



UT2306

Power MOSFET

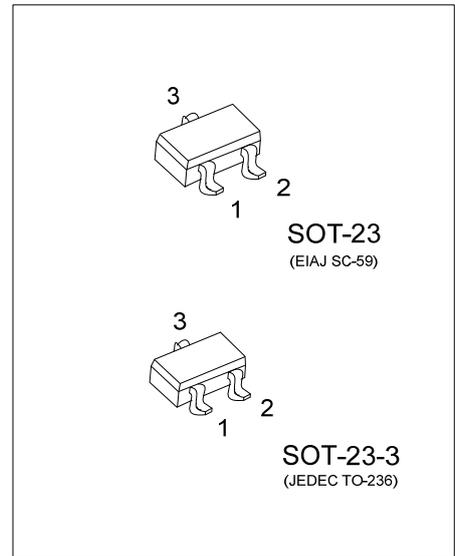
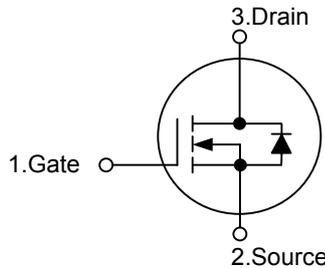
N-CHANNEL ENHANCEMENT MODE

■ 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



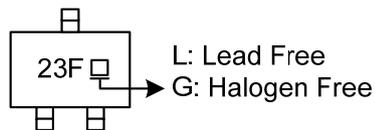
■ ORDERING INFORMATION

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

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

<p>UT2306G-AE2-R</p> <p>(1) Packing Type</p> <p>(2) Package Type</p> <p>(3) Green Package</p>	<p>(1) R: Tape Reel</p> <p>(2) AE2: SOT-23-3, AE3: SOT-23</p> <p>(3) G: Halogen Free and Lead Free, L: Lead Free</p>
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■ MARKING



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

PARAMETER	SYMBOL	RATINGS	UNIT
Drain-Source Voltage	V _{DSS}	30	V
Gate-Source Voltage	V _{GSS}	±20	V
Continuous Drain Current	I _D	3.5	A
Pulsed Drain Current (Note 1, 2)	I _{DM}	14	A
Power Dissipation	SOT-23-3	0.5	W
	SOT-23	0.6	W
Junction Temperature	T _J	+150	°C
Storage Temperature	T _{STG}	-55 ~ +150	°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. Repetitive Rating: Pulse width limited by maximum junction temperature.

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	SOT-23-3	250	°C/W
	SOT-23	208	°C/W

Note: Device mounted on FR-4 substrate PC board, 2oz copper, with 1inch square copper plate.

