



# UT6898

*Power MOSFET*

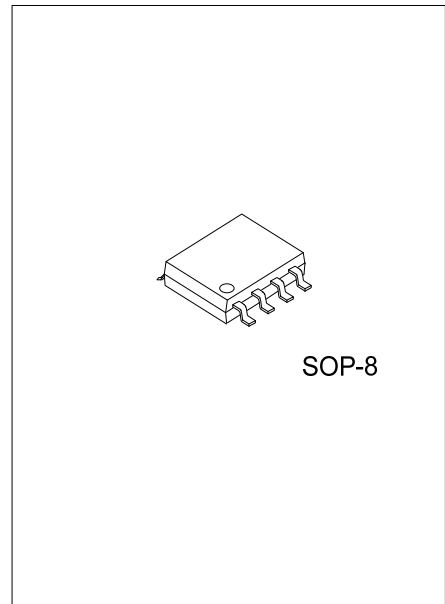
## N-CHANNEL ENHANCEMENT

### DESCRIPTION

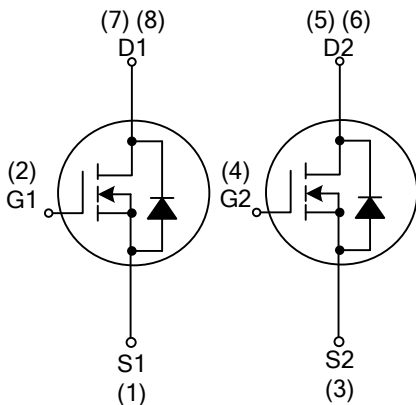
The **UT6898** uses advanced trench technology to provide excellent  $R_{DS(ON)}$ , low gate charge and operation with low gate voltages. This device is suitable for use as a load switch or in PWM applications.

### FEATURES

- \*  $R_{DS(ON)} < 18 \text{ m}\Omega$  @  $V_{GS} = 4.5\text{V}$ ,  $I_D = 9.4\text{A}$
- \*  $R_{DS(ON)} < 14 \text{ m}\Omega$  @  $V_{GS} = 2.5\text{V}$ ,  $I_D = 8.3\text{A}$
- \* Low capacitance
- \* Low gate charge
- \* Fast switching capability
- \* Avalanche energy specified



### SYMBOL



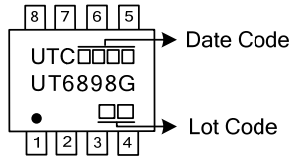
### ORDERING INFORMATION

Ordering Number	Package	Pin Assignment								Packing
		1	2	3	4	5	6	7	8	
UT6898G-S08-R	SOP-8	S	G	S	G	D	D	D	D	Tape Reel

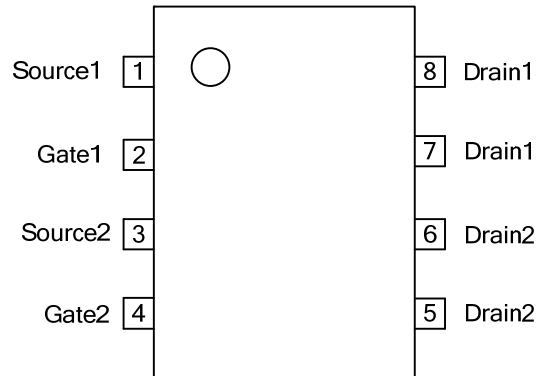
Note: Pin Assignment: G: Gate D: Drain S: Source

<p>UT6898G-S08-R</p> <ul style="list-style-type: none"> <li>(1) Packing Type</li> <li>(2) Package Type</li> <li>(3) Green Package</li> </ul>	<ul style="list-style-type: none"> <li>(1) R: Tape Reel</li> <li>(2) S08: SOP-8</li> <li>(3) G: Halogen Free and Lead Free</li> </ul>
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## MARKING



## 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	$V_{GSS}$	$\pm 12$	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	$\theta_{JC}$		40		$^\circ\text{C/W}$

