



UTT30P06

Preliminary

Power MOSFET

60V, 30A P-CHANNEL POWER MOSFET

DESCRIPTION

The UTC **UTT30P06** is a P-channel power MOSFET using UTC's advanced technology to provide the customers with high switching speed and a minimum on-state resistance. It can also withstand high energy in the avalanche.

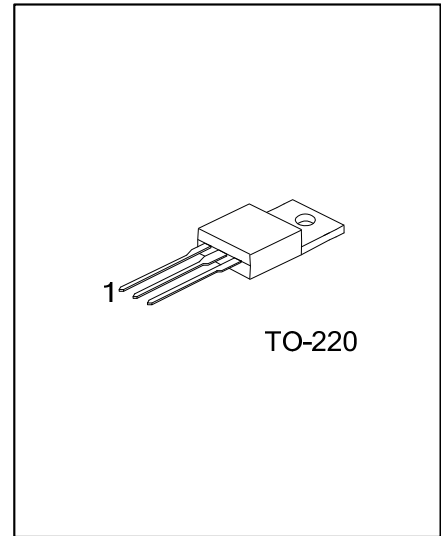
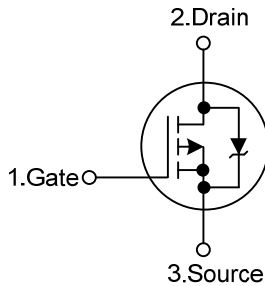
The UTC **UTT30P06** is suitable for low voltage and high speed switching applications

FEATURES

* $R_{DS(ON)}=0.067\Omega @ V_{GS}=-10V, I_D=-15A$

* High Switching Speed

SYMBOL



ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UTT30P06L-TA3-T	UTT30P06G-TA3-T	TO-220	G	D	S	Tube

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

UTT30P06L-TA3-T (1)Packing Type (2)Package Type (3)Lead Free	(1) T: Tube (2) TA3: TO-220 (3) G: Halogen Free, L: Lead Free
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■ ABSOLUTE MAXIMUM RATINGS ($T_C=25^\circ\text{C}$, unless otherwise specified)

PARAMETER		SYMBOL	RATINGS	UNIT	
Drain-Source Voltage		V_{DSS}	-60	V	
Drain-Gate Voltage ($R_{GS}=1.0\text{ M}\Omega$)		V_{DGR}	-60	V	
Gate-Source Voltage	Continuous	V_{GSS}	± 15	V	
	Non-repetitive ($t_p \leq 10\text{ms}$)	V_{GSM}	± 25	V	
Drain Current	Continuous	$T_C=25^\circ\text{C}$	I_D	-30	A
		$T_C=100^\circ\text{C}$	I_D	-19	A
	Pulsed ($t_p \leq 10\mu\text{s}$)	I_{DM}	-105	A	
Power Dissipation		P_D	125	W	
Derate Above 25°C			0.83	W/ $^\circ\text{C}$	
Junction Temperature		T_J	+175	$^\circ\text{C}$	
Storage Temperature		T_{STG}	-55~+175	$^\circ\text{C}$	

Notes: 1. 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.

2. When surface mounted to an FR4 board using the minimum recommended pad size.

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ_{JA}	62.5	$^\circ\text{C}/\text{W}$
Junction to Case	θ_{JC}	1.2	$^\circ\text{C}/\text{W}$

■ ELECTRICAL CHARACTERISTICS (T_J=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	I _D =-0.25mA, V _{GS} =0V	-60			V
Drain-Source Leakage Current	I _{DSS}	V _{DS} =-60V, V _{GS} =0V			-10	μA
Gate- Source Leakage Current	Forward	I _{GSS}			+100	nA
	Reverse					
		V _{GS} =-15V, V _{DS} =0V			-100	nA
ON CHARACTERISTICS (Note 1)						
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} , I _D =-250μA	-2.0	-2.6	-4.0	V
Static Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} =-10V, I _D =-15A		0.067	0.08	Ω
Drain-Source On-Voltage	V _{DS(ON)}	V _{GS} =-10V, I _D =-30A		-2.0	-2.9	V
		V _{GS} =-10V, I _D =-15A, T _J =150°C			-2.8	V
DYNAMIC PARAMETERS						
Input Capacitance	C _{ISS}	V _{GS} =0V, V _{DS} =-25V, f=1.0MHz		1562	2190	pF
Output Capacitance	C _{OSS}			524	730	pF
Reverse Transfer Capacitance	C _{RSS}			154	310	pF
SWITCHING PARAMETERS (Note 2)						
Gate Charge	Q _T	V _{GS} =-10V, V _{DS} =-48V, I _D =-30A		54	80	nC
	Q ₁			9.0		nC
	Q ₂			26		nC
	Q ₃			20		nC
Turn-ON Delay Time	t _{D(ON)}	V _{GS} =-10V, V _{DD} =-30V, I _D =-30A, R _G =9.1Ω		14.7	30	ns
Rise Time	t _R			25.9	50	ns
Turn-OFF Delay Time	t _{D(OFF)}			98	200	ns
Fall-Time	t _F			52.4	100	ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Drain-Source Diode Forward Voltage	V _{SD}	I _S =-30A, V _{GS} =0V		-2.3	-3.0	V
Body Diode Reverse Recovery Time	t _{RR}	I _S =-30A, V _{GS} =0V,		175		ns
Body Diode Reverse Recovery Charge	Q _{RR}	di _S /dt=-100A/μs		0.965		μC

Notes: 1. Pulse Test: Pulse Width≤300μs, Duty Cycle≤2%.

2. Switching characteristics are independent of operating junction temperature.

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