



UT2302

Power MOSFET

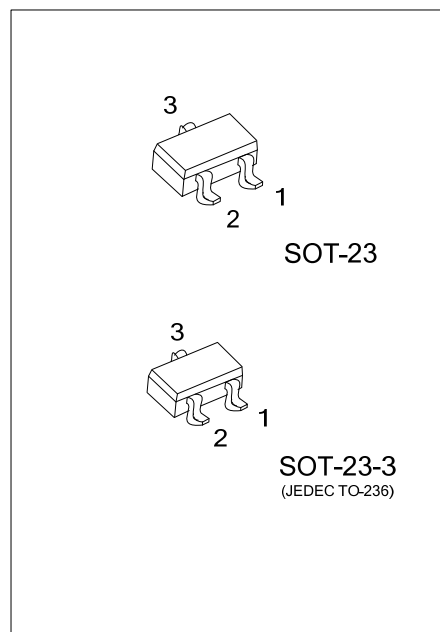
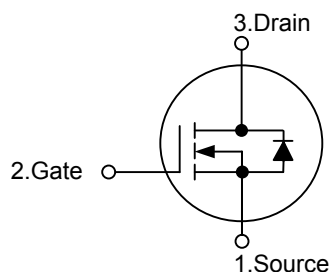
N-CHANNEL ENHANCEMENT MODE

DESCRIPTION

The UTC **UT2302** is N-channel Power MOSFET, designed with high density cell, with fast switching speed, ultra low on-resistance, and 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

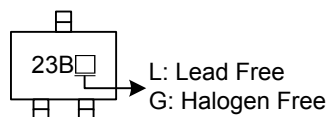


ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UT2302L-AE2-R	UT2302G-AE2-R	SOT-23-3	S	G	D	Tape Reel
UT2302L-AE3-R	UT2302G-AE3-R	SOT-23	S	G	D	Tape Reel

	(1)Packing Type	(1) R: Tape Reel
	(2)Package Type	(2) AE2: SOT-23-3, AE3: SOT-23
	(3)Lead Free	(3) G: Halogen Free, L: Lead Free

MARKING



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

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		V _{DSS}	20	V
Gate-Source Voltage		V _{GSS}	±8	V
Drain Current (Note 1)	Continuous	I _D	2.4	A
	Pulsed	I _{DM}	10	A
Power Dissipation		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

