V, V_{GS}=10V, I_D=20A		22	28	nC
	4.5V				10		nC
Gate Source Charge		Q_{GS}			3.7		nC
Gate Drain Charge		Q_{GD}			2.7		nC
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS							
Diode Forward Voltage		V_{SD}	I_S=1A, V_{GS}=0V		0.73	1.0	V
Maximum Body-Diode Continuous Current		I_S				46	A
Body Diode Reverse Recovery Time		t_{RR}	I_F=20A, dI/dt=100A/μs		36	45	ns
Body Diode Reverse Recovery Charge		Q_{RR}			47		nC

■ TYPICAL CHARACTERISTICS

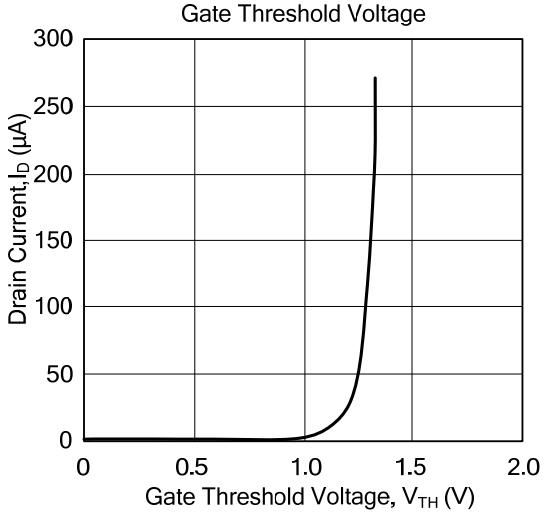
Drain Current vs. Source to Drain Voltage



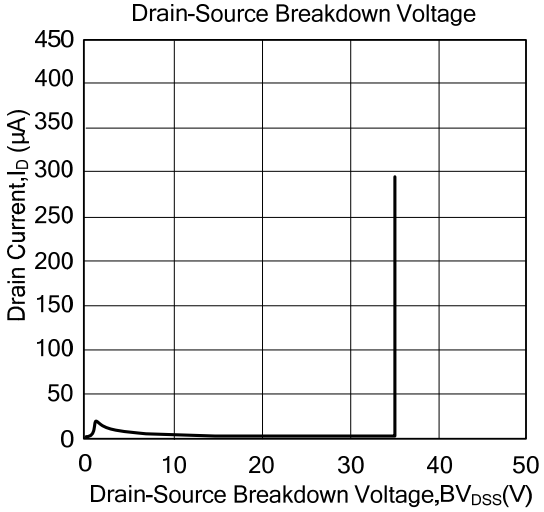
Switching Time Waveforms



Drain Current vs.
Gate Threshold Voltage



Drain Current vs.
Drain-Source Breakdown Voltage



Drain-Source On-State
Resistance Characteristics