



UTT120P06

Preliminary

Power MOSFET

120A, 60V P-CHANNEL POWER MOSFET

DESCRIPTION

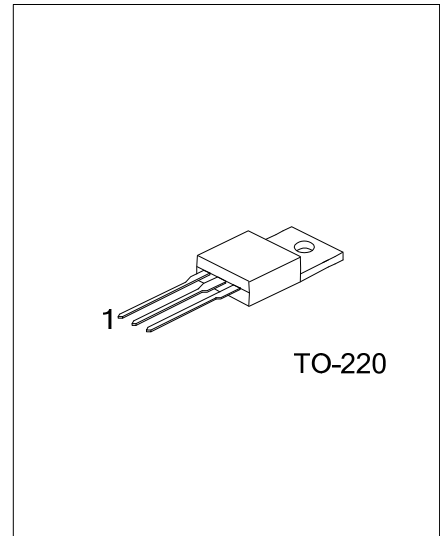
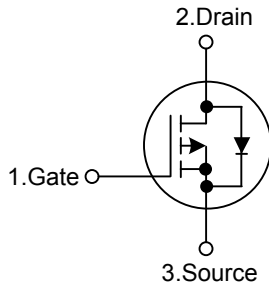
The UTC **UTT120P06** is a P-channel power MOSFET using UTC's advanced technology to provide the customers with high switching speed and a minimum on-state resistance. It can also withstand high energy in the avalanche.

The UTC **UTT120P06** is suitable for low voltage and high speed switching applications

FEATURES

- * $R_{DS(ON)} \leq 6.9m\Omega @ V_{GS}=-10V, I_D=-30A$
- * High Switching Speed

SYMBOL



ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UTT120P06L-TA3-T	UTT120P06G-TA3-T	TO-220	G	D	S	Tube

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

UTT120P06L-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	
Gate-Source Voltage		V_{GSS}	± 20	V	
Drain Current	Continuous	I_D	$T_C=25^\circ\text{C}$	-120	A
			$T_C=125^\circ\text{C}$	-95	A
Pulsed		I_{DM}	-480	A	
Single Pulsed Avalanche Energy		$L=-0.1\text{mH}$	E_{AS}	281 (Note 2)	mJ
Power Dissipation		$T_C=25^\circ\text{C}$	P_D	192	W
Junction Temperature		T_J	+150	$^\circ\text{C}$	
Storage Temperature		T_{STG}	-55~+150	$^\circ\text{C}$	

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. Duty cycle $\leq 1\%$

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ_{JA}	62	$^\circ\text{C/W}$
Junction to Case	θ_{JC}	0.65	$^\circ\text{C/W}$

■ ELECTRICAL CHARACTERISTICS ($T_J=25^\circ\text{C}$, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	$I_D=-250\mu\text{A}, V_{GS}=0\text{V}$	-60			V
Drain-Source Leakage Current	I_{DSS}	$V_{DS}=-60\text{V}, V_{GS}=0\text{V}$			-1	μA
		$V_{DS}=-60\text{V}, V_{GS}=0\text{V}, T_C=125^\circ\text{C}$			-50	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		-3	V
Static Drain-Source On-State Resistance	$R_{DS(ON)}$	$V_{GS}=-10\text{V}, I_D=-30\text{A}$		5.5	6.9	m Ω
		$V_{GS}=-4.5\text{V}, I_D=-30\text{A}$		7.0	8.8	m Ω
DYNAMIC PARAMETERS						
Input Capacitance	C_{ISS}	$V_{GS}=0\text{V}, V_{DS}=-25\text{V}, f=1.0\text{MHz}$		11400		pF
Output Capacitance	C_{OSS}			1200		pF
Reverse Transfer Capacitance	C_{RSS}			900		pF
SWITCHING PARAMETERS						
Total Gate Charge	Q_G	$V_{DS}=-30\text{V}, V_{GS}=-10\text{V}, I_D=-110\text{A}$		230	345	nC
Gate to Source Charge	Q_{GS}			50		nC
Gate to Drain Charge	Q_{GD}			60		nC
Turn-ON Delay Time	$t_{D(ON)}$	$V_{DD}=-30\text{V}, V_{GS}=-10\text{V}, I_D=-110\text{A}, R_G=2.5\Omega, R_L=0.27\Omega$		20		ns
Rise Time	t_R			160	240	ns
Turn-OFF Delay Time	$t_{D(OFF)}$			200		ns
Fall-Time	t_F			240	360	ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Maximum Body-Diode Continuous Current	I_S				-120	A
Maximum Body-Diode Pulsed Current	I_{SM}				-480	A
Drain-Source Diode Forward Voltage	V_{SD}	$I_S=-120\text{A}, V_{GS}=0\text{V}$		-1.0	-1.5	V
Body Diode Reverse Recovery Time	t_{rr}	$I_F=-85\text{A}, dI_F/dt=100\text{A}/\mu\text{s}$		65	100	ns
Body Diode Reverse Recovery Charge	Q_{RR}			0.14	0.32	nC

Notes: 1. Pulse test, pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$

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