



UF4N20Z

Power MOSFET

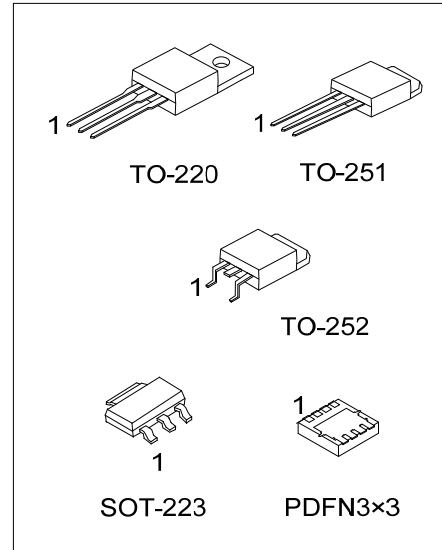
4.0A, 200V N-CHANNEL POWER MOSFET

■ DESCRIPTION

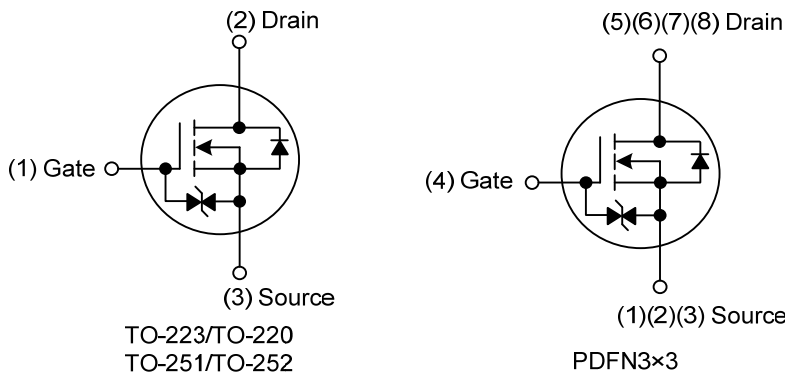
The UTC **UF4N20Z** is an N-channel mode power MOSFET using UTC's advanced technology to provide customers with a minimum on-state resistance, low gate charge and superior switching performance.

■ FEATURES

- * $R_{DS(ON)} \leq 2.0 \Omega @ V_{GS}=10V, I_D=4.0A$
- * High switching speed
- * 100% avalanche tested



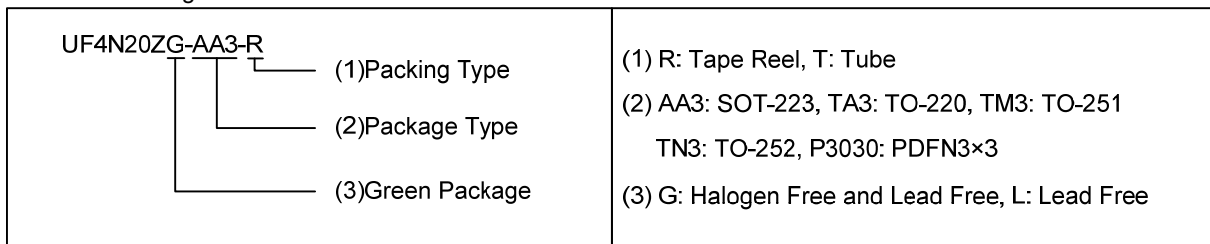
■ SYMBOL



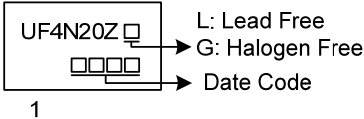
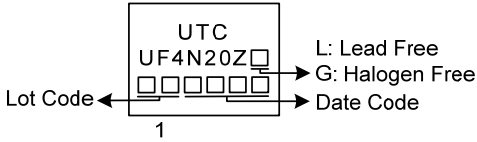
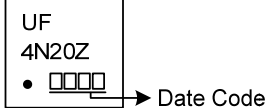
■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment								Packing
Lead Free	Halogen Free		1	2	3	4	5	6	7	8	
UF4N20ZL-AA3-R	UF4N20ZG-AA3-R	SOT-223	G	D	S	-	-	-	-	-	Tape Reel
UF4N20ZL-TA3-T	UF4N20ZG-TA3-T	TO-220	G	D	S	-	-	-	-	-	Tube
UF4N20ZL-TM3-T	UF4N20ZG-TM3-T	TO-251	G	D	S	-	-	-	-	-	Tube
UF4N20ZL-TN3-R	UF4N20ZG-TN3-R	TO-252	G	D	S	-	-	-	-	-	Tape Reel
UF4N20ZL-P3030-R	UF4N20ZG-P3030-R	PDFN3x3	S	S	S	G	D	D	D	D	Tape Reel

