



UT2306

Power MOSFET

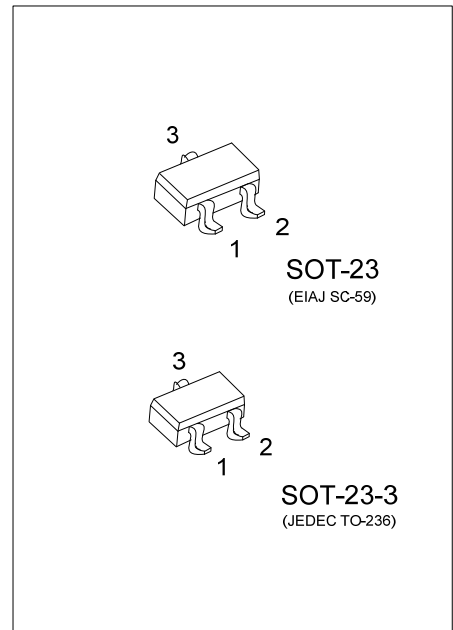
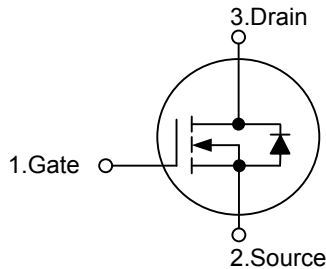
N-CHANNEL ENHANCEMENT MODE

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



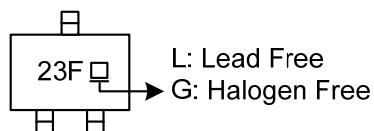
ORDERING INFORMATION

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-AE3-R</p> <ul style="list-style-type: none"> (1) Packing Type (2) Package Type (3) Green Package 	<ul style="list-style-type: none"> (1) R: Tape Reel (2) AE2: SOT-23-3, AE3: SOT-23 (3) G: Halogen Free and Lead Free, L: Lead Free
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MARKING



■ ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$, 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	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 CHARACTERISTICS

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ_{JA}	150	$^\circ\text{C/W}$

