



UT2311

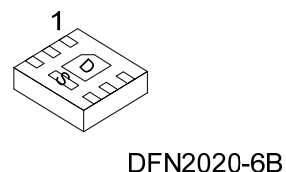
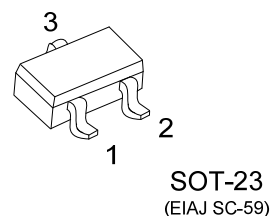
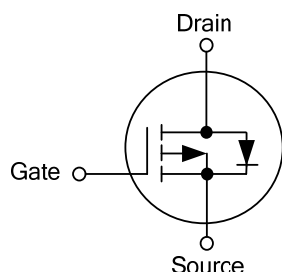
Power MOSFET

**-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

UT2311G-AE3-R (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
L: Lead Free G: Halogen Free	L: Lead Free G: Halogen Free 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	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	$^\circ\text{C/W}$

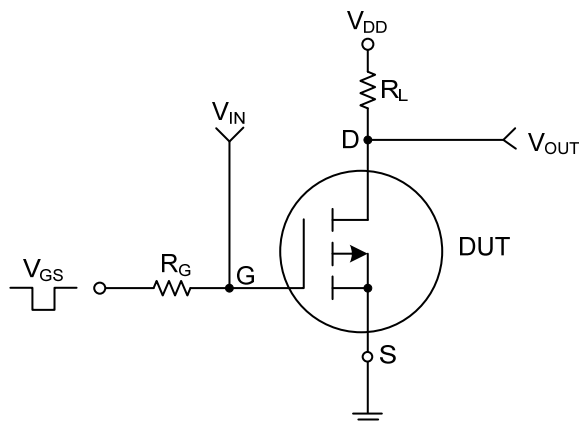
Note: Surface Mounted on FR4 board $t \leq 5$ sec.

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

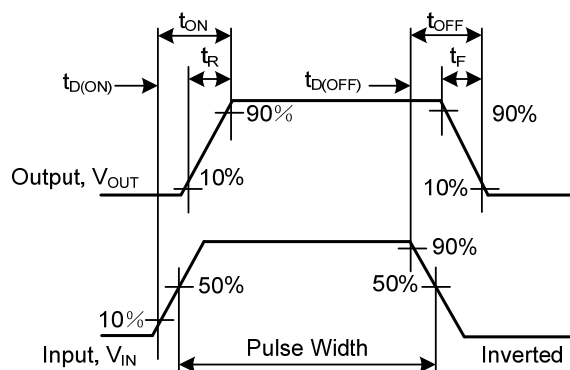
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =-250μA	-20			V
Drain-Source Leakage Current	I _{DSS}	V _{DS} =-16V, V _{GS} =0V			-1.0	μA
Gate-Source Leakage Current	I _{GSS}	V _{GS} =±8V, V _{DS} =0V			±100	nA
ON 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

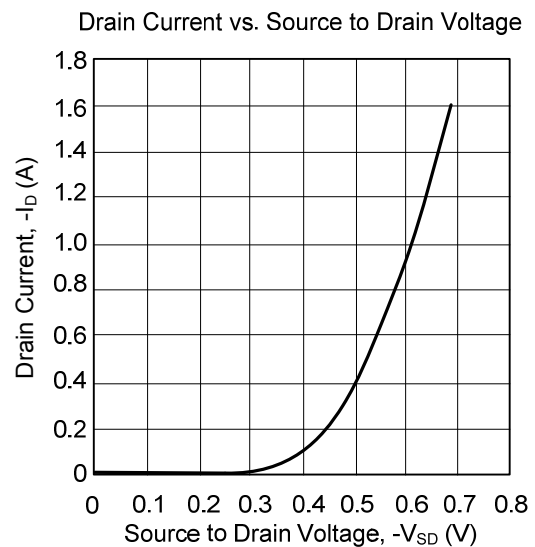
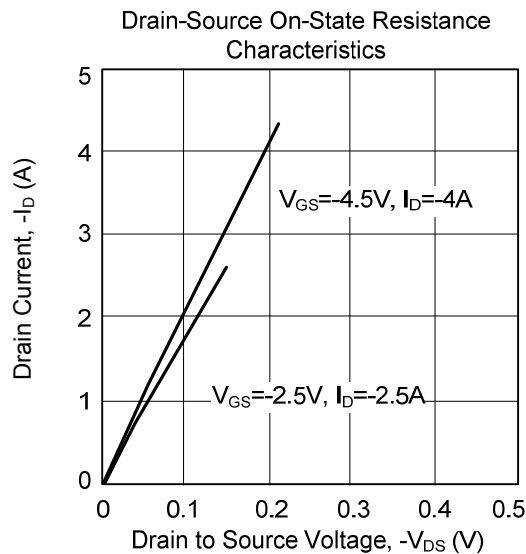
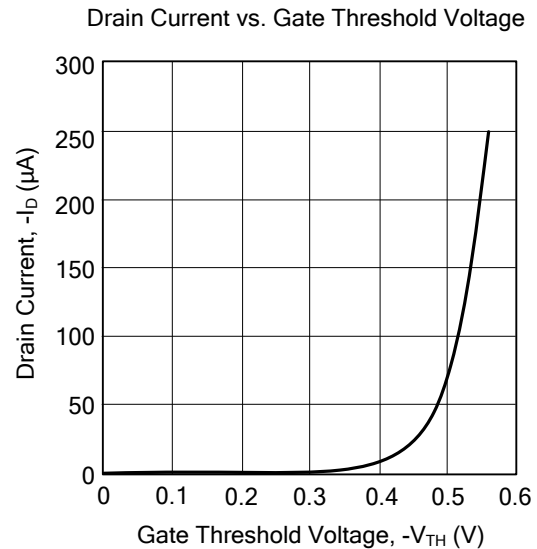
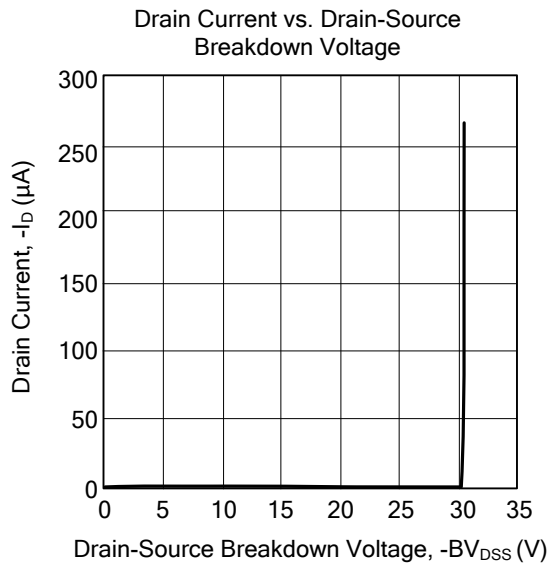


Switching Test Circuit



Switching Waveforms

TYPICAL CHARACTERISTICS



UTC assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all UTC products described or contained herein. UTC products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably expected to result in personal injury. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. UTC reserves the right to make changes to information published in this document, including without limitation specifications and product descriptions, at any time and without notice. This document supersedes and replaces all information supplied prior to the publication hereof.