



UT2306

Power MOSFET

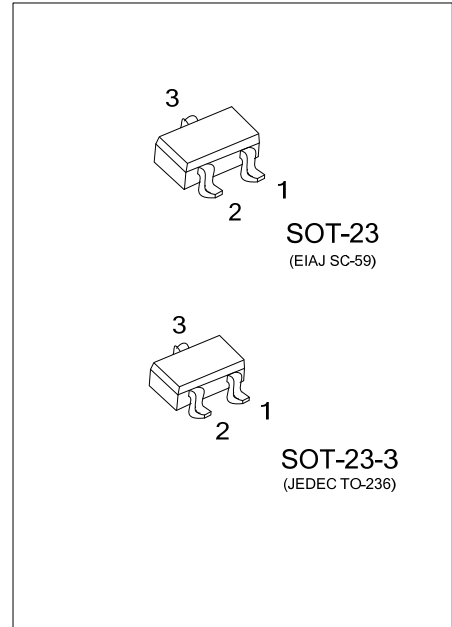
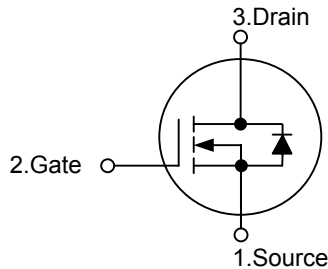
N-CHANNEL ENHANCEMENT MODE

■ DESCRIPTION

The UTC **UT2306** 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

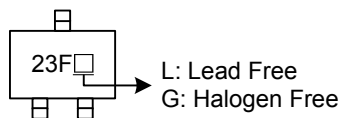


■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UT2306L-AE2-R	UT2306G-AE2-R	SOT-23-3	S	G	D	Tape Reel
UT2306L-AE3-R	UT2306G-AE3-R	SOT-23	S	G	D	Tape Reel

UT2306L-AE3-R	(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** ($T_A = 25^\circ\text{C}$, unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	± 8	V
Continuous Drain Current	I_D	3.5	A
Pulsed Drain Current (Note 1, 2)	I_{DM}	14	A
Power Dissipation	P_D	0.83	W
Junction Temperature	T_J	+150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55 ~ +150	$^\circ\text{C}$

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	θ_{JA}	150	$^\circ\text{C/W}$

