



UT2302

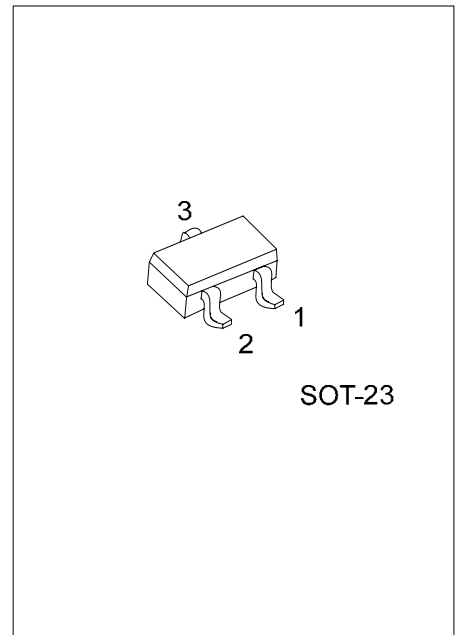
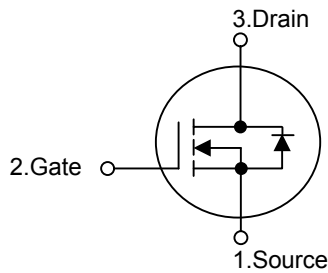
Power MOSFET

N-CHANNEL ENHANCEMENT MODE

DESCRIPTION

The UT2302 is N-channel Power MOSFET, designed with high density cell,. with fast switching speed, ultra low on-resistance ,excellent thermal and electrical capabilities . Used in commercial and industrial surface mount applications and suited for low voltage applications such as DC/DC converters .

SYMBOL



SOT-23

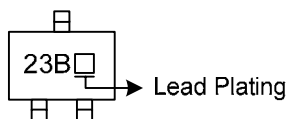
*Pb-free plating product number: UT2302L

ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Normal	Lead Free Plating		1	2	3	
UT2302-AE3-R	UT2302L-AE3-R	SOT-23	S	G	D	Tape Reel

UT2302L-AE3-R (1)Packing Type (2)Package Type (3)Lead Plating	(1) R: Tape Reel (2) AE3: SOT-23 (3) L: Lead Free Plating, Blank: Pb/Sn
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MARKING



■ ABSOLUTE MAXIMUM RATINGS (Ta = 25 , unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT	
Drain-Source Voltage	V _{DSS}	20	V	
Gate-Source Voltage	V _{GSS}	±8	V	
Continuous Drain Current	I _D	2.4	A	
Pulsed Drain Current	I _{DM}	10	A	
Power Dissipation	P _D	Ta=25°C	1.25	W
		Ta=70°C	0.8	W
Junction Temperature	T _J	+150		
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	MIN	TYP	MAX	UNIT
Junction to Ambient (Note 3)	θ _{JA}			100	/W

