



UTT7P06

Preliminary

Power MOSFET

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

DESCRIPTION

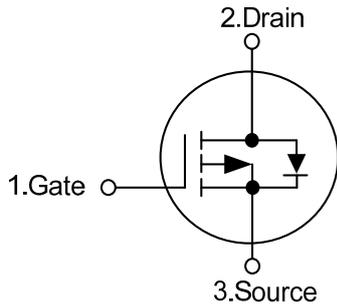
The UTC **UTT7P06** is a P-channel MOSFET, it uses UTC's advanced technology to provide the customers with a minimum on state resistance and high switching speed.

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



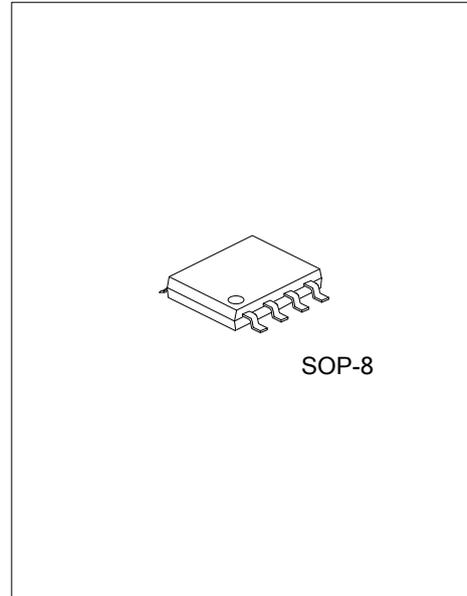
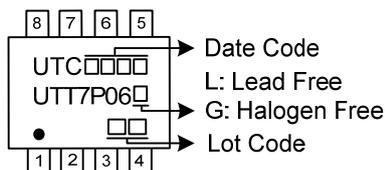
ORDERING INFORMATION

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

UTT7P06G-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
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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_{DSS}	-60	V
Gate-Source Voltage			V_{GSS}	± 20	V
Drain Current	Continuous (Note 1)	$T_A=25^\circ\text{C}$	I_D	-6.2	A
		$T_A=70^\circ\text{C}$		-5	A
	Pulsed (Note 2)		I_{DM}	-40	A
Power Dissipation (Note 1)			P_D	2	W
Junction Temperature			T_J	-55 ~ +150	$^\circ\text{C}$
Storage Temperature Range			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	RATINGS	UNIT
Junction to Ambient	θ_{JA}	75	$^\circ\text{C/W}$
Junction to Case	θ_{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_{DSS}	$I_D=-250\mu\text{A}, V_{GS}=0\text{V}$	-60			V
Zero Gate Voltage Drain Current		I_{DSS}	$V_{DS}=-48\text{V}, V_{GS}=0\text{V}$			-1	μA
			$V_{DS}=-48\text{V}, V_{GS}=0\text{V}, T_J=55^\circ\text{C}$			-5	μA
Gate-Source Leakage Current	Forward	I_{GSS}	$V_{GS}=+20\text{V}, V_{DS}=0\text{V}$			+100	nA
	Reverse		$V_{GS}=-20\text{V}, V_{DS}=0\text{V}$			-100	nA
ON CHARACTERISTICS							
Gate Threshold Voltage		$V_{GS(TH)}$	$V_{DS}=V_{GS}, I_D=-250\mu\text{A}$	-1	-2	-3	V
On State Drain Current		$I_{D(ON)}$	$V_{GS}=-10\text{V}, V_{DS}=-5\text{V}$	-40			A
Static Drain-Source On-State Resistance		$R_{DS(ON)}$	$V_{GS}=-10\text{V}, I_D=-6.2\text{A}$		43	48	m Ω
			$V_{GS}=-4.5\text{V}, I_D=-5\text{A}$		58	63	m Ω
Forward Transconductance		g_{FS}	$V_{DS}=-5\text{V}, I_D=-6.2\text{A}$		16		S
DYNAMIC PARAMETERS							
Input Capacitance		C_{ISS}	$V_{GS}=0\text{V}, V_{DS}=-30\text{V}, f=1.0\text{MHz}$		950	1250	pF
Output Capacitance		C_{OSS}			110		pF
Reverse Transfer Capacitance		C_{RSS}			90		pF
Gate Resistance		R_G	$V_{GS}=0\text{V}, V_{DS}=0\text{V}, f=1\text{MHz}$		6		Ω
SWITCHING PARAMETERS							
Turn-ON Delay Time		$t_{D(ON)}$	$V_{GS}=-10\text{V}, V_{DS}=-30\text{V}$ $R_G=3\Omega, I_D=-6.2\text{A}$		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}	$I_S=-1\text{A}, V_{GS}=0\text{V}$		-0.74	-1	V
Body Diode Reverse Recovery Time		t_{rr}	$I_F=-6.2\text{A}, dI/dt=100\text{A}/\mu\text{S}$		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 1in²FR-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 θ_{JA} is the sum of the thermal impedance from junction to lead θ_{JL} and lead to ambient.

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