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

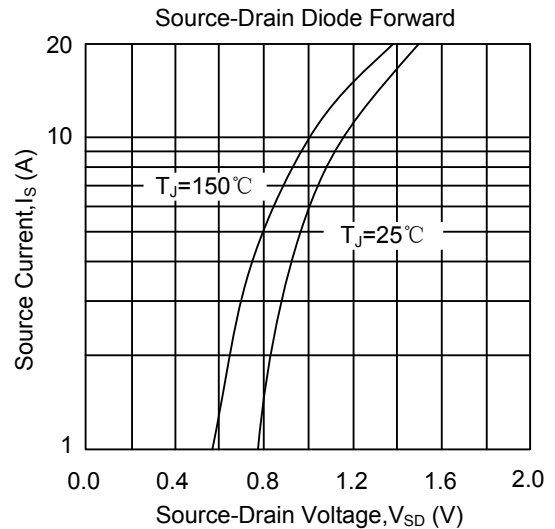
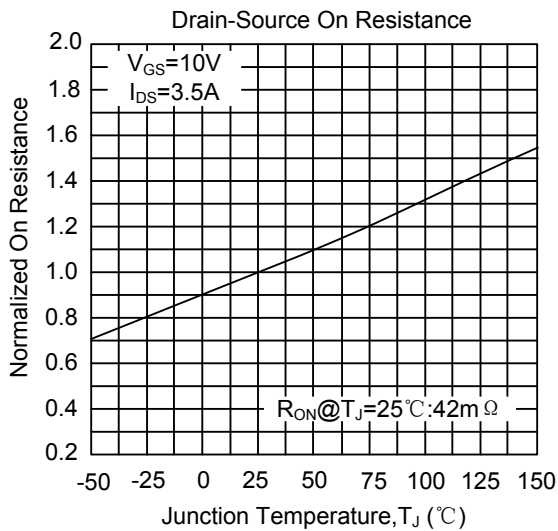
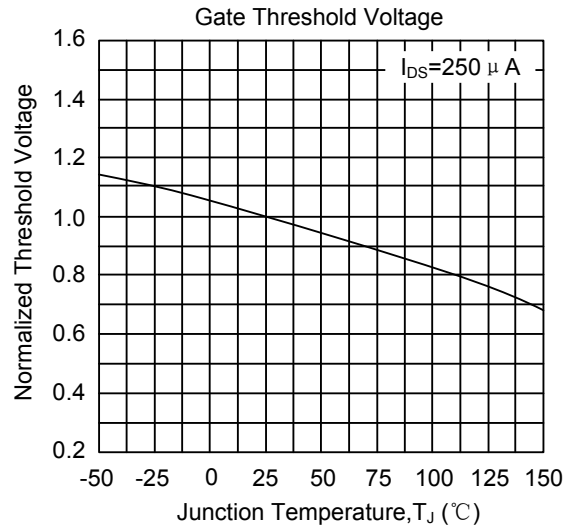
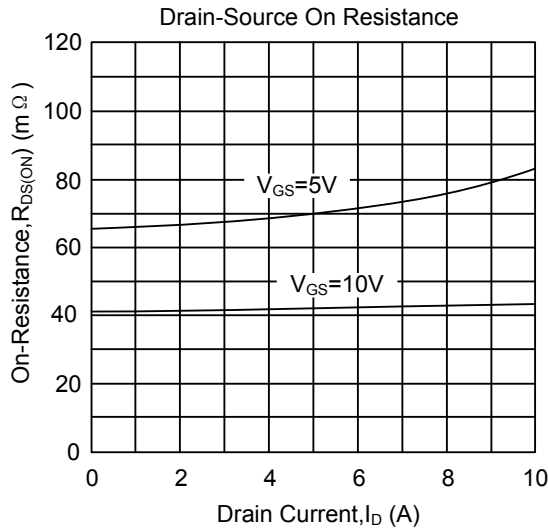
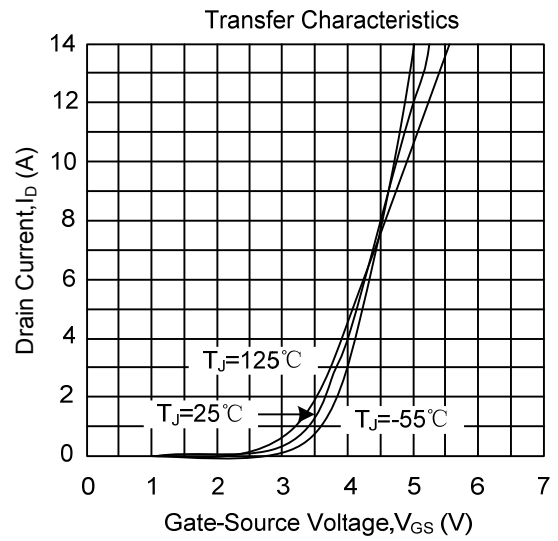
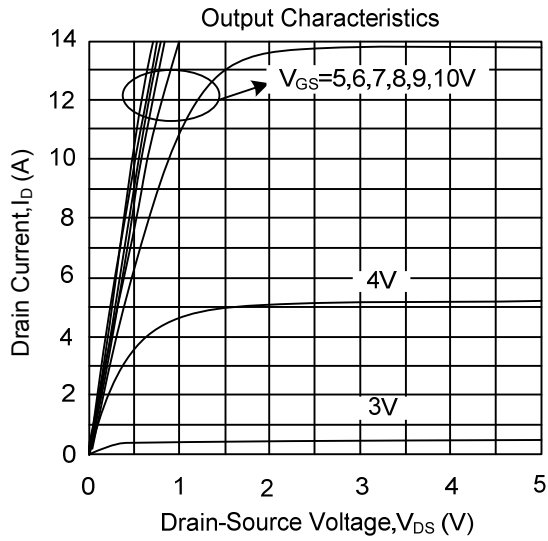
■ ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu\text{A}$	30			V
Drain-Source Leakage Current	I_{DSS}	$V_{DS}=24V, V_{GS}=0V$			1	μA
Gate-Source Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 20V$			± 100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS}=V_{GS}, I_D=250\mu\text{A}$	1	1.5	2	V
Drain-Source On-State Resistance (Note 2)	$R_{DS(ON)}$	$V_{GS}=10V, I_D=3.5A$		42	65	m Ω
		$V_{GS}=5V, I_D=2.8A$		70	90	
DYNAMIC CHARACTERISTICS						
Input Capacitance	C_{ISS}	$V_{DS}=25V, V_{GS}=0V, f=1.0\text{MHz}$		400		pF
Output Capacitance	C_{OSS}			80		pF
Reverse Transfer Capacitance	C_{RSS}			45		pF
SWITCHING CHARACTERISTICS						
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
Turn-ON Delay Time	$t_{D(ON)}$	$V_{DD}=15V, V_{GS}=10V, I_D=1A, R_G=6\Omega, R_L=15\Omega$		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
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

