



UT6898

Power MOSFET

N-CHANNEL ENHANCEMENT

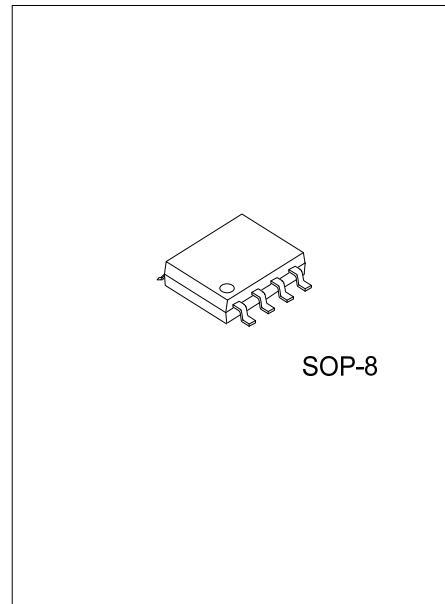
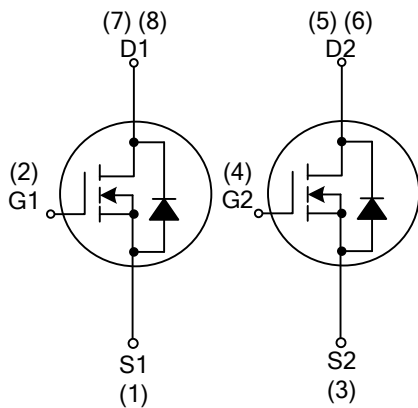
DESCRIPTION

The **UT6898** uses 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

- * $R_{DS(ON)} < 18 \text{ m}\Omega @ V_{GS} = 2.5V$
- * $R_{DS(ON)} < 14 \text{ m}\Omega @ V_{GS} = 4.5V$
- * Low capacitance
- * Low gate charge
- * Fast switching capability
- * Avalanche energy specified

SYMBOL



SOP-8

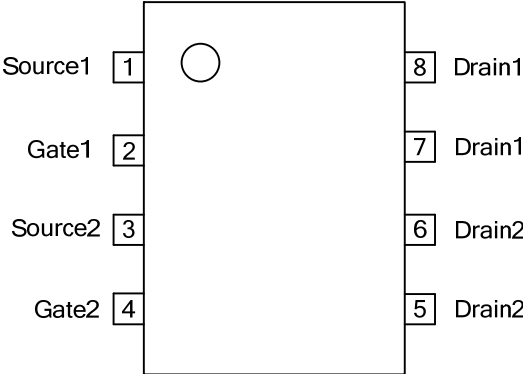
Lead-free: UT6898L
Halogen-free: UT6898G

ORDERING INFORMATION

Ordering Number			Package	Packing
Normal	Lead Free	Halogen Free		
UT6898-S08-R	UT6898L-S08-R	UT6898G-S08-R	SOP-8	Tape Reel
UT6898-S08-T	UT6898L-S08-T	UT6898G-S08-T	SOP-8	Tube

<p>UT6898L-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



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

PARAMETER	SYMBOL	RATINGS	UNIT
Drain-Source Voltage	V_{DSS}	20	V
Gate-Source Voltage	V_{GSS}	± 12	V
Continuous Drain Current	I_D	9.4	A
Pulsed Drain Current	I_{DM}	38	A
Maximum Power Dissipation	P_D	2	W
Junction Temperature	T_J	+150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55 ~ +150	$^\circ\text{C}$

Note: 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.

■ THERMAL DATA

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
Junction-to-Case	θ_{JC}		40		$^\circ\text{C/W}$