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



■ MARKING

PACKAGE	MARKING
SOT-223	 <p>UF4N20Z □ □ □ □ 1</p> <p>L: Lead Free G: Halogen Free Date Code</p>
TO-220 TO-251 TO-252	 <p>UTC UF4N20Z □ □ □ □ □ □ 1</p> <p>Lot Code ← L: Lead Free G: Halogen Free Date Code</p>
PDFN3×3	 <p>UF 4N20Z • □ □ □</p> <p>Date Code</p>

■ ABSOLUTE MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$, unless otherwise specified)

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		V_{DS}	200	V
Gate-Source Voltage		V_{GS}	± 20	V
Continuous Drain Current		I_D	4	A
Avalanche Energy	Single Pulsed	E_{AS}	80	mJ
Power Dissipation	SOT-223	P_D	0.8	W
	TO-220		2	W
	TO-251/TO-252		1.14	W
	PDFN3x3		2.1 (Note 2)	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. Device mounted on FR-4 substrate P_c board, 2oz copper, with 1inch square copper plate.

■ THERMAL DATA

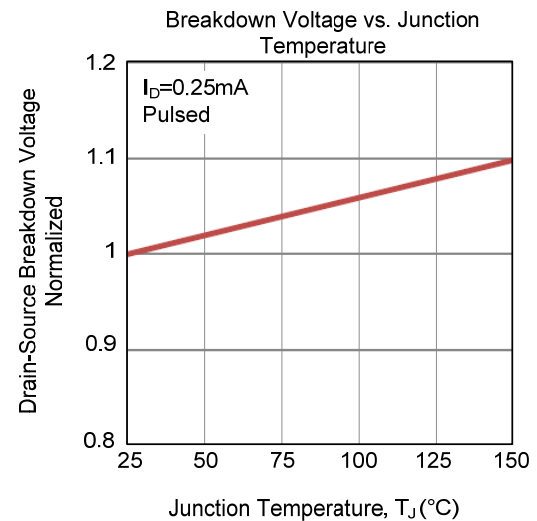
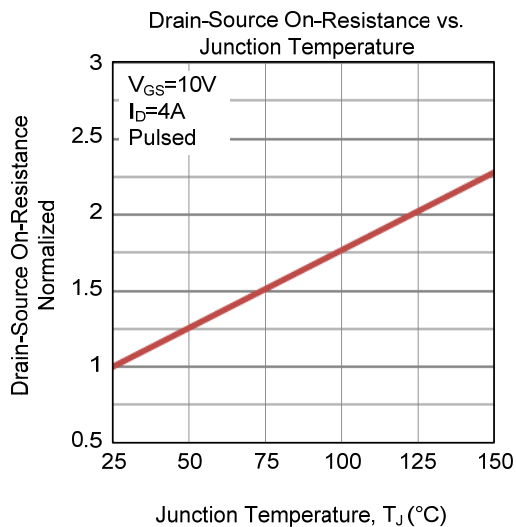
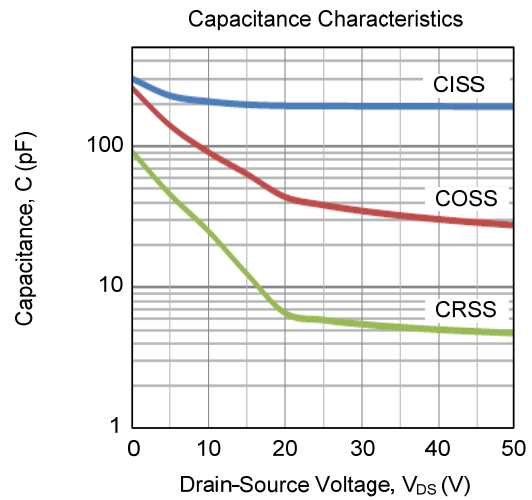
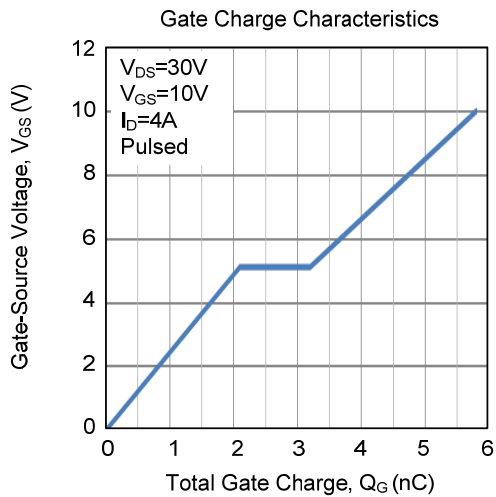
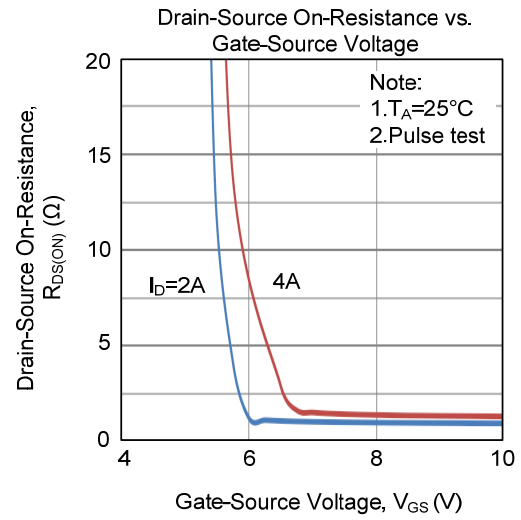
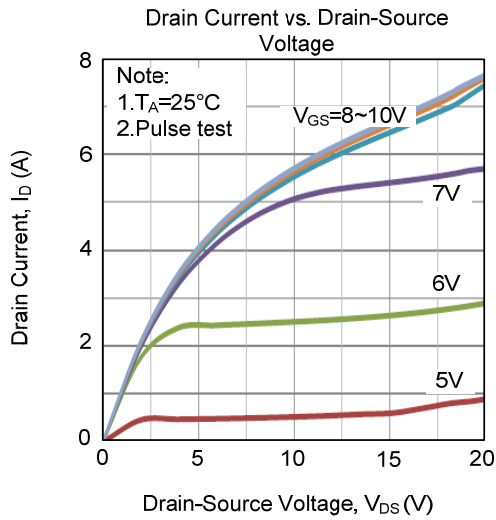
PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient	SOT-223	θ_{JA}	156	$^{\circ}\text{C/W}$
	TO-220		62.5	$^{\circ}\text{C/W}$
	TO-251/TO-252		110	$^{\circ}\text{C/W}$
	PDFN3x3		60 (Note)	$^{\circ}\text{C/W}$
Junction to Case	SOT-223	θ_{JC}	25	$^{\circ}\text{C/W}$
	TO-220		1.88	$^{\circ}\text{C/W}$
	TO-251/TO-252		3.125 (Note)	$^{\circ}\text{C/W}$
	PDFN3x3		4.2 (Note)	$^{\circ}\text{C/W}$

Note: Device mounted on FR-4 substrate P_c board, 2oz copper, with 1inch square copper plate.

