



**30N20**

Preliminary

*Power MOSFET*

**30A, 200V N-CHANNEL  
POWER MOSFET**

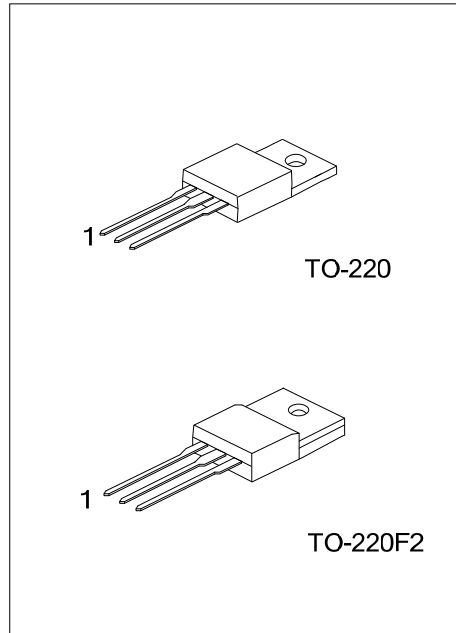
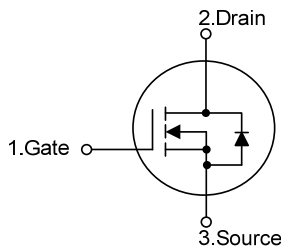
■ DESCRIPTION

The UTC **30N20** is an N-channel mode Power FET, it uses UTC's advanced technology. This technology allows a minimum on-state resistance, superior switching performance. It also can withstand high energy pulse in the avalanche and commutation mode.

■ FEATURES

- \*  $R_{DS(ON)} < 75m\Omega @ V_{GS}=10V, I_D=15A$
- \* Low Gate Charge (Typical 60nC)
- \* High Switching Speed

■ SYMBOL



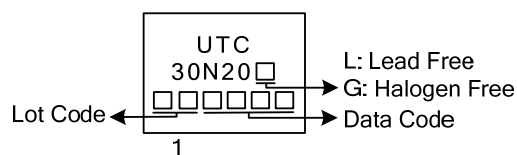
■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
30N20L-TA3-T	30N20G-TA2-T	TO-220	G	D	S	Tube
30N20L-TF2-T	30N20G-TF2-T	TO-220F2	G	D	S	Tube

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

<p>30N20L-TA3-T</p> <p>(1)Packing Type</p> <p>(2)Package Type</p> <p>(3)Green Package</p>	<p>(1) T: Tube</p> <p>(2) TA3: TO-220, TF2: TO-220F2</p> <p>(3) L: Lead Free, G: Halogen Free and Lead Free</p>
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■ MARKING



### ■ ABSOLUTE MAXIMUM RATINGS

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		$V_{DSS}$	200	V
Gate-Source Voltage		$V_{GSS}$	$\pm 30$	V
Drain Current	Continuous	$I_D$	30	A
	Pulsed	$I_{DM}$	124	A
Avalanche Current		$I_{AR}$	30	A
Avalanche Energy	Single Pulsed	$E_{AS}$	640	mJ
	Repetitive	$E_{AR}$	18	mJ
Power Dissipation	TO-220	$P_D$	190	W
	TO-220F2		42	W
Junction Temperature		$T_J$	+150	$^{\circ}\text{C}$
Storage Temperature Range		$T_{STG}$	-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.

### ■ ELECTRICAL CHARACTERISTICS

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
<b>OFF CHARACTERISTICS</b>							
Drain-Source Breakdown Voltage		$BV_{DSS}$	$I_D=250\mu\text{A}, V_{GS}=0\text{V}$	200			V
Drain-Source Leakage Current		$I_{DSS}$	$V_{DS}=200\text{V}$			1	$\mu\text{A}$
Gate-Source Leakage Current	Forward	$I_{GSS}$	$V_{GS}=+30\text{V}, V_{DS}=0\text{V}$			+100	nA
	Reverse		$V_{GS}=-30\text{V}, V_{DS}=0\text{V}$			-100	nA
<b>ON CHARACTERISTICS</b>							
Gate Threshold Voltage		$V_{GS(TH)}$	$I_D=250\mu\text{A}$	3		5	V
Static Drain-Source On-State Resistance		$R_{DS(ON)}$	$V_{GS}=10\text{V}, I_D=15\text{A}$			75	m $\Omega$
<b>DYNAMIC PARAMETERS</b>							
Input Capacitance		$C_{ISS}$	$V_{GS}=0\text{V}, V_{DS}=25\text{V}, f=1\text{MHz}$		2400	3100	pF
Output Capacitance		$C_{OSS}$			430	560	pF
Reverse Transfer Capacitance		$C_{RSS}$			55	70	pF
<b>SWITCHING PARAMETERS</b>							
Total Gate Charge		$Q_G$	$V_{DD}=50\text{V}, V_{GS}=10\text{V}, I_D=1.3\text{A}$		60	78	nC
Gate to Source Charge		$Q_{GS}$			17		nC
Gate to Drain Charge		$Q_{GD}$			27		nC
Turn-ON Delay Time		$t_{D(ON)}$	$V_{DD}=30\text{V}, I_D=0.5\text{A}, R_G=25\Omega, V_{GS}=0\sim 10\text{V}$		40		ns
Rise Time		$t_R$			280		ns
Turn-OFF Delay Time		$t_{D(OFF)}$			125		ns
Fall-Time		$t_F$			115		ns
<b>SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS</b>							
Maximum Body-Diode Continuous Current		$I_S$				30	A
Maximum Body-Diode Pulsed Current		$I_{SM}$				124	A
Drain-Source Diode Forward Voltage		$V_{SD}$	$I_S=30\text{A}, V_{GS}=0\text{V}$			1.5	V

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