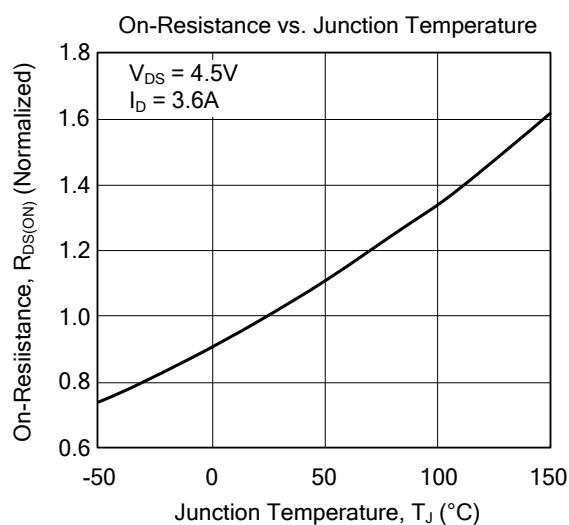
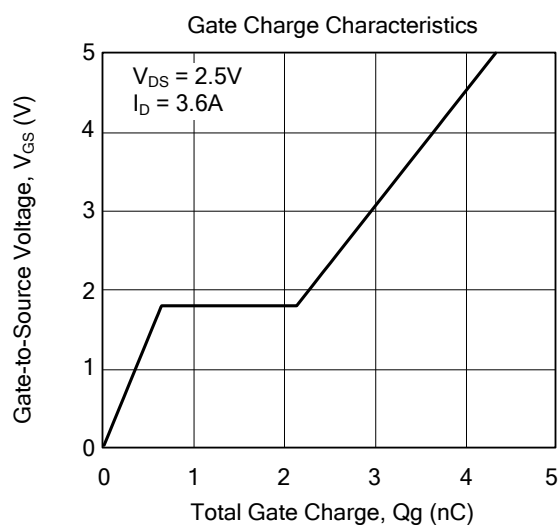
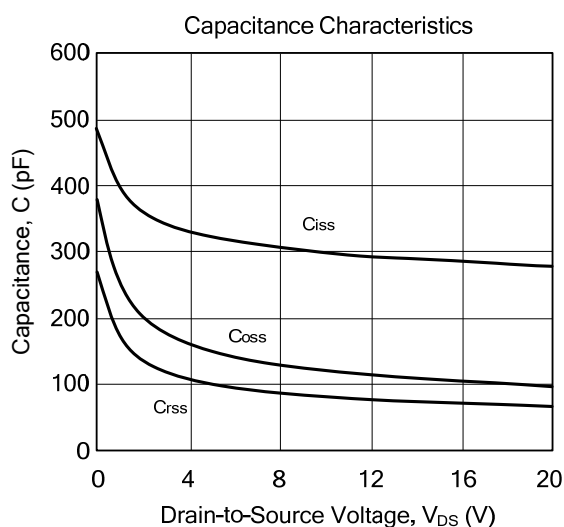
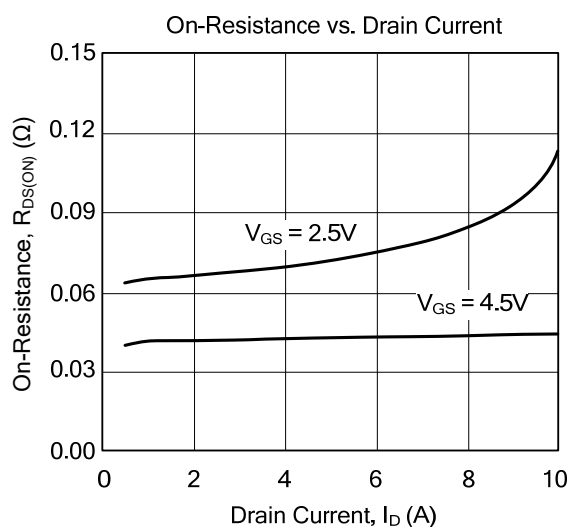
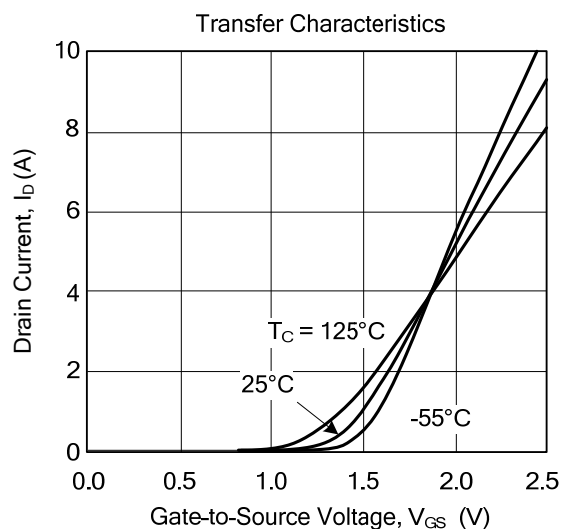
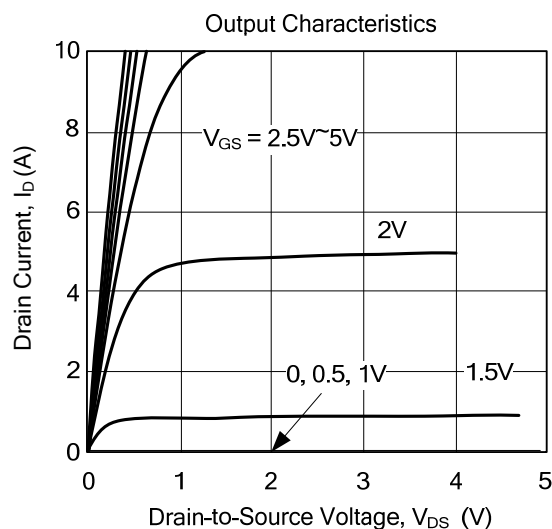
PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
Junction to Ambient (Note 3)	θ_{JA}			100	°C/W