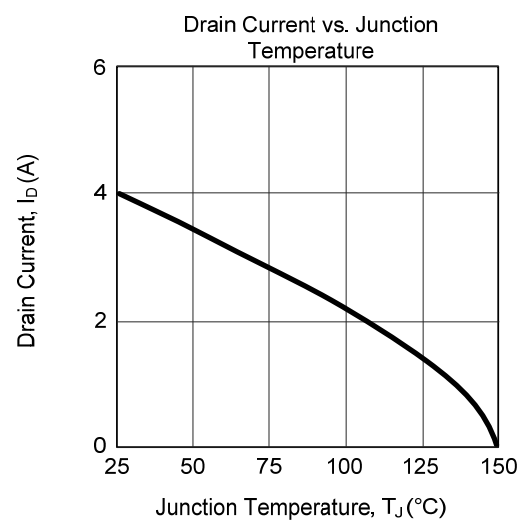
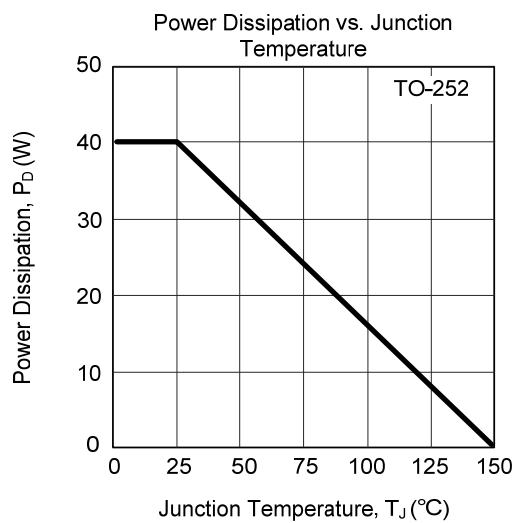
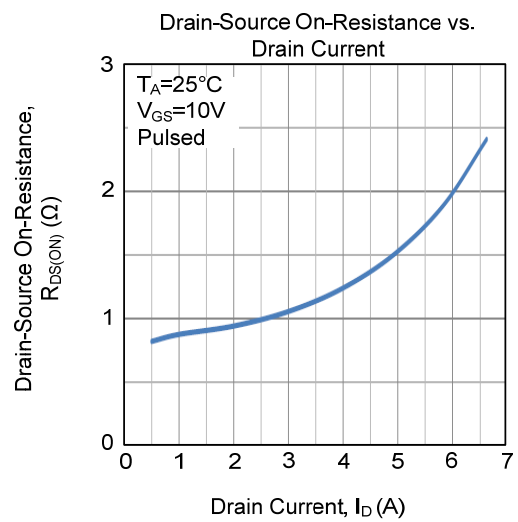
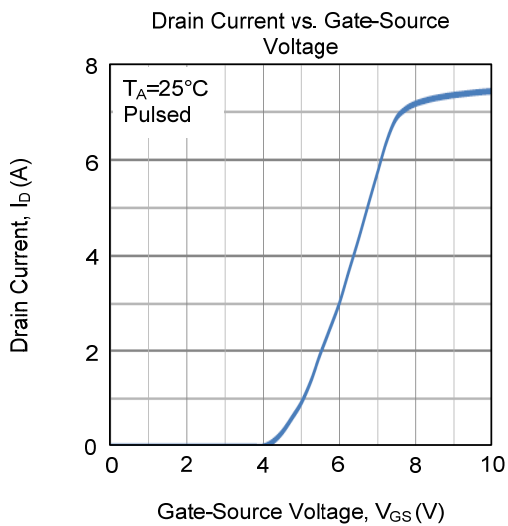
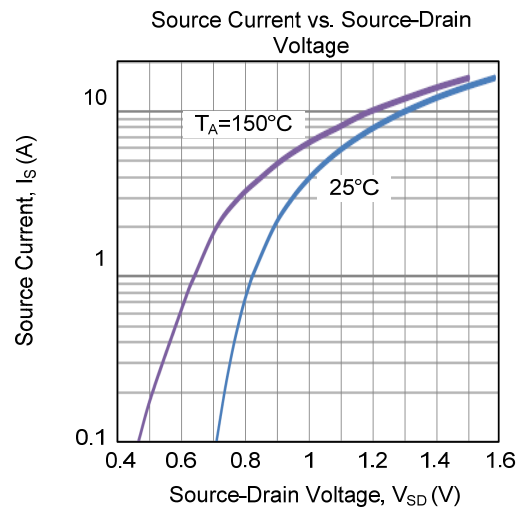
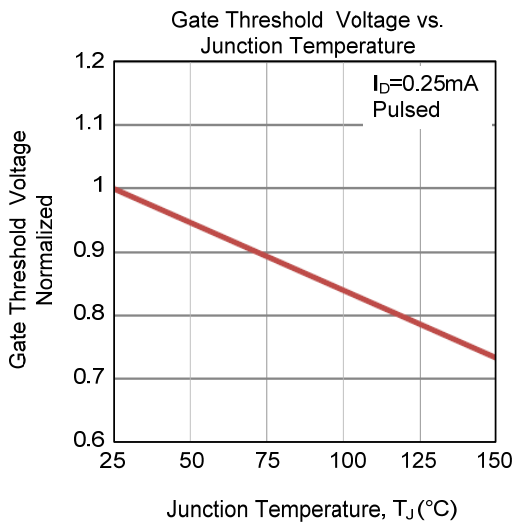
■ ELECTRICAL CHARACTERISTICS (T_J=25°C ,unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	I _D =250μA, V _{GS} =0V	200			V
Drain-Source Leakage Current	I _{DSS}	V _{DS} =200V			10	μA
Gate-Source Leakage Current	Forward	I _{GSS} V _{GS} =+20V, V _{DS} =0V			10	μA
	Reverse		V _{GS} =-20V, V _{DS} =0V			-10
ON CHARACTERISTICS						
Gate Threshold Voltage	V _{GS(TH)}	I _D =250μA	2.0		4.0	V
Static Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} =10V, I _D =4.0A			2.0	Ω
DYNAMIC PARAMETERS						
Input Capacitance	C _{ISS}	V _{GS} =0V, V _{DS} =25V, f=1MHz		194		pF
Output Capacitance	C _{OSS}			18.3		pF
Reverse Transfer Capacitance	C _{RSS}			8		pF
SWITCHING PARAMETERS						
