



## UTT7P06

Preliminary

Power MOSFET

### -6.2A, -60V P-CHANNEL POWER MOSFET

#### DESCRIPTION

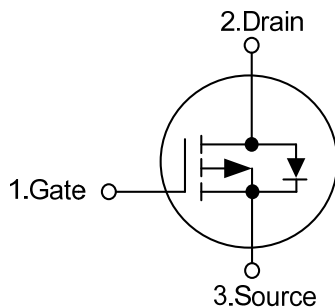
The UTC **UTT7P06** is a P-channel MOSFET, it uses UTC's advanced technology to provide the customers with a minimum on state resistance and high switching speed.

The UTC **UTT7P06** is suitable for load switch and battery protection applications.

#### FEATURES

- \*  $R_{DS(ON)} < 40\text{ m}\Omega$  @  $V_{GS} = -10\text{V}$ ,  $I_D = -6.2\text{A}$
- $R_{DS(ON)} < 50\text{ m}\Omega$  @  $V_{GS} = -4.5\text{V}$ ,  $I_D = -5.0\text{A}$
- \* High switching speed

#### SYMBOL



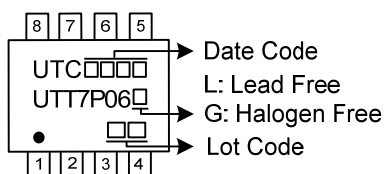
#### ORDERING INFORMATION

Ordering Number		Package	Pin Assignment								Packing
Lead Free	Halogen Free		1	2	3	4	5	6	7	8	
UTT7P06L-S08-R	UTT7P06G-S08-R	SOP-8	S	S	S	G	D	D	D	D	Tape Reel

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

<p>UTT7P06G-S08-R</p> <p>(1) Packing Type</p> <p>(2) Package Type</p> <p>(3) Green Package</p>		<p>(1) R: Tape Reel</p> <p>(2) S08: SOP-8</p> <p>(3) G: Halogen Free and Lead Free, L: Lead Free</p>
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#### MARKING



■ ABSOLUTE MAXIMUM RATINGS ( $T_A=25^\circ\text{C}$  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
Drain Current	Continuous (Note 1)	T <sub>A</sub> =25°C	I <sub>D</sub>	-6.2	A
		T <sub>A</sub> =70°C		-5	A
	Pulsed (Note 2)		I <sub>DM</sub>	-40	A
Power Dissipation (Note 1)			P <sub>D</sub>	2	W
Junction Temperature			T <sub>J</sub>	-55 ~ +150	°C
Storage Temperature Range			T <sub>STG</sub>	-55 ~ +150	°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	RATINGS	UNIT
Junction to Ambient		$\theta_{JA}$	75	$^\circ\text{C/W}$
Junction to Case		$\theta_{JC}$	30	$^\circ\text{C/W}$

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

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
STATIC PARAMETERS							
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> =-48V, V <sub>GS</sub> =0V			-1	μA
			V <sub>DS</sub> =-48V, V <sub>GS</sub> =0V, T <sub>J</sub> =55°C			-5	μA
Gate-Source Leakage Current	Forward	I <sub>GSS</sub>	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
ON CHARACTERISTICS							
Gate Threshold Voltage		V <sub>GS(TH)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =-250μA	-1	-2	-3	V
On State Drain Current		I <sub>D(ON)</sub>	V <sub>GS</sub> =-10V, V <sub>DS</sub> =-5V	-40			A
Static Drain-Source On-State Resistance		R <sub>DS(ON)</sub>	V <sub>GS</sub> =-10V, I <sub>D</sub> =-6.2A		43	48	mΩ
			V <sub>GS</sub> =-4.5V, I <sub>D</sub> =-5A		58	63	mΩ
Forward Transconductance		g <sub>FS</sub>	V <sub>DS</sub> =-5V, I <sub>D</sub> =-6.2A		16		S
DYNAMIC PARAMETERS							
Input Capacitance		C <sub>ISS</sub>	V <sub>GS</sub> =0V, V <sub>DS</sub> =-30V, f=1.0MHz		950	1250	pF
Output Capacitance		C <sub>OSS</sub>			110		pF
Reverse Transfer Capacitance		C <sub>RSS</sub>			90		pF
Gate Resistance		R <sub>G</sub>	V <sub>GS</sub> =0V, V <sub>DS</sub> =0V, f=1MHz		6		Ω
SWITCHING PARAMETERS							
Turn-ON Delay Time		t <sub>D(ON)</sub>	V <sub>GS</sub> =-10V, V <sub>DS</sub> =-30V R <sub>G</sub> =3Ω, I <sub>D</sub> =-6.2A		49		ns
Rise Time		t <sub>R</sub>			40		ns
Turn-OFF Delay Time		t <sub>D(OFF)</sub>			262		ns
Fall-Time		t <sub>F</sub>			250		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS							
Maximum Body-Diode Continuous Current		I <sub>S</sub>				-4.2	A
Diode Forward Voltage		V <sub>SD</sub>	I <sub>S</sub> =-1A, V <sub>GS</sub> =0V		-0.74	-1	V
Body Diode Reverse Recovery Time		t <sub>rr</sub>	I <sub>F</sub> =-6.2A, dI/dt=100A/μS		34	42	ns
Body Diode Reverse Recovery Charge		Q <sub>rr</sub>			47		nC

Notes: 1. The value of  $\theta_{JA}$  is measured with the device mounted on 1in<sup>2</sup>FR-4 board with 2oz. Copper, in a still air environment with  $T_A=25^\circ\text{C}$ . The value in any a given application depends on the user's specific board design. The current rating is based on the  $t \leq 10\text{s}$  thermal resistance rating.

2. Repetitive rating, pulse width limited by junction temperature.

3. The  $\theta_{JA}$  is the sum of the thermal impedance from junction to lead  $\theta_{JL}$  and lead to ambient.

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