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

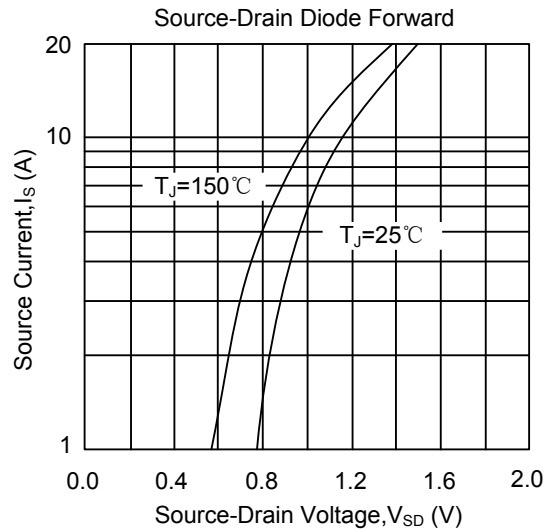
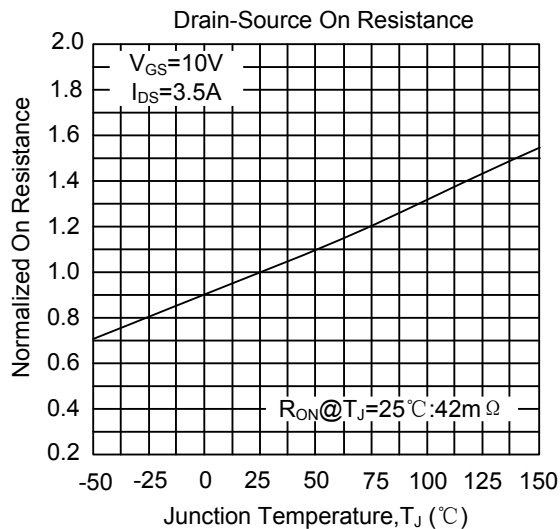
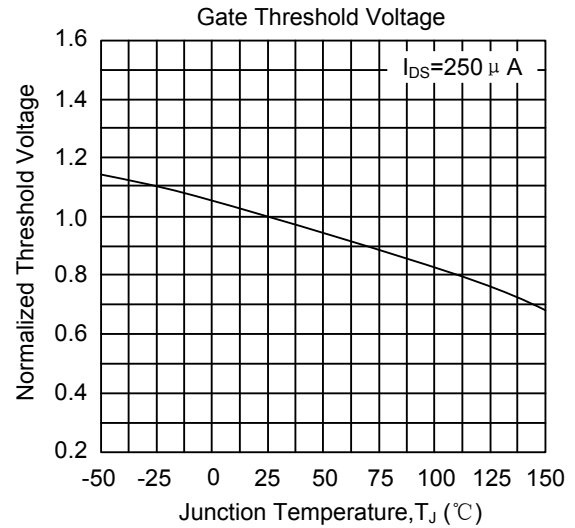
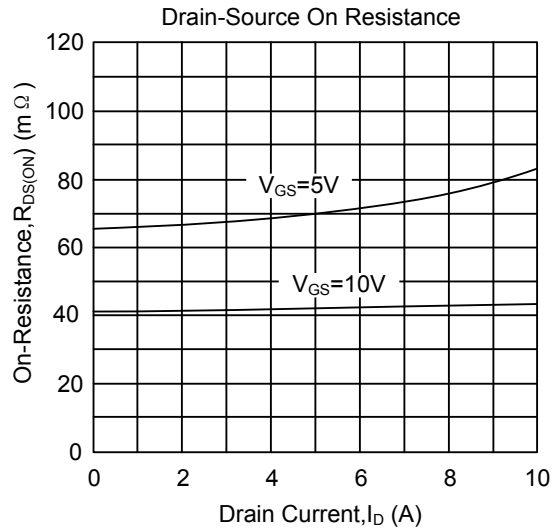
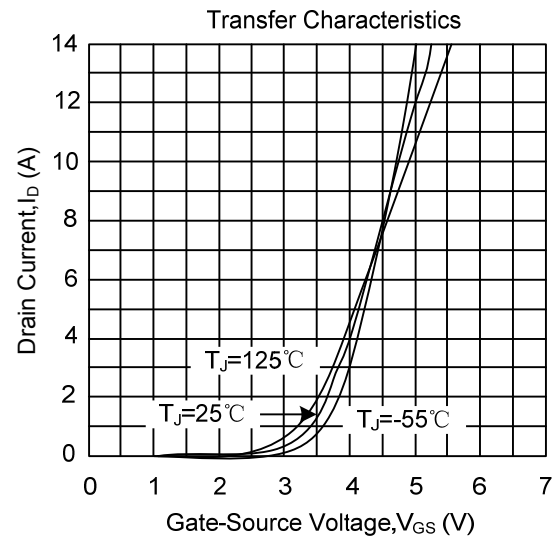
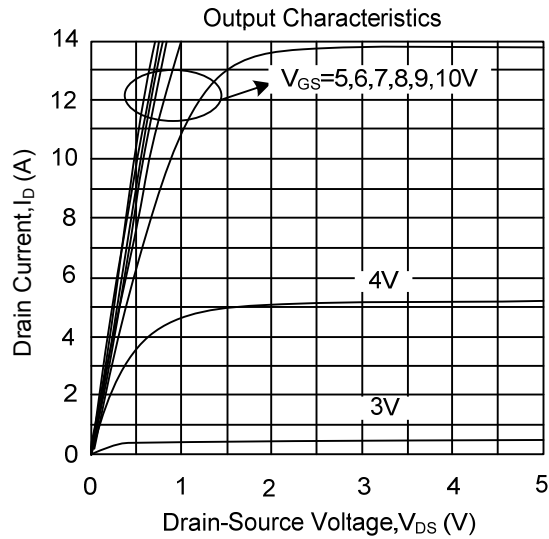
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =250μA	30			V
Drain-Source Leakage Current	I _{DSS}	V _{DS} =24V, V _{GS} =0V			1	μA
Gate-Source Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} , I _D =250μA	1	1.5	2	V
Drain-Source On-State Resistance (Note 2)	R _{DS(ON)}	V _{GS} =10V, I _D =3.5A		42	65	mΩ
		V _{GS} =5V, I _D =2.8A		70	90	
DYNAMIC CHARACTERISTICS						
Input Capacitance	C _{ISS}	V _{DS} =25V, V _{GS} =0V, f=1.0MHz		400		pF
Output Capacitance	C _{OSS}			80		pF
Reverse Transfer Capacitance	C _{RSS}			45		pF
SWITCHING CHARACTERISTICS						
Turn-ON Delay Time	t _{D(ON)}	V _{DD} =15V, V _{GS} =10V, I _D =1A, R _G =6Ω, R _L =15Ω		10	19	ns
Turn-ON Rise Time	t _R			8	15	ns
Turn-OFF Delay Time	t _{D(OFF)}			19	35	ns
Turn-OFF Fall Time	t _F			6.2	12	ns
Total Gate Charge	Q _G	V _{DS} =15V, V _{GS} =10V, I _D =3.5A		12.5	16	nC
Gate-Source Charge	Q _{GS}			2.4		nC
Gate-Drain Charge	Q _{GD}			1.3		nC
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS						
Drain-Source Diode Forward Voltage(Note2)	V _{SD}	V _{GS} =0V, I _S =1.25A		0.8	1.3	V
Maximum Continuous Drain-Source Diode Forward Current	I _S				1.3	A

