



## UTT4850

Preliminary

Power MOSFET

### N-CHANNEL POWER MOSFET

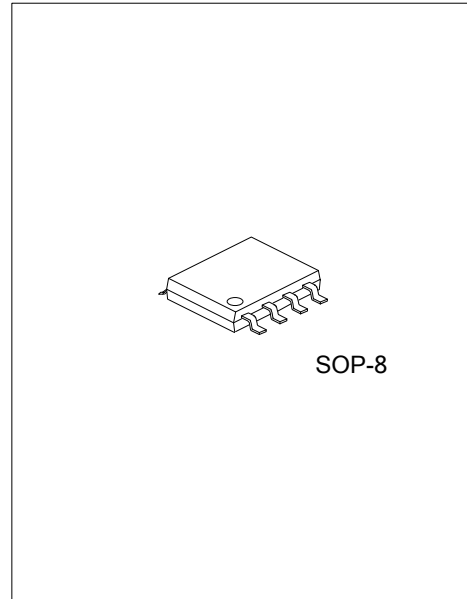
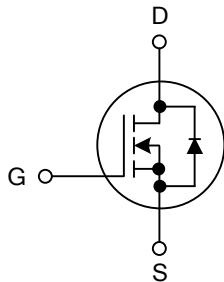
#### DESCRIPTION

The UTC **UTT4850** is an N-channel, it uses UTC's advanced technology to provide the customers with a minimum on state resistance and high switching speed.

#### FEATURES

- \* $R_{DS(ON)} < 25m\Omega @ V_{GS}=10V, I_D=6.0A$
- $R_{DS(ON)} < 31m\Omega @ V_{GS}=4.5V, I_D=5.1A$
- \* High switching speed

#### SYMBOL



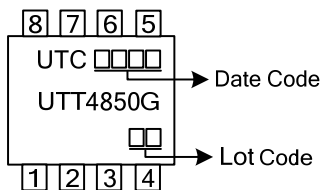
#### ORDERING INFORMATION

Ordering Number	Package	Pin Assignment								Packing
		1	2	3	4	5	6	7	8	
UTT4850G-S08-R	SOP-8	S	S	S	G	D	D	D	D	Tape Reel

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

<p>UTT4850G-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



■ ABSOLUTE MAXIMUM RATINGS (T<sub>A</sub>=25°C unless otherwise noted)

PARAMETER	SYMBOL	RATINGS	UNIT
Drain-Source Voltage	V <sub>DSS</sub>	60	V
Gate-Source Voltage	V <sub>GSS</sub>	±20	V
Continuous Drain Current (T <sub>J</sub> =175°C) (Note 1)	I <sub>D</sub>	T <sub>A</sub> =25°C	6.0
		T <sub>A</sub> =70°C	5.0
Pulsed Drain Current	I <sub>DM</sub>	24	A
Avalanche Current	I <sub>AS</sub>	6	A
Repetitive Avalanche Energy	E <sub>AS</sub>	120	mJ
Power Dissipation (Note 1)	P <sub>D</sub>	T <sub>A</sub> =25°C	1.7
		T <sub>A</sub> =70°C	1.2
Junction Temperature	T <sub>J</sub>	-50~+150	°C
Storage Temperature Range	T <sub>STG</sub>	-50~+150	°C

Notes: 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. L=6.66mH, I<sub>AS</sub>=6A, V<sub>DD</sub>=50V, R<sub>G</sub>=25Ω, Starting T<sub>J</sub>=25°C

■ THERMAL CHARACTERISTICS

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient (Note)	θ <sub>JA</sub>	75	°C/W

Note: Surface Mounted on 1" x 1" FR4 Board.

■ ELECTRICAL CHARACTERISTICS (T<sub>J</sub>=25°C, unless otherwise noted)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
<b>STATIC PARAMETERS</b>						
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	I <sub>D</sub> =250μA, V <sub>GS</sub> =0V	60			V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =60V, V <sub>GS</sub> =0V			1	μA
		V <sub>DS</sub> =60V, V <sub>GS</sub> =0V, T <sub>J</sub> =55°C			20	μA
Gate-Source Leakage Current	I <sub>GSS</sub>	Forward	V <sub>GS</sub> =+20V, V <sub>DS</sub> =0V		+100	nA
		Reverse	V <sub>GS</sub> =-20V, V <sub>DS</sub> =0V		-100	nA
<b>ON CHARACTERISTICS</b>						
Gate Threshold Voltage	V <sub>GS(TH)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA	1		2.5	V
On State Drain Current (Note 1)	I <sub>D(ON)</sub>	V <sub>DS</sub> =2V, V <sub>GS</sub> =10V	40			A
Static Drain-Source On-State Resistance (Note 1)	R <sub>DS(ON)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =6.0A		20	25	mΩ
		V <sub>GS</sub> =4.5V, I <sub>D</sub> =5.1A		22	31	mΩ
<b>DYNAMIC PARAMETERS (Note 2)</b>						
Input Capacitance	C <sub>ISS</sub>	V <sub>DS</sub> =25V, V <sub>GS</sub> =0V, f=1.0MHz		2500	2700	pF
Output Capacitance	C <sub>OSS</sub>			185	200	pF
Reverse Transfer Capacitance	C <sub>RSS</sub>			150	170	pF
Gate Resistance	R <sub>G</sub>	V <sub>GS</sub> =0.1V, f=1MHz	0.5	1.4	2.4	Ω
<b>SWITCHING PARAMETERS</b>						
Turn-ON Delay Time	t <sub>D(ON)</sub>	V <sub>DD</sub> =30V, I <sub>D</sub> ≈0.5A, V <sub>GS</sub> =10V, R <sub>G</sub> =25Ω		70	90	ns
Rise Time	t <sub>R</sub>			80	100	ns
Turn-OFF Delay Time	t <sub>D(OFF)</sub>			750	800	ns
Fall-Time	t <sub>F</sub>			165	200	ns
Total Gate Charge	Q <sub>G</sub>	V <sub>GS</sub> =10V, V <sub>DS</sub> =50V, I <sub>D</sub> =1.3A		70	100	nC
Gate to Source Charge	Q <sub>GS</sub>			8		nC
Gate to Drain Charge	Q <sub>GD</sub>			13		nC
<b>SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS</b>						
Diode Forward Voltage (Note 1)	V <sub>SD</sub>	I <sub>S</sub> =1.7A, V <sub>GS</sub> =0V		0.8	1.2	V

Notes: 1. Pulse test; pulse width≤300μs, duty cycle≤2%.

2. Guaranteed by design, not subject to production testing.



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