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

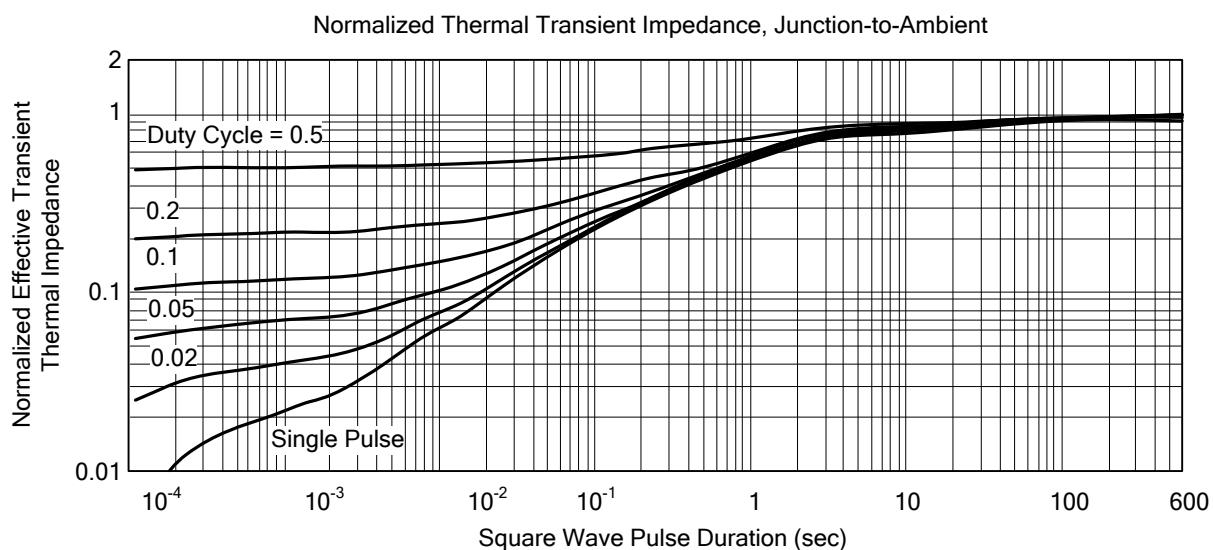
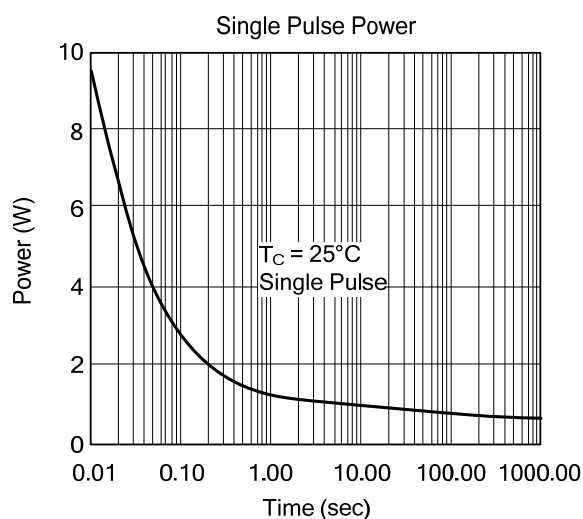
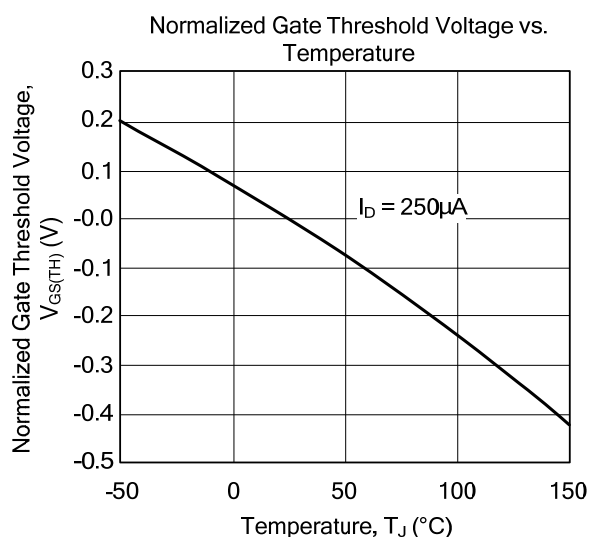
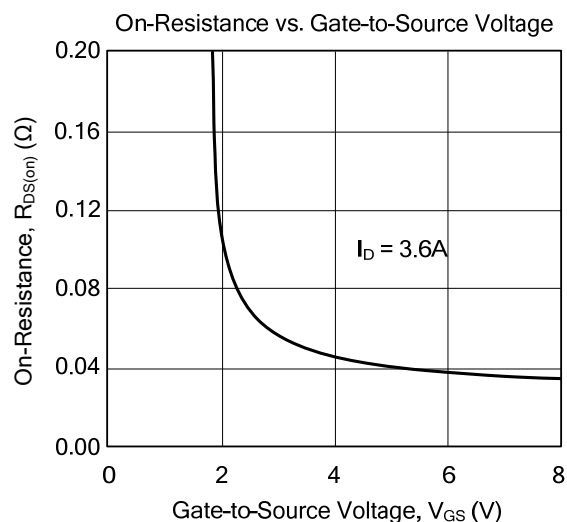
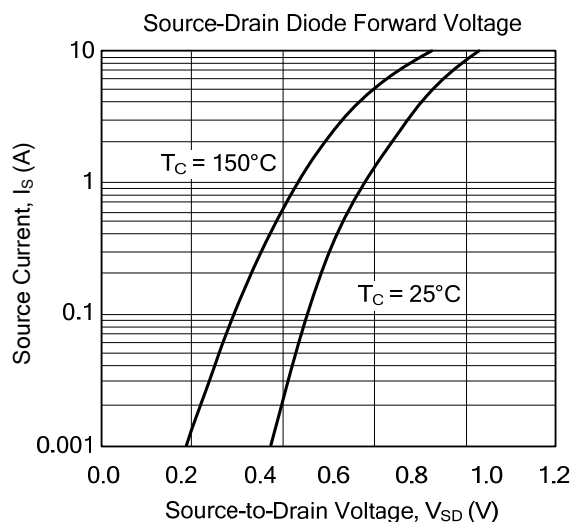
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0 V, I _D =250 μA	20			V
Drain-Source Leakage Current	I _{DSS}	V _{DS} =20 V, V _{GS} =0 V			1.0	μA
Gate-Source Leakage Current	I _{GSS}	V _{DS} =0 V, V _{GS} = ±8V			±100	nA
ON CHARACTERISTICS						
Gate-Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} , I _D =250 μA	0.45			V
Static Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} =4.5 V, I _D =7.2 A			50	mΩ
		V _{GS} =2.5 V, I _D =3.1 A		75	95	mΩ
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 =6Ω		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} =10V, 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
DRAIN-SOURCE DIODE CHARACTERISTICS AND MAXIMUM RATINGS						
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. Repetitive Rating: Pulse width limited by T_J
 2. Pulse Test: Pulse width $\leq 300\text{ }\mu\text{s}$, Duty cycle $\leq 2\%$
 3. Surface mounted on 1 in² copper pad of FR4 board

■ TYPICAL CHARACTERISTICS



TYPICAL CHARACTERISTICS(Cont.)



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