



UT2311

Preliminary

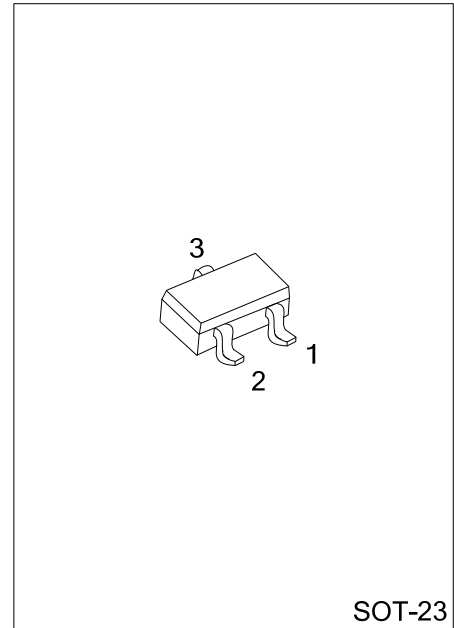
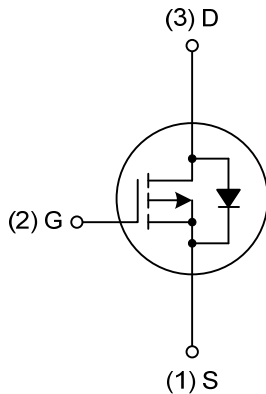
Power MOSFET

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
- * Halogen Free

■ SYMBOL

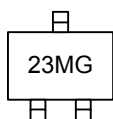


■ ORDERING INFORMATION

Ordering Number	Package	Pin Assignment			Packing
		1	2	3	
UT2311G-AE3-R	SOT-23	S	G	D	Tape Reel

<div>UT2311G-AE3-R</div> <div><div></div><div></div><div></div></div> <div>(1)Packing Type (2)Package Type (3)Halogen Free</div>	<div>(1) R: Tape Reel (2) AE3: SOT-23 (3) G: Halogen Free</div>
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■ MARKING



■ ABSOLUTE MAXIMUM RATINGS (Ta = 25°C, unless otherwise noted)

PARAMETER	SYMBOL	RATINGS	UNIT
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	± 8	V
Continuous Drain Current	I_D	-4	A
Pulsed Drain Current	I_{DM}	-20	A
Power Dissipation (Ta=25°C)	P_D	1.25	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 (PCB mounted)	θ_{JA}	100	°C/W

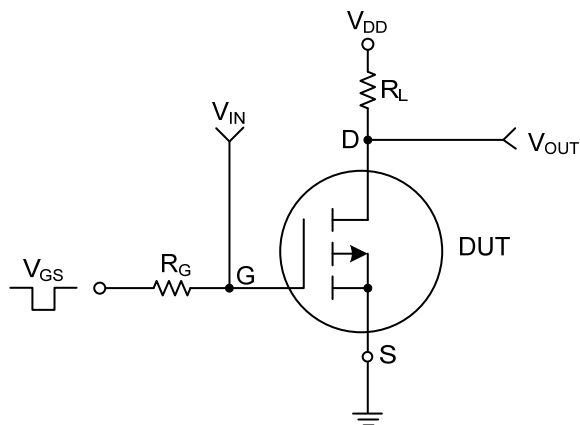
Note: Surface Mounted on FR4 board $t \leq 5\text{sec}$.

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

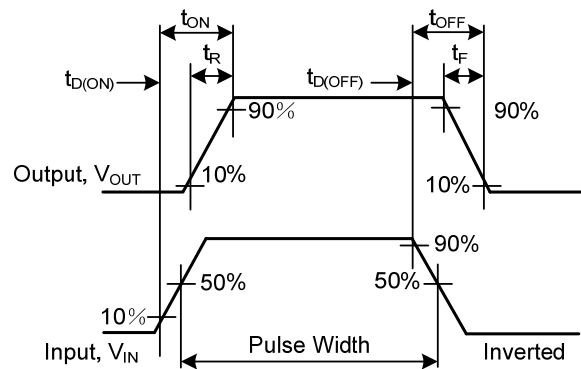
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=-250\mu A$	-20			V
Drain-Source Leakage Current	I_{DSS}	$V_{DS}=-16V, V_{GS}=0V$			-1.0	μA
Gate-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 8V, V_{DS}=0V$			± 100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-0.45			V
Static Drain-Source On-State Resistance	$R_{DS(ON)}$	$V_{GS}=-4.5V, I_D=-4.0 A$		45	55	m Ω
		$V_{GS}=-2.5V, I_D=-2.5 A$		75	85	m Ω
On-State Drain Current	$I_{D(ON)}$	$V_{DS}\geq -10V, V_{GS}=-4.5V$	-6			A
DYNAMIC PARAMETERS ^b						
Input Capacitance	C_{ISS}	$V_{DS}=-6V, V_{GS}=0 V, f=1.0MHz$		970		pF
Output Capacitance	C_{OSS}			485		pF
Reverse Transfer Capacitance	C_{RSS}			160		pF
SWITCHING PARAMETERS ^b						
Turn-ON Delay Time	$t_{D(ON)}$	$V_{DD}=-4V, V_{GEN}=-4.5V, I_D=-1A$ $R_L=4\Omega, R_G=6\Omega$		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
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
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Drain-Source Diode Forward Voltage	V_{SD}	$V_{GS}=0 V, I_S=-1.6A,$		-0.8	-1.2	V
Maximum Continuous Drain-Source Diode Forward Current	I_S				-1.6	A

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

■ TEST CIRCUITS AND WAVEFORMS



Switching Test Circuit



Switching Waveforms

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