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

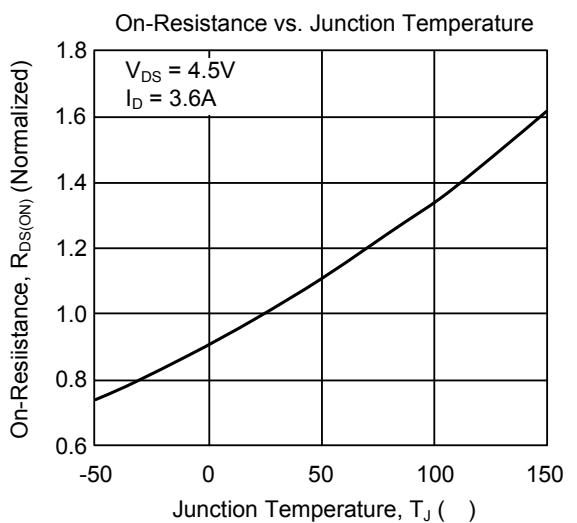
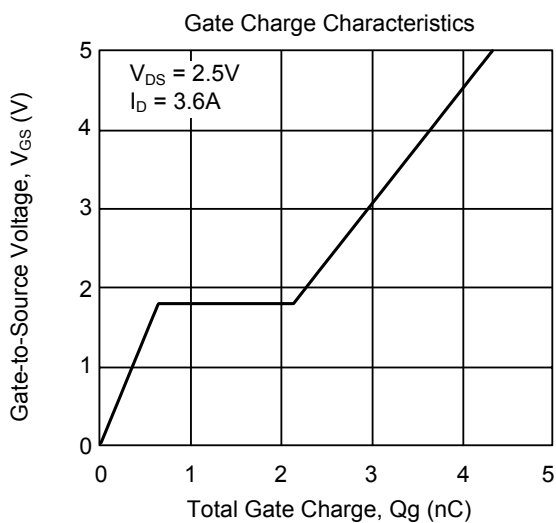
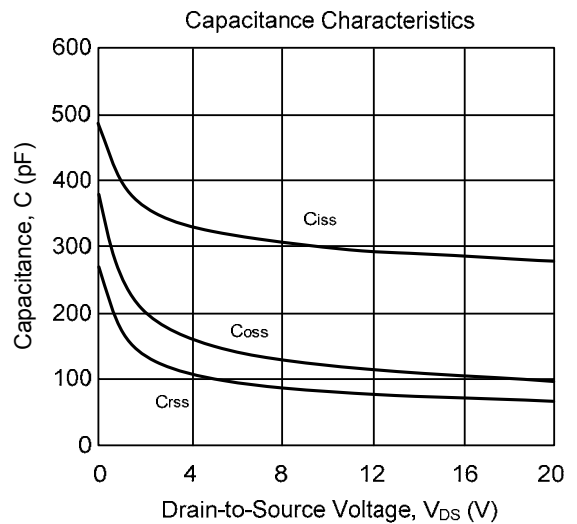
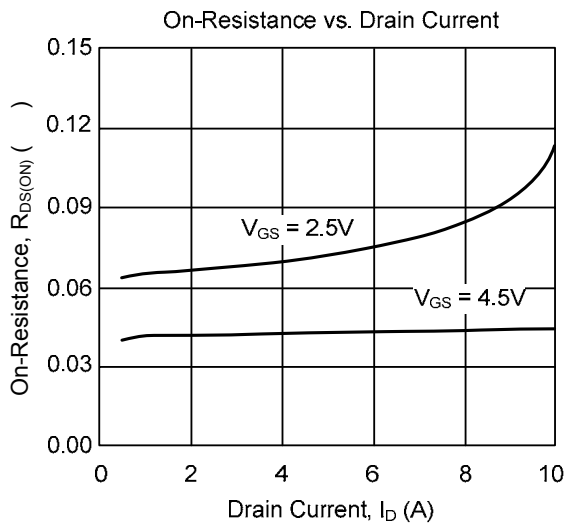
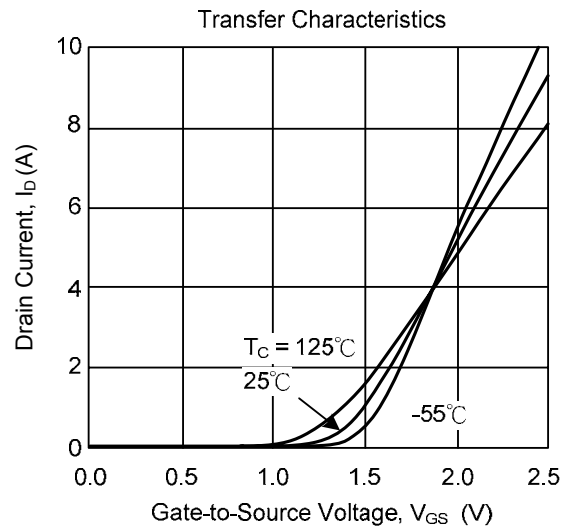
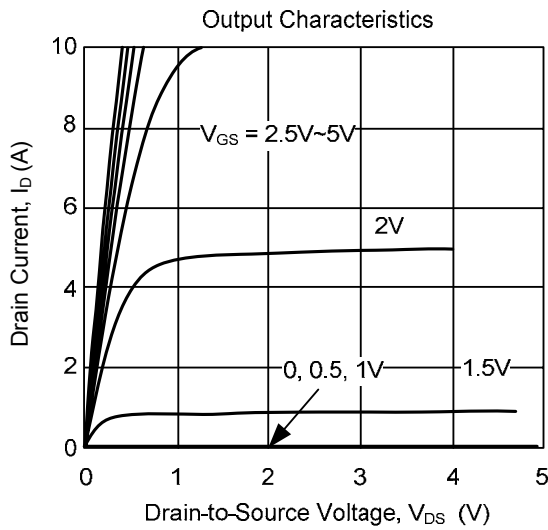
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0 V, I _D =250 μA	20			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =20 V, V _{GS} =0 V			1.0	μA
Gate-Body Leakage	I _{GSS}	V _{DS} =0 V, V _{GS} = ±8V			±100	nA
ON CHARACTERISTICS						
Gate-Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} , I _D =250 μA	0.45			V
Drain-Source On-Resistance (Note2)	R _{DS(ON)}	V _{GS} =4.5 V, I _D =3.6 A		50	65	Ω
		V _{GS} =2.5 V, I _D =3.1 A		75	95	Ω
On State Drain Current (Note2)	I _{D(ON)}	V _{DS} ≥ 5V, V _{GS} =4.5 V	6			A
DYNAMIC PARAMETERS						
Input Capacitance	C _{ISS}	V _{DS} =10 V, V _{GS} =0V, f=1MHz		450		pF
Output Capacitance	C _{OSS}			70		pF
Reverse Transfer Capacitance	C _{RSS}			43		pF
SWITCHING PARAMETERS						
Turn-ON Delay Time	t _{D(ON)}	V _{DD} =10V, R _L =10 Ω, I _D =1A, V _{GEN} =4.5V, R _G =6 Ω		7	15	ns
Turn-ON Rise Time	t _R			55	80	ns
Turn-OFF Delay Time	t _{D(OFF)}			16	60	ns
Turn-OFF Fall-Time	t _F			10	25	ns
Total Gate Charge	Q _G	V _{DS} =10 V, V _{GS} =4.5 V, I _D =3.6 A		5.2	10	nC
Gate-Source Charge	Q _{GS}			0.65		nC
Gate-Drain Charge	Q _{GD}			1.5		nC
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Drain-Source Diode Forward Voltage	V _{SD}	V _{GS} =0 V, I _S =1.0 A		0.76	1.2	V
Maximum Continuous Drain-Source Diode Forward Current	I _S				1.6	A

