



UTT20N06

Power MOSFET

20A, 60V N-CHANNEL POWER MOSFET

■ DESCRIPTION

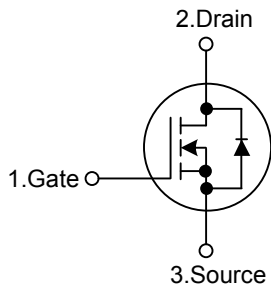
The UTC **UTT20N06** is an N-channel enhancement mode power MOSFET using UTC's advanced technology to provide customers with a minimum on-state resistance and superior switching performance. It also can withstand high energy pulse in the avalanche and commutation mode.

The UTC **UTT20N06** is universally applied in low voltage, such as automotive, high efficiency switching for DC/DC converters and DC motor control.

■ FEATURES

- * $R_{DS(ON)} < 46m\Omega @ V_{GS} = 10V$
- * Typically 58pF low C_{RSS}
- * High switching speed
- * Typically 21.2nC low gate charge

■ SYMBOL

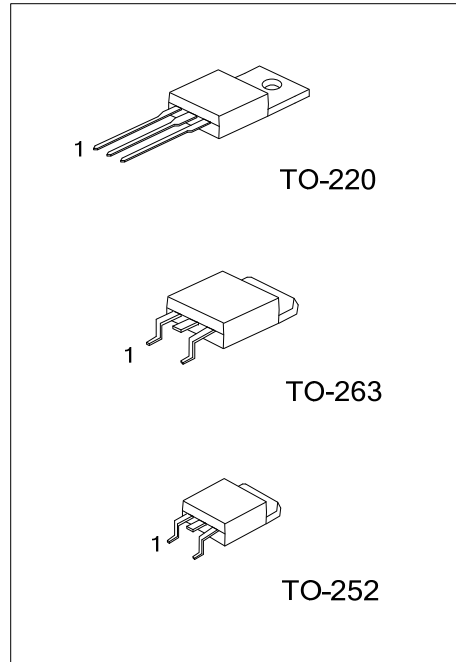


■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UTT20N06L-TA3-T	UTT20N06G-TA3-T	TO-220	G	D	S	Tube
UTT20N06L-TN3-T	UTT20N06G-TN3-T	TO-252	G	D	S	Tube
UTT20N06L-TN3-R	UTT20N06G-TN3-R	TO-252	G	D	S	Tape Reel
UTT20N06L-TQ2-T	UTT20N06G-TQ2-T	TO-263	G	D	S	Tube
UTT20N06L-TQ2-R	UTT20N06G-TQ2-R	TO-263	G	D	S	Tape Reel

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

<p>UTT20N06L-TA3-T</p> <p>(1)Packing Type</p> <p>(2)Package Type</p> <p>(3)Lead Free</p>	<p>(1) T: Tube, R: Tape Reel</p> <p>(2) TA3: TO-220, TN3: TO-252, TQ2: TO-263</p> <p>(3) L: Lead Free, G: Halogen Free</p>
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■ ABSOLUTE MAXIMUM RATINGS

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		V_{DSS}	60	V
Gate-Source Voltage		V_{GSS}	±20	V
Drain Current	Continuous	I_D	20	A
	Pulsed	I_{DM}	80	A
Single Pulsed Avalanche Energy		E_{AS}	170	mJ
Power Dissipation	TO-220/TO-263	P_D	89	W
	TO-252		50	W
Junction Temperature		T_J	+150	°C
Storage Temperature		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 DATA

PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient	TO-220/TO-263	θ_{JA}	62	°C/W
	TO-252		110	
Junction to Case	TO-220/TO-263	θ_{JC}	1.4	°C/W
	TO-252		2.5	

■ ELECTRICAL CHARACTERISTICS ($T_C=25^\circ\text{C}$, 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
			$V_{DS}=48\text{V}, V_{GS}=0\text{V}, T_C=125^\circ\text{C}$			10	μA
Gate-Source Leakage Current	Forward	I_{GSS}	$V_{GS}=+16\text{V}, V_{DS}=0\text{V}$			+100	nA
	Reverse		$V_{GS}=-16\text{V}, V_{DS}=0\text{V}$			-100	nA
ON CHARACTERISTICS							
Gate Threshold Voltage		$V_{GS(TH)}$	$V_{DS}=V_{GS}, I_D=250\mu\text{A}$	2.0		4.0	V
Static Drain-Source On-State Resistance		$R_{DS(ON)}$	$V_{GS}=10\text{V}, I_D=20\text{A}$		37.5	46	m Ω
DYNAMIC PARAMETERS							
Input Capacitance		C_{ISS}	$V_{GS}=0\text{V}, V_{DS}=25\text{V}, f=1.0\text{MHz}$		725	1015	pF
Output Capacitance		C_{OSS}			213	300	pF
Reverse Transfer Capacitance		C_{RSS}			58	120	pF
SWITCHING PARAMETERS							
Total Gate Charge		Q_G	$V_{GS}=10\text{V}, V_{DS}=30\text{V}, I_D=20\text{A}, I_G=3.33\text{mA}$		21.2	30	nC
Gate to Source Charge		Q_{GS}			5.6		nC
Gate to Drain Charge		Q_{GD}			7.3		nC
Turn-ON Delay Time		$t_{D(ON)}$	$V_{DD}=30\text{V}, I_D=1\text{A}, R_G=25\Omega, V_{GS}=10\text{V}$		9.5		ns
Rise Time		t_R			60.5	120	ns
Turn-OFF Delay Time		$t_{D(OFF)}$			27.1		ns
Fall-Time		t_F			37.1	80	ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS							
Maximum Body-Diode Continuous Current		I_S		20			A
Maximum Body-Diode Pulsed Current		I_{SM}		80			A
Drain-Source Diode Forward Voltage		V_{SD}	$I_S=20\text{A}, V_{GS}=0\text{V}$			1.2	V

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