



# UTT18P06

*Power MOSFET*

## 18.3A, 60V P-CHANNEL POWER MOSFET

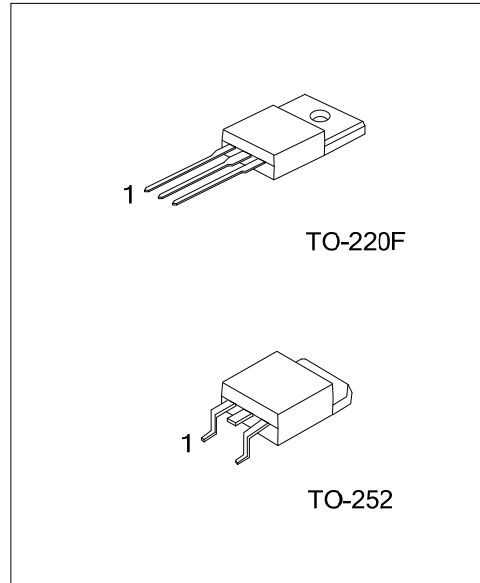
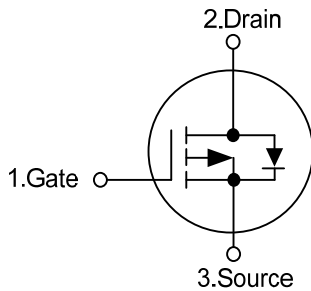
■ DESCRIPTION

The UTC **UTT18P06** is a P-channel power MOSFET using UTC's advanced technology to provide the customers with high switching speed, cost-effectiveness and minimum on-state resistance. It can also withstand high energy in the avalanche.

■ FEATURES

- \*  $R_{DS(ON)} < 0.070\Omega$  @  $V_{GS} = -10V, I_D = -18.3A$
- \* High Switching Speed

■ SYMBOL



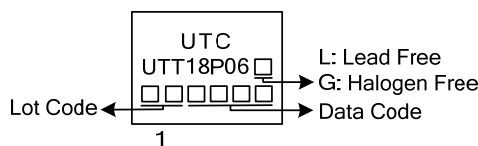
■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UTT18P06L-TF3-T	UTT18P06G-TF3-T	TO-220F	G	D	S	Tube
UTT18P06L-TN3-R	UTT18P06G-TN3-R	TO-252	G	D	S	Tape Reel

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

<p>UTT18P06L-TF3-T</p> <p>(1)Packing Type (2)Package Type (3)Green Package</p>	<p>(1) T: Tube, R: Tape Reel (2) TF3: TO-220F, TN3: TO-252 (3) L: Lead Free, G: Halogen Free and Lead Free</p>
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■ MARKING



■ ABSOLUTE MAXIMUM RATINGS ( $T_A=25^\circ\text{C}$ , unless otherwise specified)

PARAMETER			SYMBOL	RATINGS	UNIT
Drain-Source Voltage			$V_{DSS}$	-60	V
Gate-Source Voltage			$V_{GSS}$	$\pm 20$	V
Drain Current	Continuous	$T_C=25^\circ\text{C}$	$I_D$	-18.3	A
	Pulsed		$I_{DM}$	-73.2	A
Single Pulsed Avalanche Current (L=0.1mH)			$I_{AS}$	-18.3	A
Single Pulsed Avalanche Energy (L=0.1mH) (Note 1)			$E_{AS}$	24.2	mJ
Power Dissipation (Note 2)	$T_A=25^\circ\text{C}$	TO-220F	$P_D$	2	W
		TO-252		1.13	W
	$T_C=25^\circ\text{C}$	TO-220F		39	W
		TO-252		41	W
Junction Temperature			$T_J$	+150	$^\circ\text{C}$
Storage Temperature			$T_{STG}$	-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 (Steady state)	TO-220F	$\theta_{JA}$		62.5	$^\circ\text{C/W}$
	TO-252			110	$^\circ\text{C/W}$
Junction to Case	TO-220F	$\theta_{JC}$		3.19	$^\circ\text{C/W}$
	TO-252			3.05	$^\circ\text{C/W}$