Total Gate Charge	Q _G	V _{DD} =30V, V _{GS} =10V, I _D =4A, I _G =1mA		5.8		nC
Gate to Source Charge	Q _{GS}			2.1		nC
Gate to Drain Charge	Q _{GD}			1.1		nC
Turn-ON Delay Time	t _{D(ON)}	V _{DD} =30V, V _{GS} =10V, I _D =4A, R _G =25Ω		2.8		ns
Rise Time	t _R			15.2		ns
Turn-OFF Delay Time	t _{D(OFF)}			13		ns
Fall-Time	t _F			19.6		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Maximum Continuous Drain-Source Diode Forward Current	I _S				4	A
Maximum Pulsed Drain-Source Diode Forward Current	I _{SM}				16	A
Drain-Source Diode Forward Voltage	V _{SD}	I _S =4A, V _{GS} =0V	0.1		1.48	V
Body Diode Reverse Recovery Time	t _{rr}	I _S =4A, V _{GS} =0V, dI _F /dt=100A/μs		106		nS
Body Diode Reverse Recovery Charge	Q _{rr}				400	

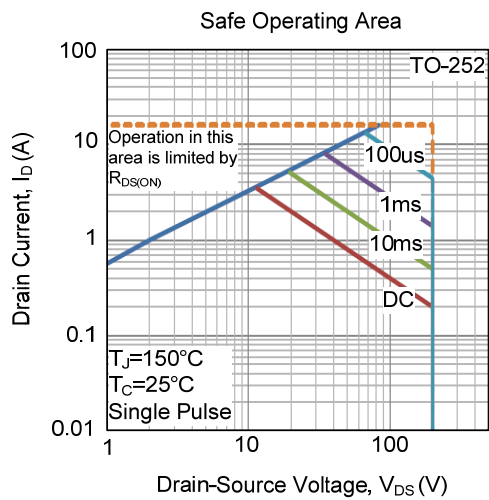
TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS (Cont.)



■ TYPICAL CHARACTERISTICS (Cont.)



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