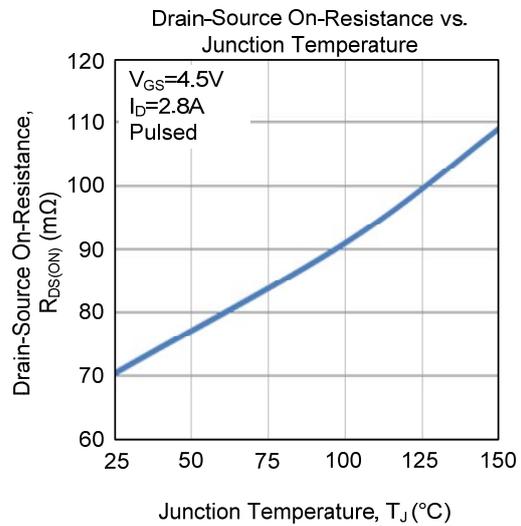
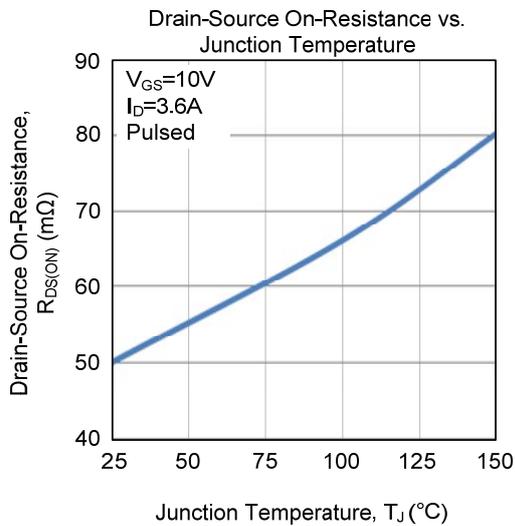
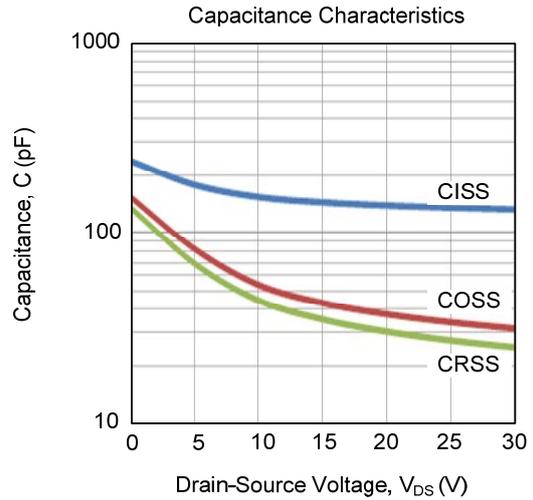
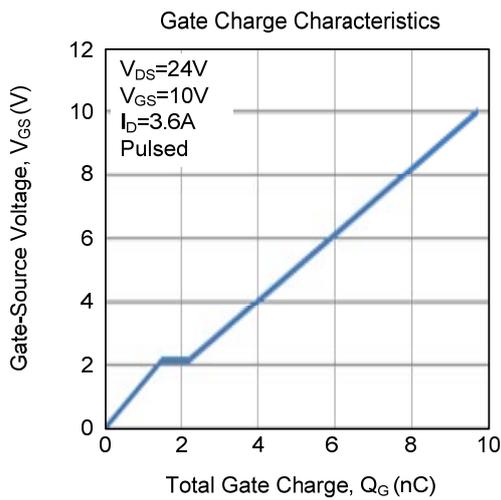
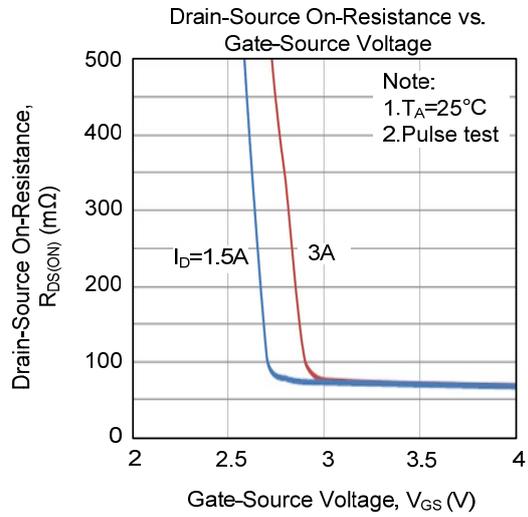
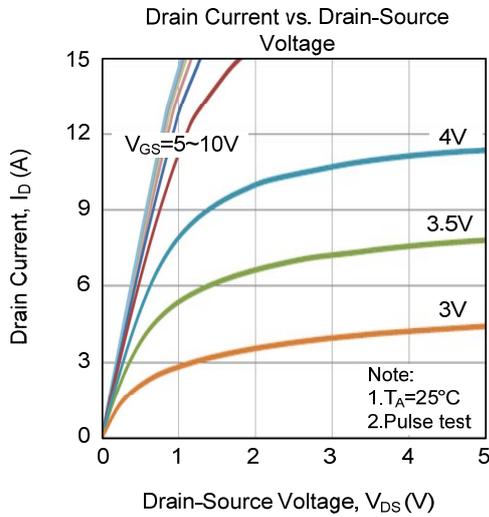
■ ELECTRICAL CHARACTERISTICS (T_J=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0 V, I _D =250 μA	30			V
Drain-Source Leakage Current	I _{DSS}	V _{DS} =24 V, V _{GS} =0 V			1	μA
Gate-Source Leakage Current	I _{GSS}	V _{GS} =±20 V, V _{DS} =0 V			100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} , I _D =250 μA	1.0		2.0	V
Static Drain-Source On-Resistance	R _{DS(ON)}	V _{GS} =10 V, I _D =3.6 A			65	mΩ
		V _{GS} =4.5 V, I _D =2.8 A			90	mΩ
DYNAMIC PARAMETERS						
Input Capacitance	C _{ISS}	V _{DS} =15V, V _{GS} =0 V, f=1MHz		145		pF
Output Capacitance	C _{OSS}			43		pF
Reverse Transfer Capacitance	C _{RSS}			35		pF
SWITCHING PARAMETERS						
Total Gate Charge	Q _G	V _{DS} =24V, V _{GS} =10V, I _D =3.6A (Note 1, 2)		9.7		nC
Gate Source Charge	Q _{GS}			1.5		nC
Gate Drain Charge	Q _{GD}			0.7		nC
Turn-ON Delay Time	t _{D(ON)}	V _{DS} =15V, V _{GS} =10V, I _D =3.6A R _G =3Ω (Note 1, 2)		4		ns
Turn-ON Rise Time	t _R			14		ns
Turn-OFF Delay Time	t _{D(OFF)}			6		ns
Turn-OFF Fall-Time	t _F			18		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Maximum Body-Diode Continuous Current	I _S				3.6	A
Maximum Body-Diode Pulsed Current	I _{SM}				14	A
Drain-Source Diode Forward Voltage	V _{SD}	I _S =1.0A			1.0	V

