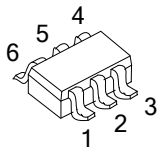
-6A, -12V, P-CHANNEL 1.8V TRENCH MOSFET



SOT-26

■ DESCRIPTION

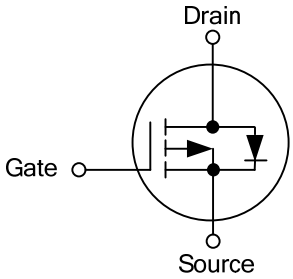
The UTC **UTC606P-H** is a P-channel MOSFET, it uses UTC's advanced technology to provide the customers with a minimum on state resistance and high switching speed.

The UTC **UTC606P-H** is suitable for battery management, load switch and battery protection.

■ FEATURES

* $R_{DS(ON)}$ < 26mΩ @ V_{GS}= -4.5V, I_D= -6A
  $R_{DS(ON)}$ < 35mΩ @ V_{GS}= -2.5V, I_D= -5A
  $R_{DS(ON)}$ < 53mΩ @ V_{GS}= -1.8V, I_D= -4A
* High switching speed
* High performance trench technology for extremely low $R_{DS(ON)}$

■ SYMBOL



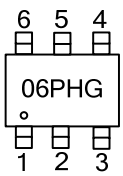
■ ORDERING INFORMATION

Ordering Number	Package	Pin Assignment						Packing
		1	2	3	4	5	6	
UTC606PG-AG6-R	SOT-26	D	D	G	S	D	D	Tape Reel

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

UTC606PG-AG6-R (1)Packing Type (2)Package Type (3)Green Package	(1) R: Tape Reel (2) AG6: SOT-26 (3) G: Halogen Free and Lead Free

■ MARKING



■ ABSOLUTE MAXIMUM RATINGS (T_A=25°C unless otherwise noted)

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		V_{DSS}	-12	V
Gate-Source Voltage		V_{GSS}	±8	V
Drain Current	Continuous (Note 2)	I_D	-6	A
	Pulsed	I_{DM}	-20	A
Power Dissipation		P_D	300	mW
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 CHARACTERISTICS

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ_{JA}	380	°C/W
Junction-to-Case	θ_{JC}	110	°C/W

■ ELECTRICAL CHARACTERISTICS (T_A=25°C, unless otherwise noted)

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
STATIC PARAMETERS							
Drain-Source Breakdown Voltage		BV_{DSS}	I_D=-250μA, V_{GS}=0V	-12			V
Breakdown Voltage Temperature Coefficient		$\frac{\Delta BV_{DSS}}{\Delta T_J}$	I_D=-250μA, Referenced to 25°C		-3		mV/°C
Zero Gate Voltage Drain Current		I_{DSS}	V_{DS}=-10V, V_{GS}=0V			-1	μA
Gate-Source Leakage Current	Forward	I_{GSS}	V_{GS}=+8V, V_{DS}=0V			100	nA
	Reverse		V_{GS}=-8V, V_{DS}=0V			-100	nA
ON CHARACTERISTICS (Note)							
Gate Threshold Voltage		$V_{GS(TH)}$	V_{DS}=V_{GS}, I_D=-250μA	-0.4	-0.5	-1.5	V
Gate Threshold Voltage Temperature Coefficient		$\frac{\Delta BV_{GS(th)}}{\Delta T_J}$	I_D=-250μA, Referenced to 25°C		2.5		mV/°C
Static Drain-Source On-State Resistance		$R_{DS(ON)}$	V_{GS}=-4.5V, I_D=-6A		21	26	mΩ
			V_{GS}=-2.5V, I_D=-5A		26	35	mΩ
			V_{GS}=-1.8V, I_D=-4A		34	53	mΩ
			V_{GS}=-4.5V, I_D=-6A, T_J=125°C		28	35	mΩ
On State Drain Current		$I_{D(ON)}$	V_{GS}=-4.5V, V_{DS}=-5V	-20			A
Forward Transconductance		g_{FS}	V_{DS}=-5V, I_D=-6A		25		S
DYNAMIC PARAMETERS							
Input Capacitance		C_{ISS}	V_{GS}=0V, V_{DS}=-6V, f=1.0MHz		1699		pF
Output Capacitance		C_{OSS}			679		pF
Reverse Transfer Capacitance		C_{RSS}			423		pF
SWITCHING PARAMETERS (Note)							
Total Gate Charge		Q_G	V_{GS}=-4.5V, V_{DS}=-6V, I_D=-6A		18	25	nC
Gate to Source Charge		Q_{GS}			3		nC
Gate to Drain Charge		Q_{GD}			4.2		nC
Turn-ON Delay Time		$t_{D(ON)}$	V_{GS}=-4.5V, V_{DD}=-6V, I_D=-1A, R_{GEN}=6Ω		11	19	ns
Rise Time		t_R			10	20	ns
Turn-OFF Delay Time		$t_{D(OFF)}$			89	142	ns
Fall-Time		t_F			70	112	ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS							
Maximum Continuous Drain–Source Diode Forward Current		I_S				-1.3	A
Drain–Source Diode Forward Voltage		V_{SD}	I_S=-1.3A,V_{GS}=0V (Note)		-0.6	-1.2	V

Note: Pulse Test: Pulse width ≤ 300μs, Duty cycle ≤ 2.0%