



## UTT120N06

Preliminary

Power MOSFET

### N-CHANNEL ENHANCEMENT MODE POWER MOSFET

#### DESCRIPTION

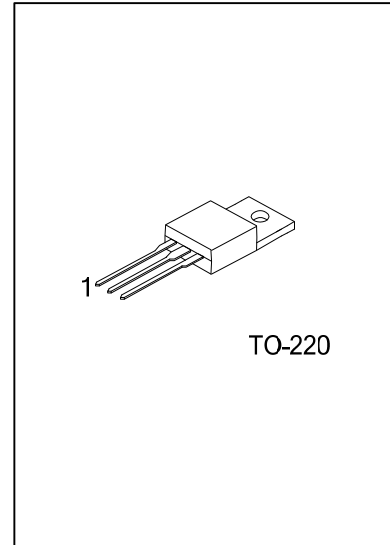
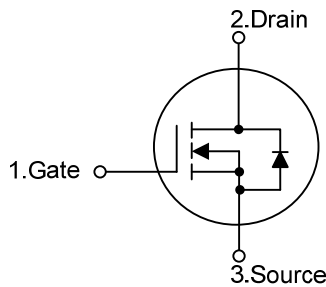
The UTC **UTT120N06** is an N-channel enhancement mode Power FET using UTC's advanced technology to provide customers with a minimum on-state resistance and superior switching performance.

It also can withstand high energy pulse in the avalanche and commutation mode.

#### FEATURES

- \* Fast switching speed
- \*  $R_{DS(ON)} < 7m\Omega @ V_{GS}=10V$

#### SYMBOL



#### ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UTT120N06L-TA3-T	UTT120N06G-TA3-T	TO-220	G	D	S	Tube

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

UTT120N06L-TA3-T	(1)Packing Type	(1) T: Tube
	(2)Package Type	(2) TA3: TO-220
	(3)Lead Free	(3) G: Halogen Free, L: Lead Free

■ ABSOLUTE MAXIMUM RATINGS (T<sub>J</sub>=25°C, unless otherwise specified)

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		V <sub>DSS</sub>	60	V
Gate-Source Voltage		V <sub>GSS</sub>	±20	V
Drain Current	Continuous	I <sub>D</sub>	120	A
	Pulsed	I <sub>DM</sub>	480	A
Avalanche Energy	Single Pulsed	E <sub>AS</sub>	875	mJ
Peak Diode Recovery dv/dt		dv/dt	6	V/ns
Power Dissipation		P <sub>D</sub>	83	W
Junction Temperature		T <sub>J</sub>	+150	°C
Storage Temperature		T <sub>STG</sub>	-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 <sub>JA</sub>	62.5	°C/W
Junction to Case	θ <sub>JC</sub>	1.5	°C/W

■ 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			10	μA
Gate- Source Leakage Current	I <sub>GSS</sub>	Forward			+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> =50A			7	mΩ
		V <sub>GS</sub> =4.5V, I <sub>D</sub> =40A			10	mΩ
<b>DYNAMIC PARAMETERS</b>						
Input Capacitance	C <sub>ISS</sub>	V <sub>GS</sub> =0V, V <sub>DS</sub> =25V, f=1.0MHz		2990		pF
Output Capacitance	C <sub>OSS</sub>			585		pF
Reverse Transfer Capacitance	C <sub>RSS</sub>			340		pF
<b>SWITCHING PARAMETERS</b>						
Total Gate Charge	Q <sub>G</sub>	V <sub>GS</sub> =10V, V <sub>DS</sub> =30V, I <sub>D</sub> =60A		500		nC
Gate to Source Charge	Q <sub>GS</sub>			50		nC
Gate to Drain Charge	Q <sub>GD</sub>			33		nC
Turn-ON Delay Time	t <sub>D(ON)</sub>	V <sub>DD</sub> =30V, V <sub>GS</sub> =10V, I <sub>D</sub> =60A, R <sub>G</sub> =0.4Ω		90		ns
Rise Time	t <sub>R</sub>			130		ns
Turn-OFF Delay Time	t <sub>D(OFF)</sub>			768		ns
Fall-Time	t <sub>F</sub>			280		ns
<b>SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS</b>						
Maximum Body-Diode Continuous Current	I <sub>S</sub>				120	A
Maximum Body-Diode Pulsed Current	I <sub>SM</sub>				480	A
Drain-Source Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =120A, V <sub>GS</sub> =0V			1.5	V

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