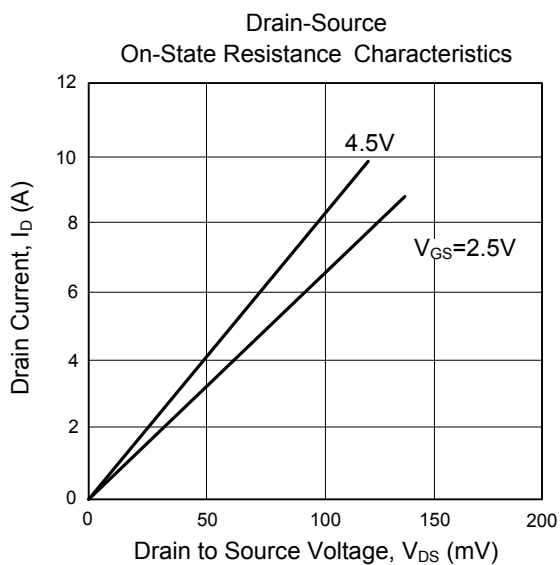
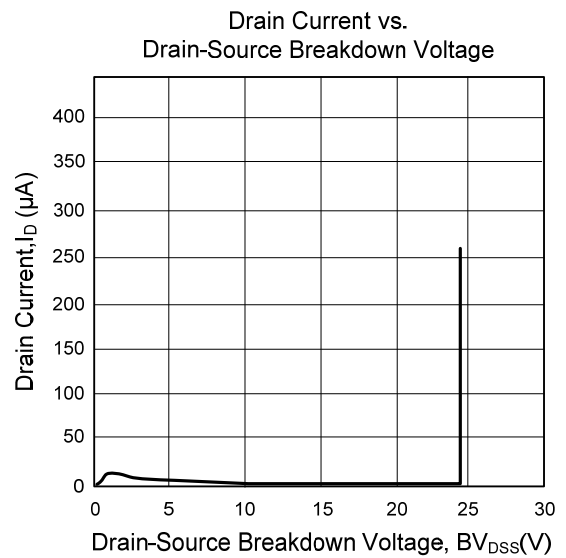
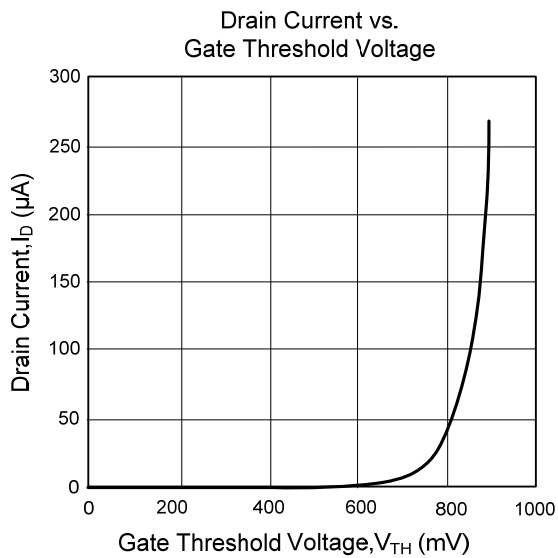
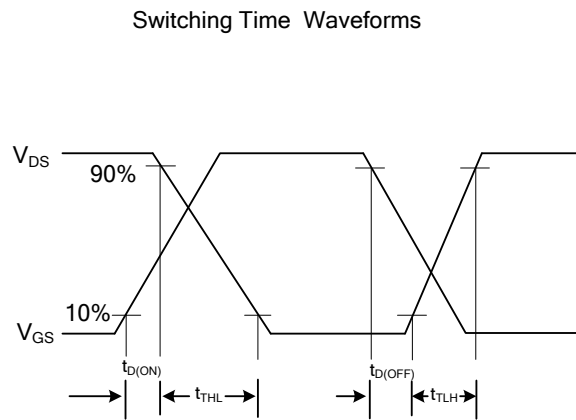
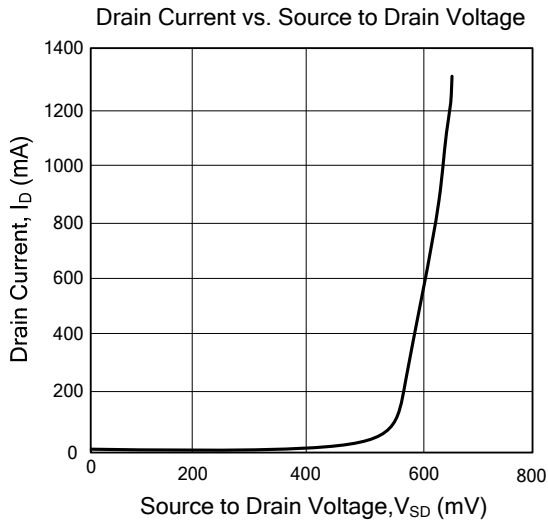
■ ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0\text{V}, I_D=250\mu\text{A}$	20			V
Drain-Source Leakage Current	I_{DSS}	$V_{GS}=0\text{V}, V_{DS}=16\text{V}$			1	μA
Gate-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 12\text{V}, V_{DS}=0\text{V}$			± 100	nA
ON CHARACTERISTICS (Note 1)						
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS}=V_{GS}, I_D=250\mu\text{A}$	0.5	1	1.5	V
On State Drain Current	$I_{D(ON)}$	$V_{GS}=4.5\text{V}, V_{DS}=5\text{V}$	19			A
Drain-Source On-State Resistance	$R_{DS(ON)}$	$V_{GS}=4.5\text{V}, I_D=9.4\text{A}$		10	14	m Ω
		$V_{GS}=2.5\text{V}, I_D=8.3\text{A}$		13	18	
DYNAMIC CHARACTERISTICS						
Input Capacitance	C_{ISS}	$V_{GS}=0\text{V}, V_{DS}=10\text{V}, f=1\text{MHz}$		1821		pF
Output Capacitance	C_{OSS}			440		pF
Reverse Transfer Capacitance	C_{RSS}			208		pF
SWITCHING PARAMETERS (Note 1)						
Turn-ON Delay Time	$t_{D(ON)}$	$V_{GS}=4.5\text{V}, V_{DS}=10\text{V}, I_D=1\text{A}$ $R_{GEN}=6\Omega$		10	20	ns
Turn-ON Rise Time	t_R			15	27	ns
Turn-OFF Delay Time	$t_{D(OFF)}$			34	55	ns
Turn-OFF Fall-Time	t_F			16	29	ns
Total Gate Charge	Q_G	$V_{GS}=4.5\text{V}, V_{DS}=10\text{V},$ $I_D=9.4\text{A}$		16	23	nC
Gate Source Charge	Q_{GS}			3		nC
Gate Drain Charge	Q_{GD}			4		nC
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Drain-Source Diode Forward Voltage	V_{SD}	$V_{GS}=0\text{V}, I_S=1.3\text{A}$ (Note 1)			1.3	V
Maximum Continuous Drain-Source Diode Forward Current	I_S			0.7	1.2	A

Notes: 1. Pulse Test: Pulse Width < 300ms, Duty Cycle < 2.0%

2. The diode connected between the gate and source serves only as protection against ESD. No gate overvoltage rating is implied

TYPICAL CHARACTERISTICS



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