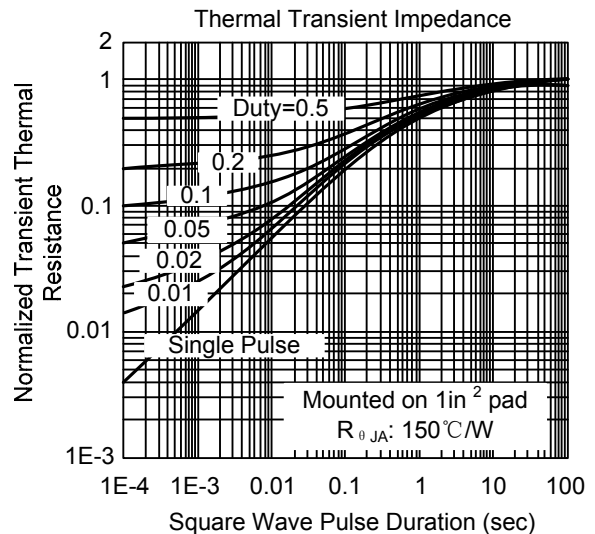
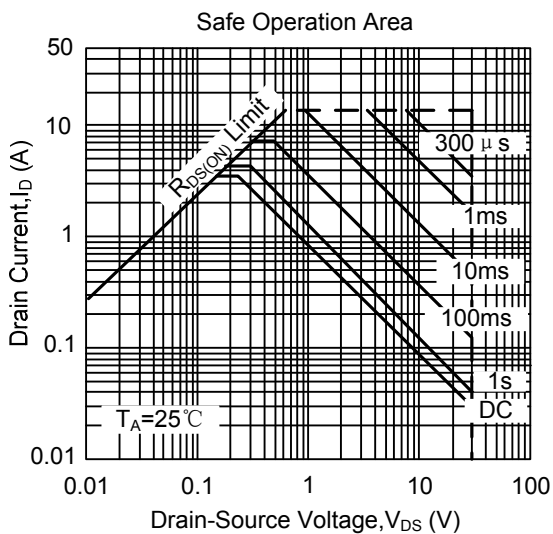
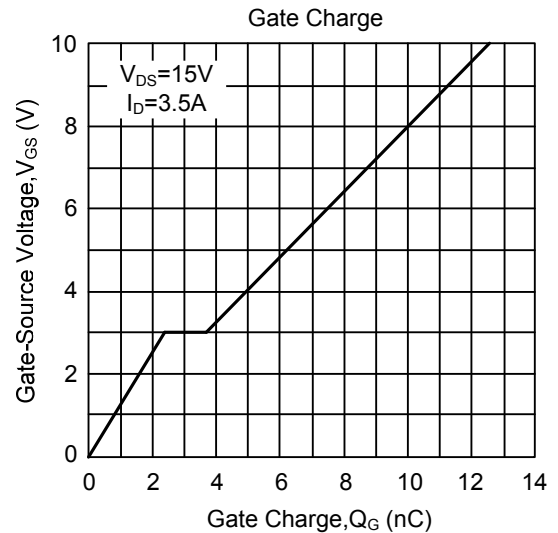
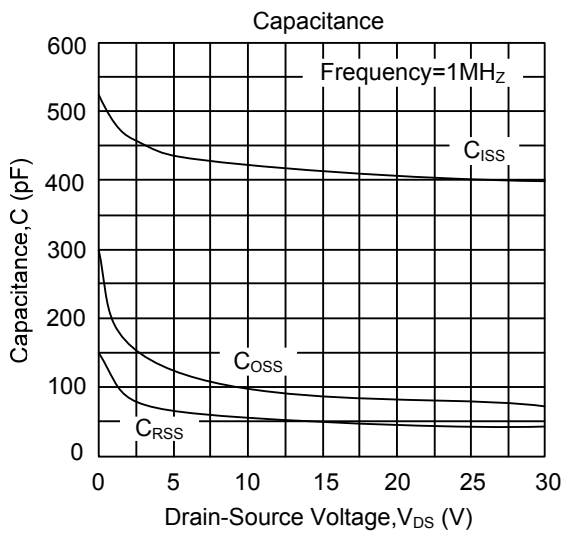
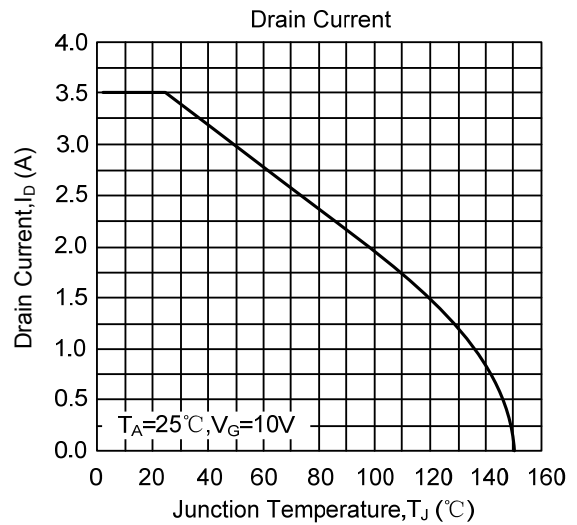
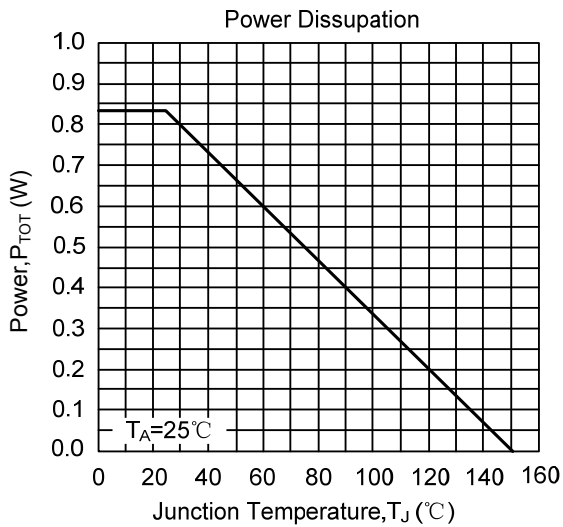
Notes: 1. Repetitive rating, pulse width limited by junction temperature.

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

TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS (Cont.)



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