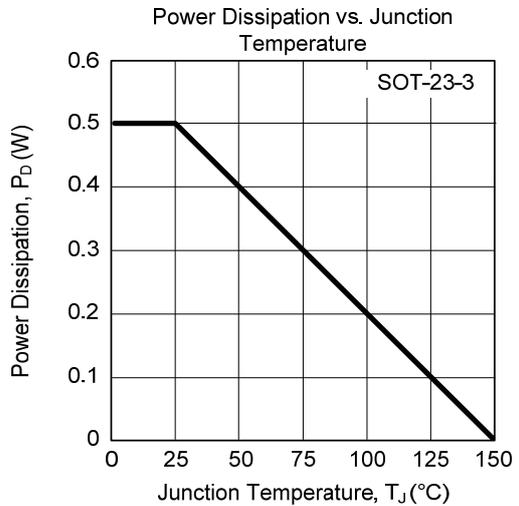
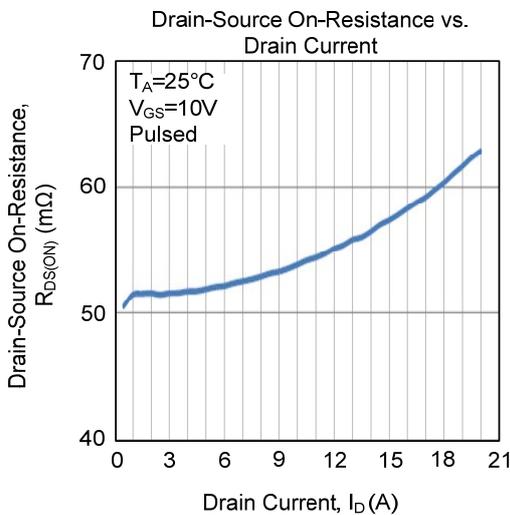
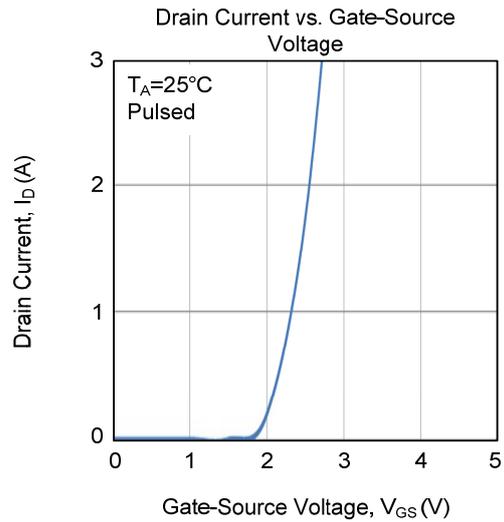
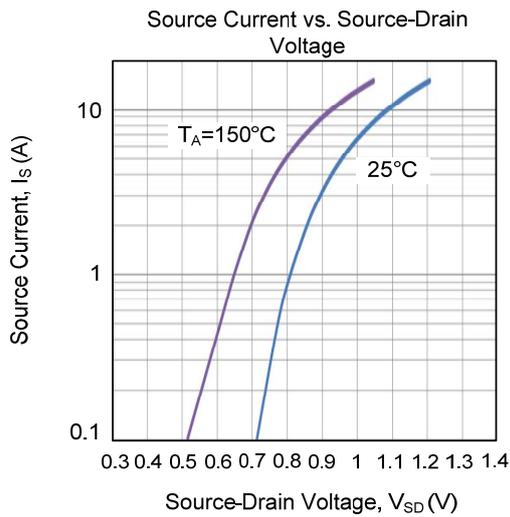
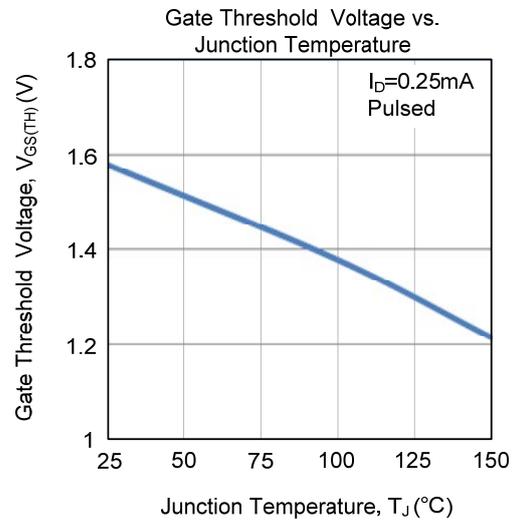
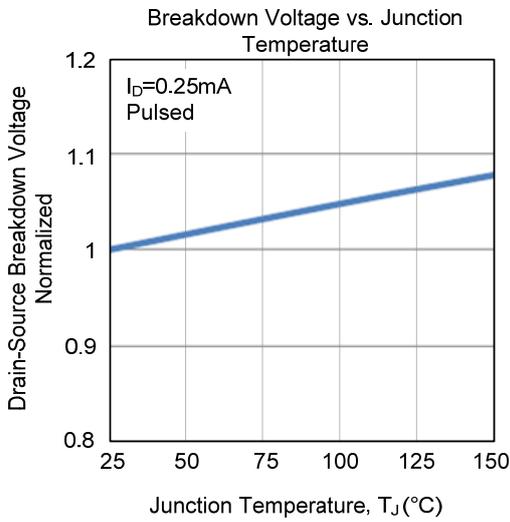
Notes: 1. Pulse Test: Pulse width ≤ 300μs, Duty cycle ≤ 2%.