Note:1. Pulse width limited by T_{J(MAX)}

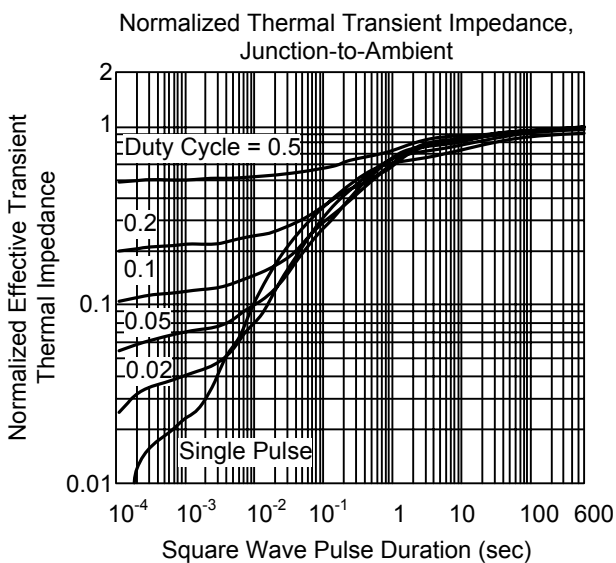
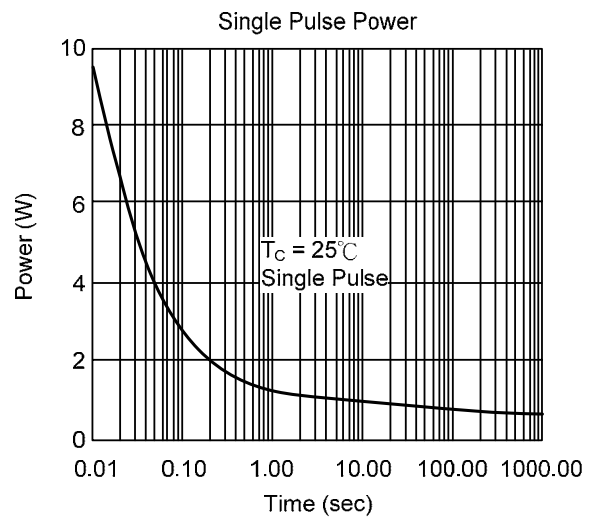
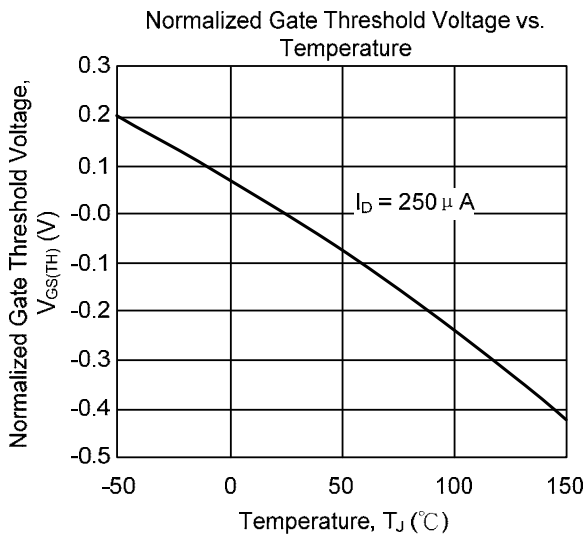
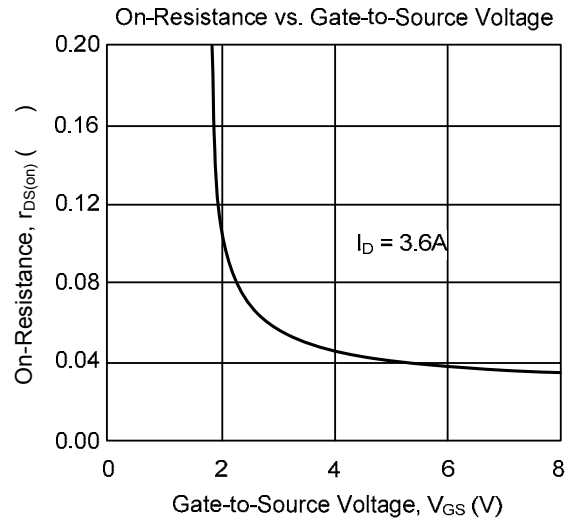
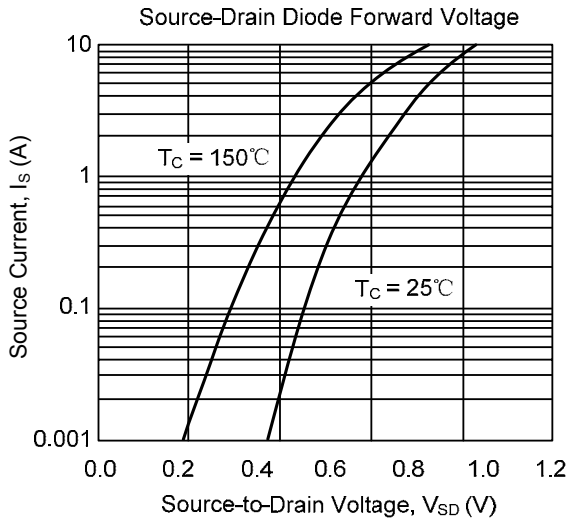
2. Pulse width ≤300us, duty cycle ≤2%.

3. Surface mounted on FR4 board t = 5 sec.

TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS(Cont.)



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