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

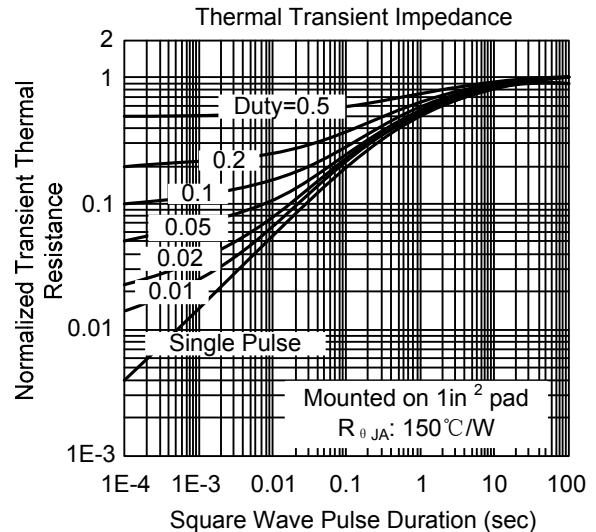
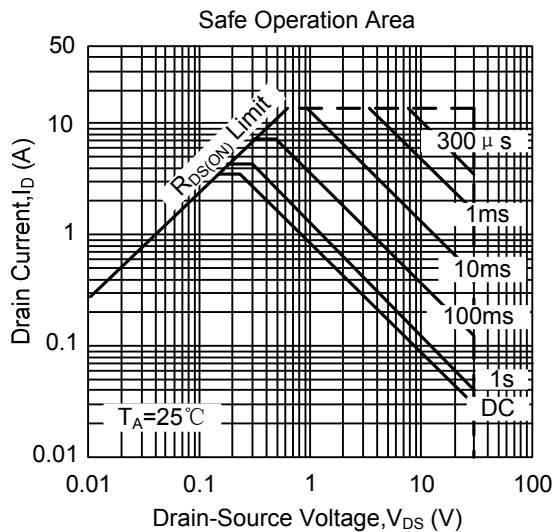
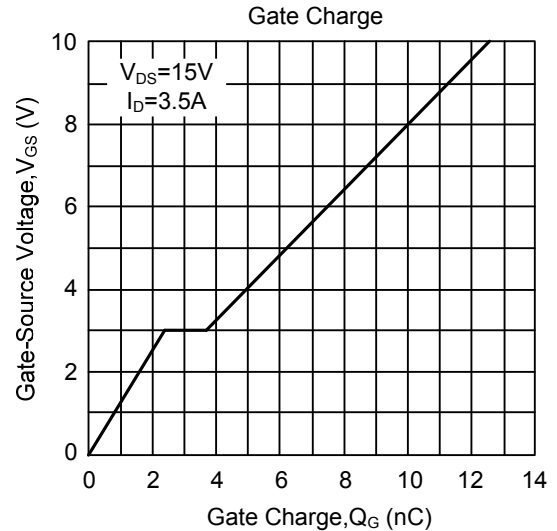
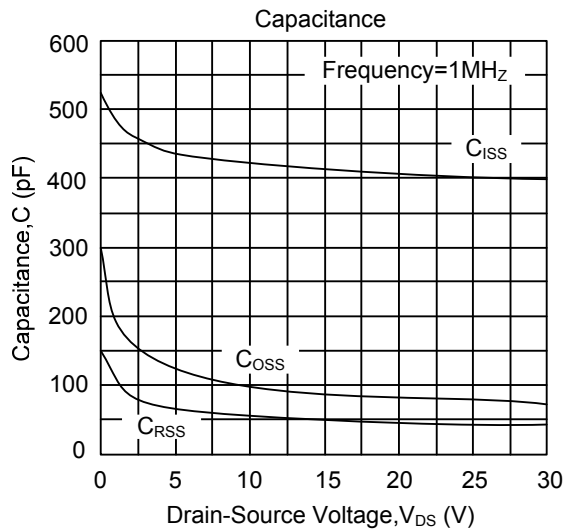
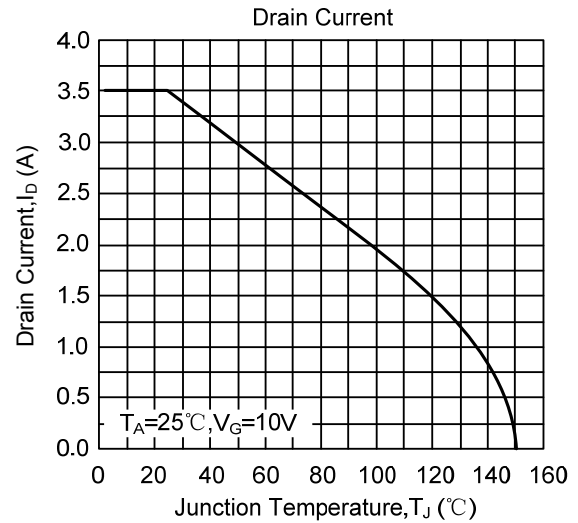
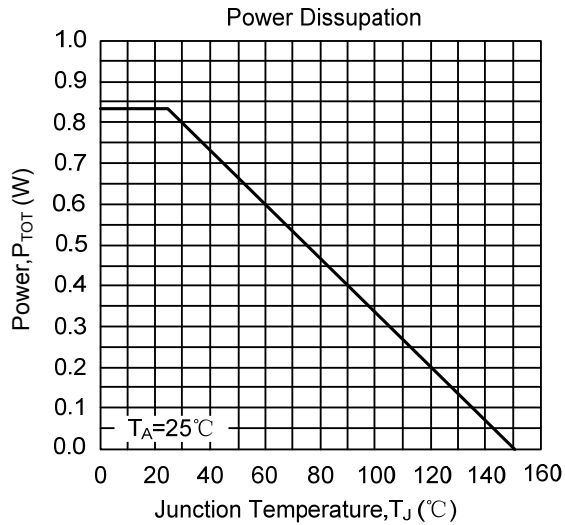
2. Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.

3. Surface mounted on FR4 board $t \leq 10sec$.

TYPICAL CHARACTERISTICS



TYPICAL CHARACTERISTICS(Cont.)



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