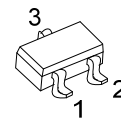
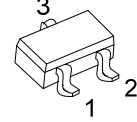
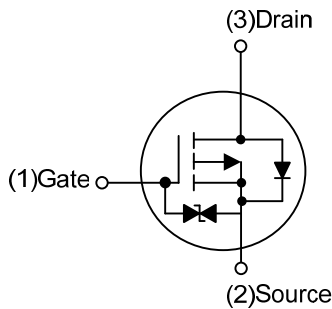
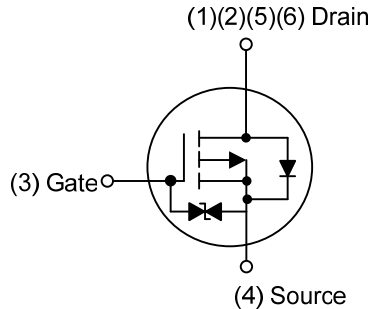


**UT2311Z**

Preliminary

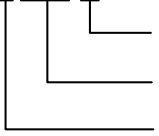
Power MOSFET**-4.2A, -20V P-CHANNEL
ENHANCEMENT MODE
MOSFET****■ FEATURES**

- * Extremely low on-resistance due to high density cell
- * Perfect thermal performance and electrical capability with advanced technology of trench process

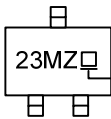
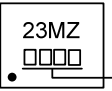
**SOT-23-3**
(JEDEC TO-236)**SOT-23**
(EIAJ SC-59)**DFN2020-6B****■ SYMBOL****SOT-23-3 / SOT-23****DFN2020-6B****■ ORDERING INFORMATION**

Ordering Number		Package	Pin Assignment						Packing
Lead Free	Halogen Free		1	2	3	4	5	6	
UT2311ZL-AE2-R	UT2311ZG-AE2-R	SOT-23-3	G	S	D	-	-	-	Tape Reel
UT2311ZL-AE3-R	UT2311ZG-AE3-R	SOT-23	G	S	D	-	-	-	Tape Reel
UT2311ZL-K06B-2020-R	UT2311ZG-K06B-2020-R	DFN2020-6B	D	D	G	S	D	D	Tape Reel

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

UT2311ZG-AE2-R 		(1) Packing Type (2) Package Type (3) Green Package
		(1) R: Tape Reel (2) AE2: SOT-23-3, AE3: SOT-23 K06B-2020: DFN2020-6B (3) G: Halogen Free and Lead Free, L: Lead Free

■ MARKING

SOT-23-3 / SOT-23	DFN2020-6B
 23MZ L: Lead Free G: Halogen Free	 23MZ □□□□ • → Date Code

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

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		V_{DS}	-20	V
Gate-Source Voltage		V_{GS}	± 8	V
Continuous Drain Current		I_D	-4.2	A
Pulsed Drain Current		I_{DM}	-16	A
Power Dissipation ($T_A=25^{\circ}\text{C}$) (Note 2)	SOT-23-3	P_D	1	W
	SOT-23		1.25	W
	DFN2020-6B		1.67	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. Surface mounted on 1 in 2 copper pad of FR4 board.

■ **THERMAL CHARACTERISTICS**

PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient (PCB mounted)	SOT-23-3	θ_{JA}	125	$^{\circ}\text{C/W}$
	SOT-23		100	$^{\circ}\text{C/W}$
	DFN2020-6B		75	$^{\circ}\text{C/W}$

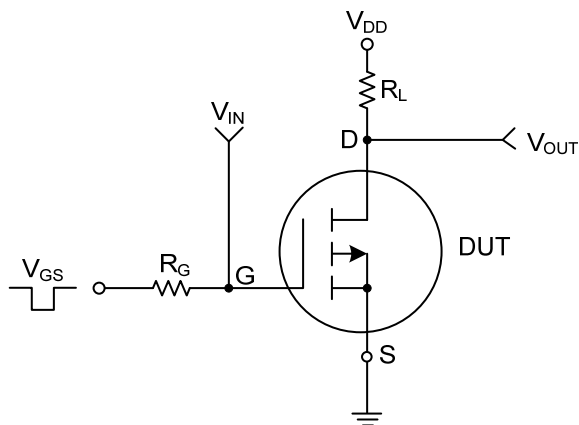
Note: Surface Mounted on FR4 board $t \leq 5$ sec.

■ **ELECTRICAL CHARACTERISTICS** ($T_A=25^{\circ}\text{C}$, unless otherwise specified)

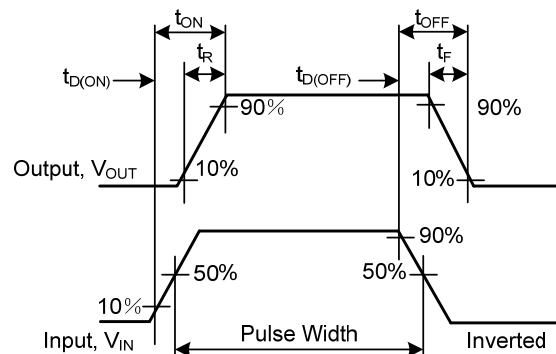
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =-250μA	-20			V
Drain-Source Leakage Current	I _{DSS}	V _{DS} =-16V, V _{GS} =0V			-1.0	μA
Gate-Source Leakage Current	I _{GSS}	V _{GS} =±8V, V _{DS} =0V			±10	μA
ON CHARACTERISTICS						
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} , I _D =-250μA	-0.45			V
Static Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} =-4.5V, I _D =-4.0A			55	mΩ
		V _{GS} =-2.5V, I _D =-2.5A			70	mΩ
DYNAMIC PARAMETERS						
Input Capacitance	C _{ISS}	V _{DS} =-6V, V _{GS} =0V, f=1.0MHz		970		pF
Output Capacitance	C _{OSS}			485		pF
Reverse Transfer Capacitance	C _{RSS}			160		pF
SWITCHING PARAMETERS						
Total Gate Charge	Q _G	V _{GS} =-4.5V, V _{DS} =-6V, I _D =-4.0A		8.5	12	nC
Gate Source Charge	Q _{GS}			1.5		nC
Gate Drain Charge	Q _{GD}			2.1		nC
Turn-ON Delay Time	t _{D(ON)}	V _{DD} =-4.0V, V _G =-4.5V, I _D =-1.0A R _L =4.0Ω, R _G =6Ω		18		ns
Turn-ON Rise Time	t _R			45		ns
Turn-OFF Delay Time	t _{D(OFF)}			95		ns
Turn-OFF Fall-Time	t _F			65		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Maximum Continuous Drain-Source Diode Forward Current	I _S				-1.6	A
Drain-Source Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =-1.6A		-0.8	-1.2	V

Note: Pulse test; pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$.

■ TEST CIRCUITS AND WAVEFORMS



Switching Test Circuit



Switching Waveforms

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