UNISONIC TECHNOLOGIES CO., LTD

UTT7P06   **Preliminary**   *Power MOSFET*

-6.2A, -60V   P-CHANNEL POWER MOSFET
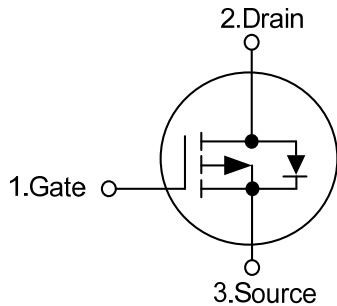
SOP-8

■ 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 mΩ @ V_{GS}= -10V, I_D= -6.2A
   $R_{DS(ON)}$ < 50 mΩ @ V_{GS}= -4.5V, I_D= -5.0A
* High switching speed

■ SYMBOL

2.Drain

1.Gate

3.Source

■ 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

UTT7P06**G**-**S08**-**R**

(1)Packing Type

(2)Package Type

(3)Green Package

(1) R: Tape Reel

(2) S08: SOP-8

(3) G: Halogen Free and Lead Free, L: Lead Free

■ MARKING

UTC□□□□ → Date Code
UTT7P06□ → L: Lead Free
→ G: Halogen Free
□□ → Lot Code

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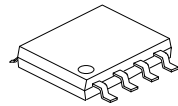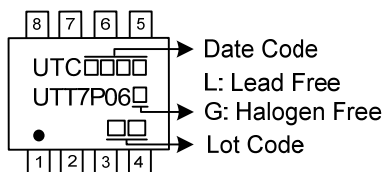
■ ABSOLUTE MAXIMUM RATINGS (T$_A$=25°C unless otherwise noted)

PARAMETER			SYMBOL	RATINGS	UNIT
Drain-Source Voltage			V$_{DSS}$	-60	V
Gate-Source Voltage			V$_{GSS}$	±20	V
Drain Current	Continuous (Note 1)	T$_A$=25°C	I$_D$	-6.2	A
		T$_A$=70°C		-5	A
	Pulsed (Note 2)		I$_{DM}$	-40	A
Power Dissipation (Note 1)			P$_D$	2	W
Junction Temperature			T$_J$	-55 ~ +150	°C
Storage Temperature Range			T$_{STG}$	-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	θ$_{JA}$	75	°C/W
Junction to Case	θ$_{JC}$	30	°C/W

■ ELECTRICAL CHARACTERISTICS (T$_A$=25°C, unless otherwise specified)

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
STATIC PARAMETERS							
Drain-Source Breakdown Voltage		BV$_{DSS}$	I$_D$=-250µA, V$_{GS}$=0V	-60			V
Zero Gate Voltage Drain Current		I$_{DSS}$	V$_{DS}$=-48V, V$_{GS}$=0V			-1	µA
			V$_{DS}$=-48V, V$_{GS}$=0V, T$_J$=55°C			-5	µA
Gate-Source Leakage Current	Forward	I$_{GSS}$	V$_{GS}$=+20V, V$_{DS}$=0V			+100	nA
	Reverse		V$_{GS}$=-20V, V$_{DS}$=0V			-100	nA
ON CHARACTERISTICS							
Gate Threshold Voltage		V$_{GS(TH)}$	V$_{DS}$=V$_{GS}$, I$_D$=-250µA	-1	-2	-3	V
On State Drain Current		I$_{D(ON)}$	V$_{GS}$=-10V, V$_{DS}$=-5V	-40			A
Static Drain-Source On-State Resistance		R$_{DS(ON)}$	V$_{GS}$=-10V, I$_D$=-6.2A		43	48	mΩ
			V$_{GS}$=-4.5V, I$_D$=-5A		58	63	mΩ
Forward Transconductance		g$_{FS}$	V$_{DS}$=-5V, I$_D$=-6.2A		16		S
DYNAMIC PARAMETERS							
Input Capacitance		C$_{ISS}$	V$_{GS}$=0V, V$_{DS}$=-30V, f=1.0MHz		950	1250	pF
Output Capacitance		C$_{OSS}$			110		pF
Reverse Transfer Capacitance		C$_{RSS}$			90		pF
Gate Resistance		R$_G$	V$_{GS}$=0V, V$_{DS}$=0V, f=1MHz		6		Ω
SWITCHING PARAMETERS							
Turn-ON Delay Time		t$_{D(ON)}$	V$_{GS}$=-10V, V$_{DS}$=-30V R$_G$=3Ω, I$_D$=-6.2A		49		ns
Rise Time		t$_R$			40		ns
Turn-OFF Delay Time		t$_{D(OFF)}$			262		ns
Fall-Time		t$_F$			250		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS							
Maximum Body-Diode Continuous Current		I$_S$				-4.2	A
Diode Forward Voltage		V$_{SD}$	I$_S$=-1A,V$_{GS}$=0V		-0.74	-1	V
Body Diode Reverse Recovery Time		t$_{rr}$	I$_F$=-6.2A, dI/dt=100A/µS		34	42	ns
Body Diode Reverse Recovery Charge		Q$_{rr}$			47		nC

Notes: 1. The value of θ$_{JA}$ is measured with the device mounted on 1in^2 FR-4 board with 2oz. Copper, in a still air environment with T$_A$=25°C.The value in any a given application depends on the user's specific board design. The current rating is based on the t ≤10s thermal resistance rating.
2. Repetitive rating, pulse width limited by junction temperature.
3. The θ$_{JA}$ is the sum of the thermal impedance from junction to lead θ$_{JL}$ and lead to ambient.

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