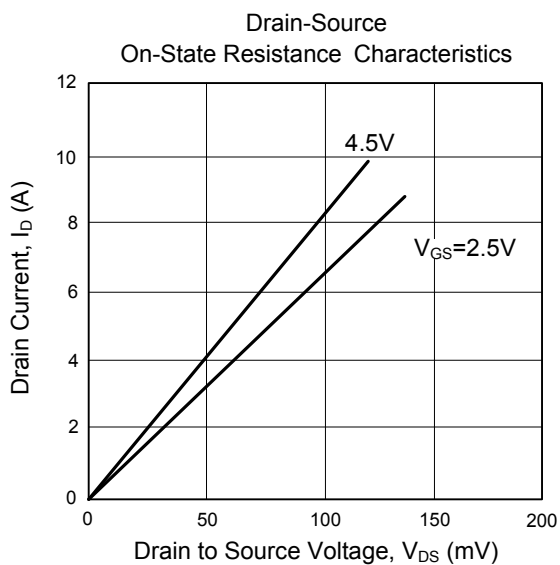
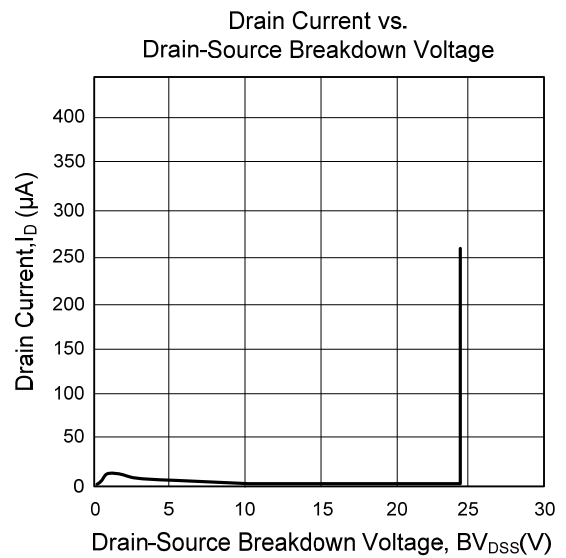
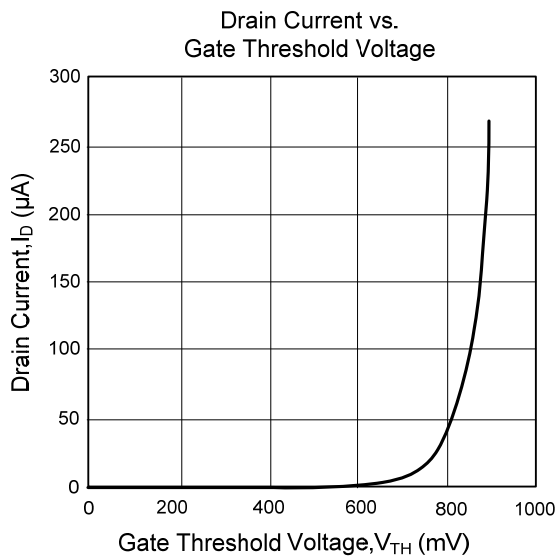
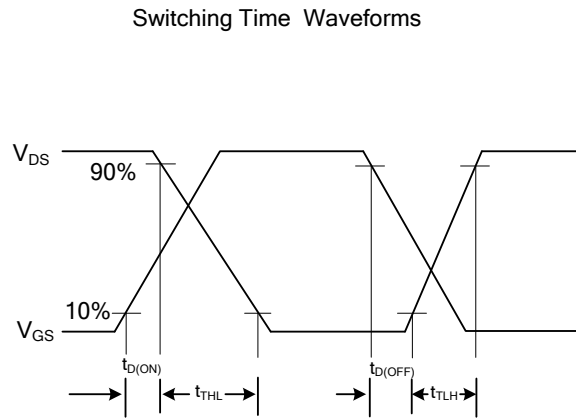
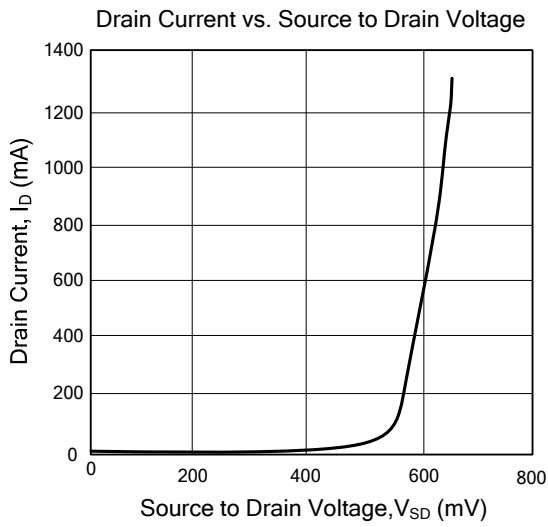
■ ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ , unless otherwise specified)

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