Notes: 1. Duty cycles  $\leq 1\%$   
2. See SOA curve for voltage derating

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

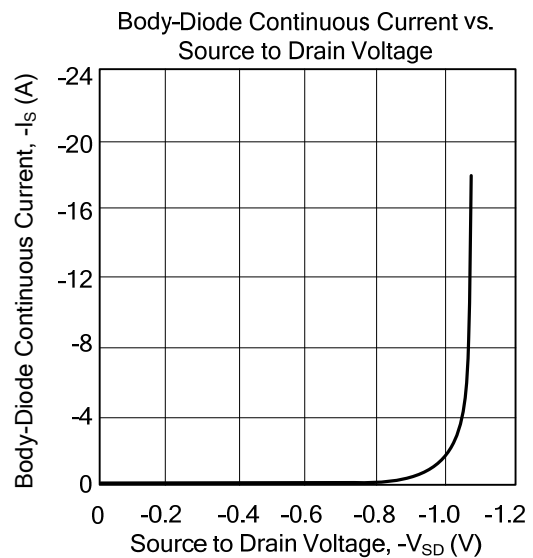
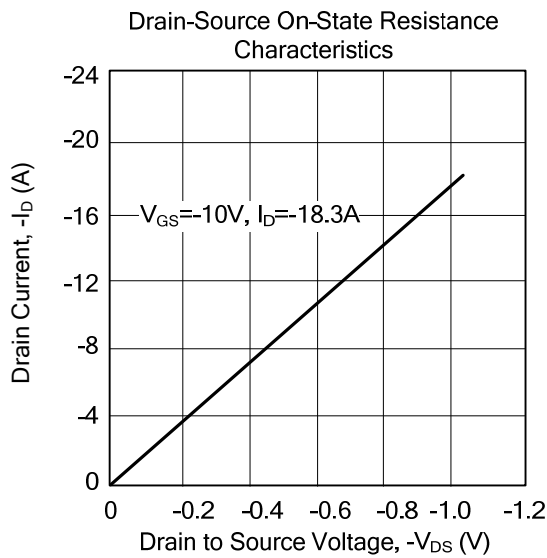
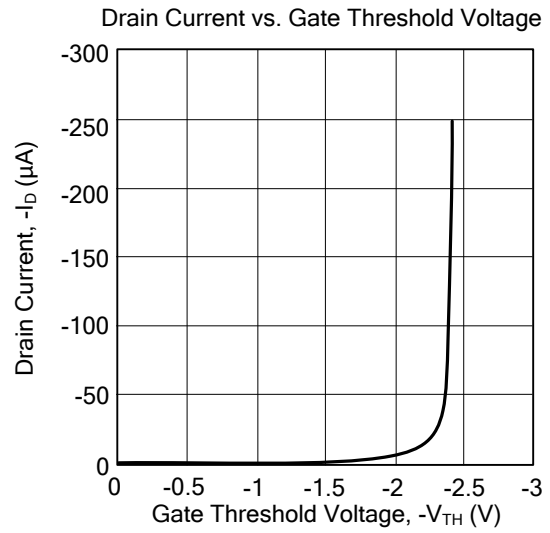
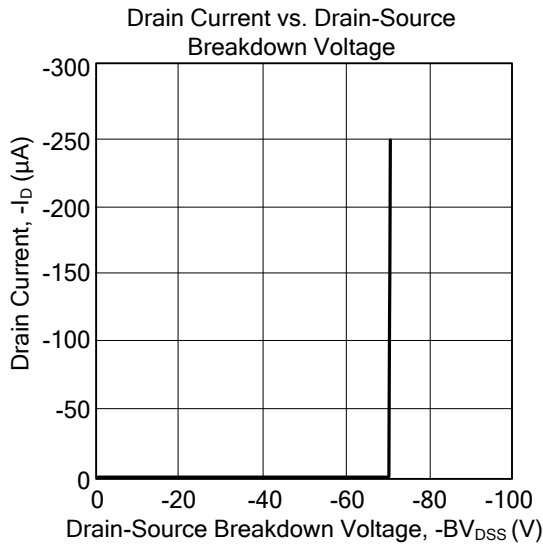
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
<b>OFF CHARACTERISTICS</b>						
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	I <sub>D</sub> =-250μA, V <sub>GS</sub> =0V	-60			V
Drain-Source Leakage Current	I <sub>DSS</sub>	V <sub>DS</sub> =-60V, V <sub>GS</sub> =0V			-1	μA
Gate-Source Leakage Current	Forward	I <sub>GSS</sub> V <sub>GS</sub> =+20V, V <sub>DS</sub> =0V V <sub>GS</sub> =-20V, V <sub>DS</sub> =0V			+100	nA
	Reverse				-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		-3	V
Static Drain-Source On-State Resistance	R <sub>DS(ON)</sub>	V <sub>GS</sub> =-10V, I <sub>D</sub> =-18.3A (Note 1)		0.055	0.070	Ω
On State Drain Current (Note 1)	I <sub>D(ON)</sub>	V <sub>GS</sub> =-10V, V <sub>DS</sub> =-5V	-30			A
<b>DYNAMIC PARAMETERS (Note 2)</b>						
Input Capacitance	C <sub>ISS</sub>	V <sub>GS</sub> =0V, V <sub>DS</sub> =-25V, f=1.0MHz (Note 2)		840	1310	pF
Output Capacitance	C <sub>OSS</sub>			95		pF
Reverse Transfer Capacitance	C <sub>RSS</sub>			70		pF
<b>SWITCHING PARAMETERS</b>						
Total Gate Charge	Q <sub>G</sub>	V <sub>GS</sub> =-10V, V <sub>DS</sub> =-50V, I <sub>D</sub> =-1.3A, I <sub>G</sub> =100μA (Note 3)		35	40	nC
Gate to Source Charge	Q <sub>GS</sub>			6		nC
Gate to Drain Charge	Q <sub>GD</sub>			7.0		nC
Turn-ON Delay Time	t <sub>D(ON)</sub>	V <sub>DD</sub> =-30V, I <sub>D</sub> =-0.5A, R <sub>G</sub> =2.5Ω (Note 3)		50		ns
Rise Time	t <sub>R</sub>			43		ns
Turn-OFF Delay Time	t <sub>D(OFF)</sub>			300		ns
Fall-Time	t <sub>F</sub>			95		ns
<b>SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS (T<sub>C</sub>=25°C) (Note 2)</b>						
Maximum Body-Diode Continuous Current	I <sub>S</sub>				-18.3	A
Maximum Body-Diode Pulsed Current	I <sub>SM</sub>				-73.2	A
Drain-Source Diode Forward Voltage	V <sub>SD</sub>	I <sub>F</sub> =-18.3A, V <sub>GS</sub> =0V (Note 1)		-1.0	-1.5	V
Body Diode Reverse Recovery Time	t <sub>rr</sub>	I <sub>F</sub> =-18.3A, dI <sub>F</sub> /dt=100A/μs		14	61	ns

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

2. Guaranteed by design, not subject to production testing

3. Independent of operating temperature

### TYPICAL CHARACTERISTICS



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