2. Essentially independent of operating temperature.

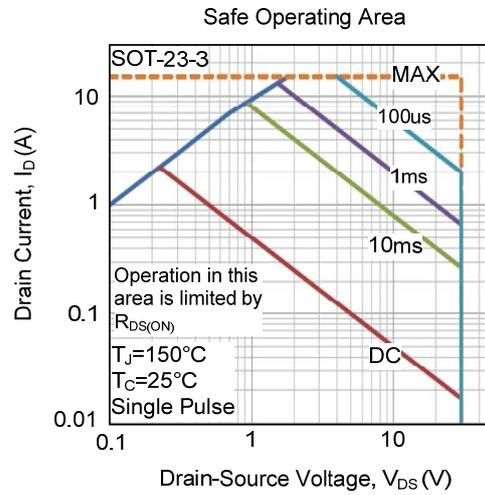
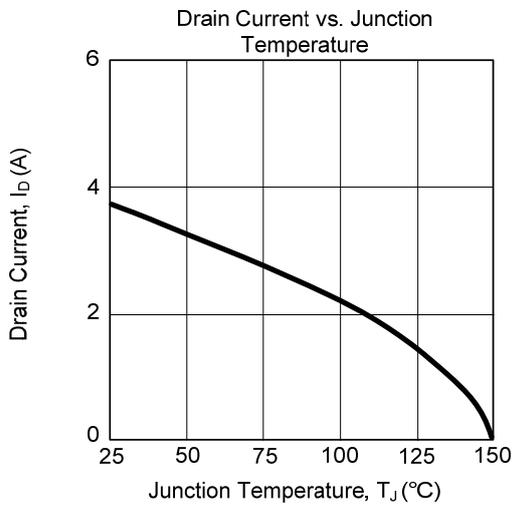
■ TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS (Cont.)



■ TYPICAL CHARACTERISTICS (Cont.)



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