



UT2311

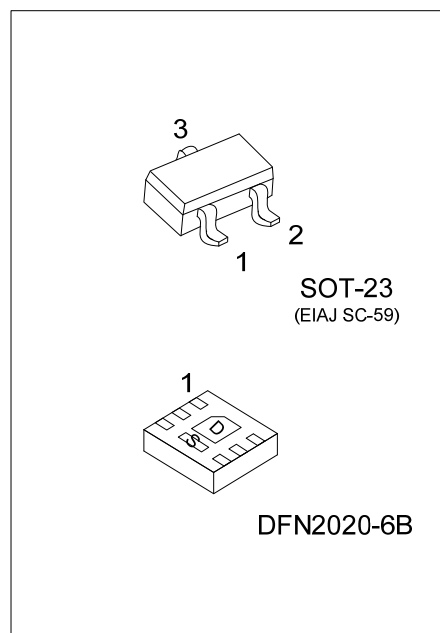
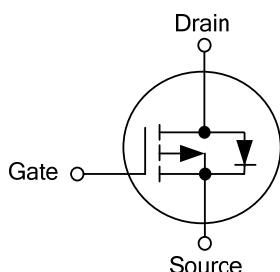
Power MOSFET

-4A, -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

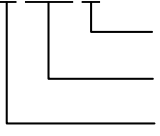
SYMBOL



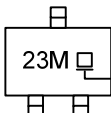
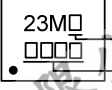
ORDERING INFORMATION

Ordering Number		Package	Pin Assignment						Packing
Lead Free	Halogen Free		1	2	3	4	5	6	
UT2311L-AE3-R	UT2311G-AE3-R	SOT-23	G	S	D	-	-	-	Tape Reel
UT2311L-K06B-2020-R	UT2311G-K06B-2020-R	DFN2020-6B	D	D	G	S	D	D	Tape Reel

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

<p>UT2311G-AE3-R</p> 		(1) Packing Type (2) Package Type (3) Green Package
		(1) R: Tape Reel (2) AE3: SOT-23, K06B-2020: DFN2020-6B (3) G: Halogen Free and Lead Free, L: Lead Free

MARKING

SOT-23	DFN2020-6B
 <p>L: Lead Free G: Halogen Free</p>	 <p>L: Lead Free G: Halogen Free Date Code</p>

■ 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	A
Pulsed Drain Current	I_{DM}	-20	A
Power Dissipation ($T_A=25^\circ\text{C}$) (Note 2)	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	100	$^\circ\text{C/W}$
	DFN2020-6B	75	$^\circ\text{C/W}$

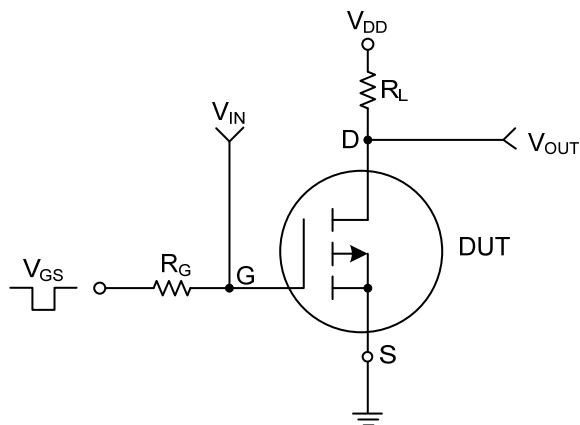
Note: Surface Mounted on FR4 board $t \leq 5$ sec.

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

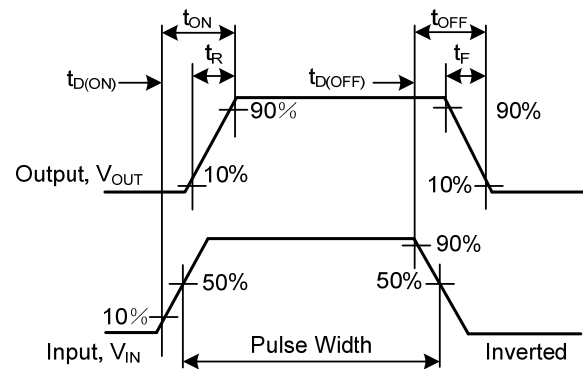
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =-250μA	-20			V
Drain-Source Leakage Current	I _{DSS}	V _{DS} =-16V, V _{GS} =0V			-1.0	μA
Gate-Source Leakage Current	I _{GSS}	V _{GS} =±8V, V _{DS} =0V			±100	nA
ON 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 =-4.0 A		45	55	mΩ
		V _{GS} =-2.5V, I _D =-2.5 A		75	85	mΩ
On-State Drain Current	I _{D(ON)}	V _{DS} ≥ -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						
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} =-4V, V _{GEN} =-4.5V, I _D =-1A R _L =4Ω, 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						
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 $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$.

