



UF4N20

Preliminary

Power MOSFET

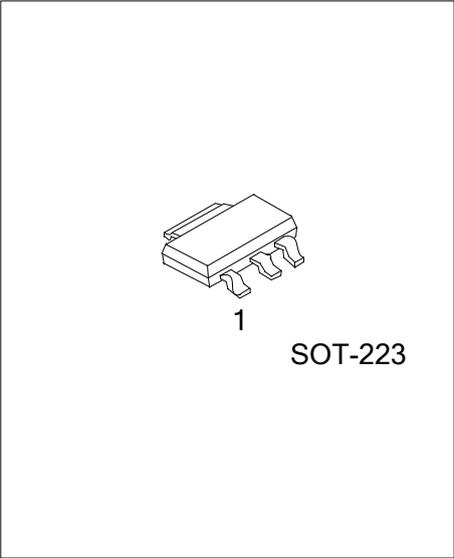
4A, 200V N-CHANNEL POWER MOSFET

DESCRIPTION

The UTC **UF4N20** is an N-channel mode power MOSFET using UTC's advanced technology to provide customers with a minimum on-state resistance, low gate charge and superior switching performance.

FEATURES

- * $R_{DS(ON)} < 2\Omega$ @ $V_{GS}=10V, I_D=4A$
- * High switching speed
- * Typically 3.2nC low gate charge
- * 100% avalanche tested



ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UF4N20L-AA3-R	UF4N20G-AA3-R	SOT-223	G	D	S	Tape Reel

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

<p>UF4N20L-AA3-R</p> <p>(1)Packing Type</p> <p>(2)Package Type</p> <p>(3)Lead Free</p>	<p>(1) R: Tape Reel</p> <p>(2) AA3: SOT-223</p> <p>(3) G: Halogen Free, L: Lead Free</p>
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■ ABSOLUTE MAXIMUM RATINGS

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		V_{DSS}	200	V
Gate-Source Voltage		V_{GSS}	± 20	V
Continuous Drain Current		I_D	4	A
Avalanche Current		I_{AR}	4	A
Avalanche Energy	Single Pulsed	E_{AS}	52	mJ
	Repetitive	E_{AR}	52	mJ
Power Dissipation		P_D	0.8	W
Junction Temperature		T_J	+150	$^{\circ}\text{C}$
Storage Temperature		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
OFF CHARACTERISTICS							
Drain-Source Breakdown Voltage		BV_{DSS}	$I_D=250\mu\text{A}, V_{DS}=0\text{V}$	200			V
Drain-Source Leakage Current		I_{DSS}	$V_{DS}=200\text{V}$			0.95	μA
Gate-Source Leakage Current	Forward	I_{GSS}	$V_{GS}=+20\text{V}, V_{DS}=0\text{V}$			+95	nA
	Reverse		$V_{GS}=-20\text{V}, V_{DS}=0\text{V}$			-95	nA
ON CHARACTERISTICS							
Gate Threshold Voltage		$V_{GS(TH)}$	$I_D=250\mu\text{A}$	2		4	V
Static Drain-Source On-State Resistance		$R_{DS(ON)}$	$V_{GS}=10\text{V}, I_D=4\text{A}$			2	Ω
On State Drain Current		$I_{D(ON)}$	$V_{GS}=10\text{V}, V_{DS}=10\text{V}, f=1\text{MHz}$	0		30	A
DYNAMIC PARAMETERS							
Input Capacitance		C_{ISS}	$V_{GS}=0\text{V}, V_{DS}=25\text{V}, f=1\text{MHz}$			850	pF
Output Capacitance		C_{OSS}				250	pF
Reverse Transfer Capacitance		C_{RSS}				200	pF
SWITCHING PARAMETERS							
Total Gate Charge		Q_G	$V_{DD}=50\text{V}, I_D=4\text{A}, I_G=100\mu\text{A}, V_{GS}=10\text{V}$		3.2		nC
Gate to Source Charge		Q_{GS}			0.64		nC
Gate to Drain Charge		Q_{GD}			1.6		nC
Turn-ON Delay Time		$t_{D(ON)}$	$V_{DD}=30\text{V}, I_D=4\text{A}, R_G=25\Omega, V_{GS}=0\sim 10\text{V}$		6		ns
Rise Time		t_R			38		ns
Turn-OFF Delay Time		$t_{D(OFF)}$			11		ns
Fall-Time		t_F			13		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS							
Maximum Body-Diode Continuous Current		I_S				4	A
Maximum Body-Diode Pulsed Current		I_{SM}				16	A
Drain-Source Diode Forward Voltage		V_{SD}	$I_S=4\text{A}$	0.1		1.48	V

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