■ TEST CIRCUITS AND WAVEFORMS

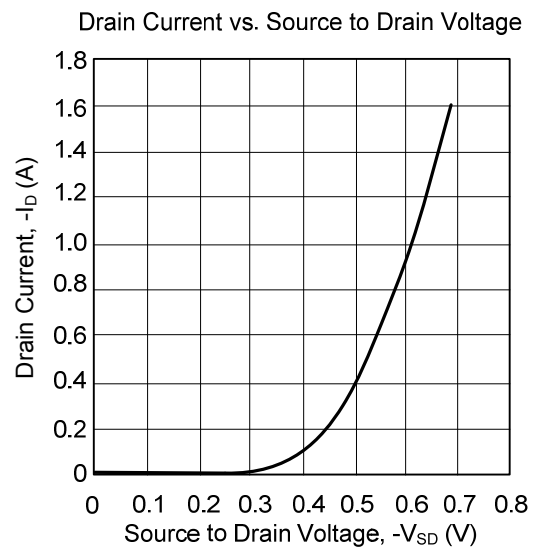
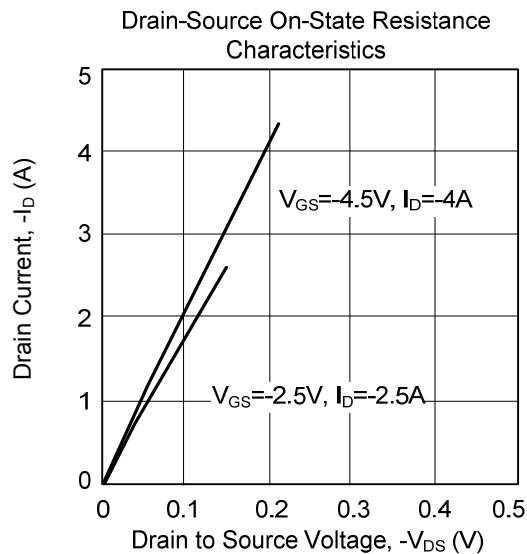
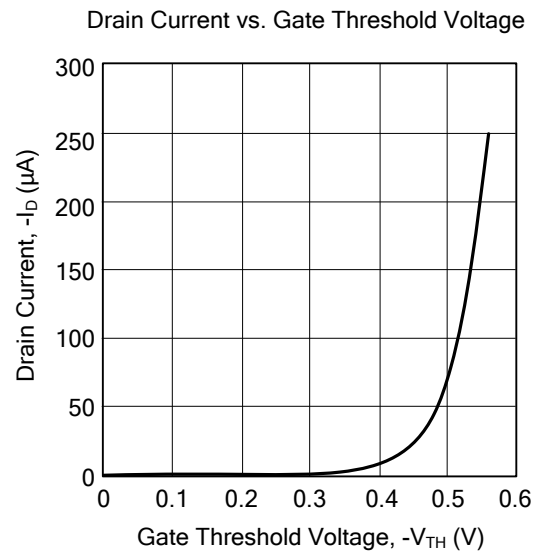
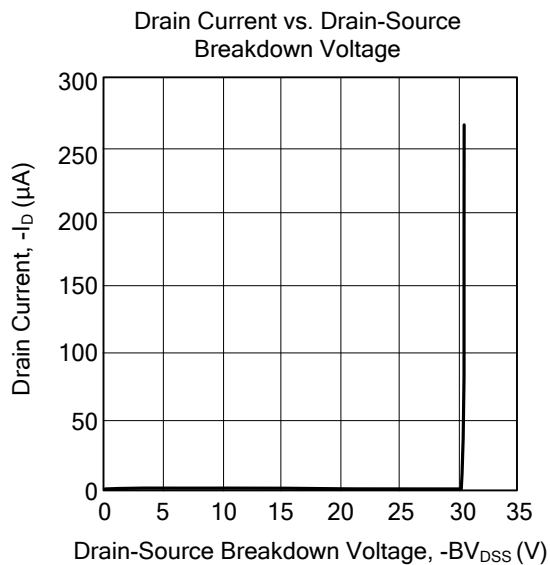


Switching Test Circuit



Switching Waveforms

■ TYPICAL CHARACTERISTICS



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