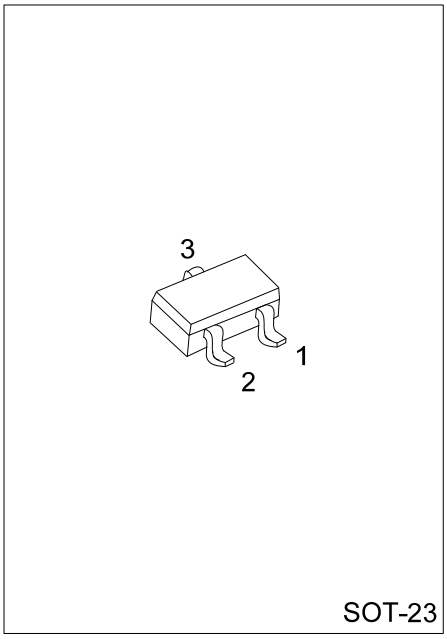
UT2306

Power MOSFET

N-CHANNEL ENHANCEMENT MODE

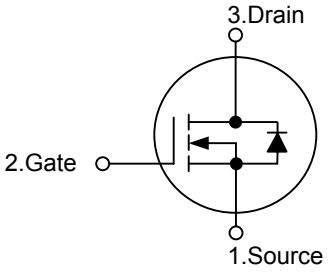


■ DESCRIPTION

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

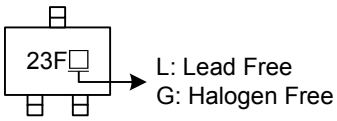


■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UT2306L-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) AE3: SOT-23
(3)Lead Plating	(3) G: Halogen Free, L: Lead Free

■ MARKING



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

PARAMETER	SYMBOL	RATINGS	UNIT
Drain-Source Voltage	V_{DSS}	30	V
Gate-Source Voltage	V_{GSS}	±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	℃
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

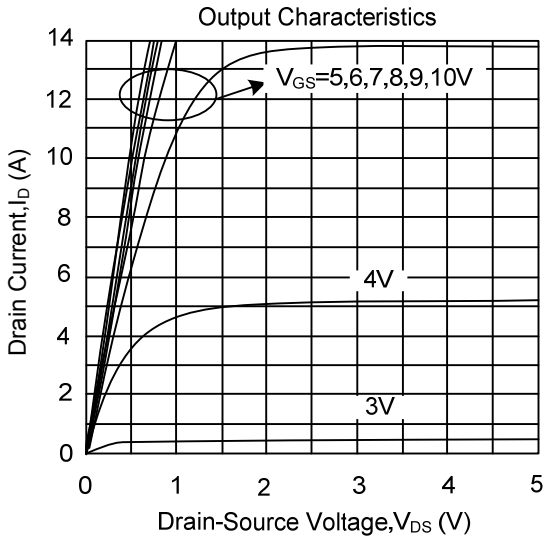
PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
Junction-to-Ambient	θ_{JA}			150	°C/W

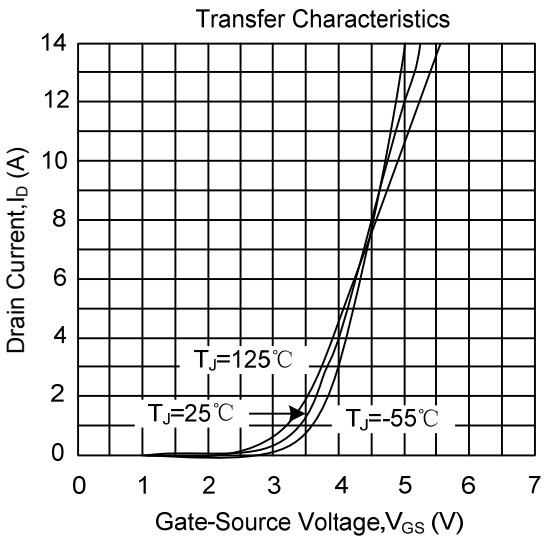
■ ELECTRICAL CHARACTERISTICS (Ta =25°C, unless otherwise specified)

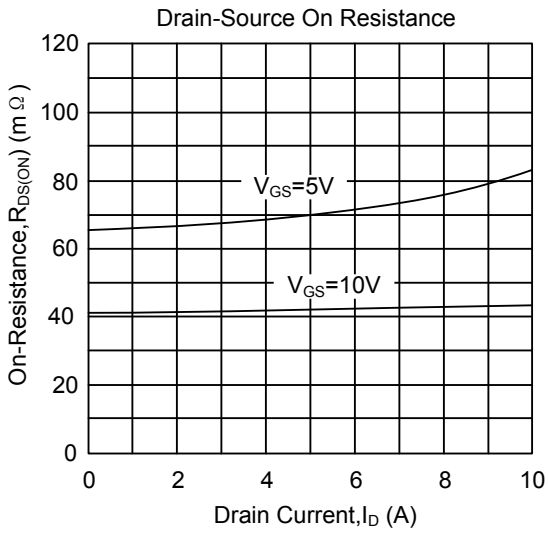
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V, I_D=250μA	30			V
Drain-Source Leakage Current	I_{DSS}	V_{DS}=24V, V_{GS}=0V			1	μA
Gate-Source Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS}=±20V			±100	nA
ON CHARACTERISTICS						
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	mΩ
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

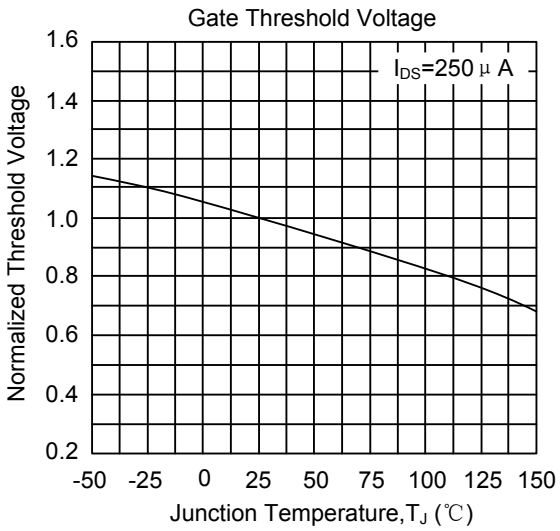
Note:1. Pulse width limited by $T_{J(MAX)}$
2. Pulse width ≤300us, duty cycle ≤2%.
3. Surface mounted on FR4 board t≦10sec.

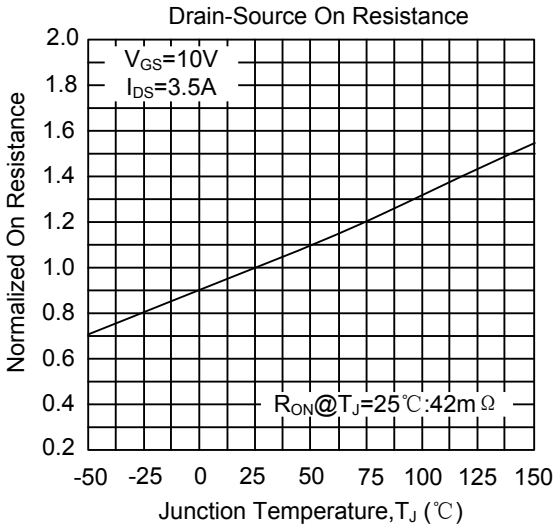
■ TYPICAL CHARACTERISTICS

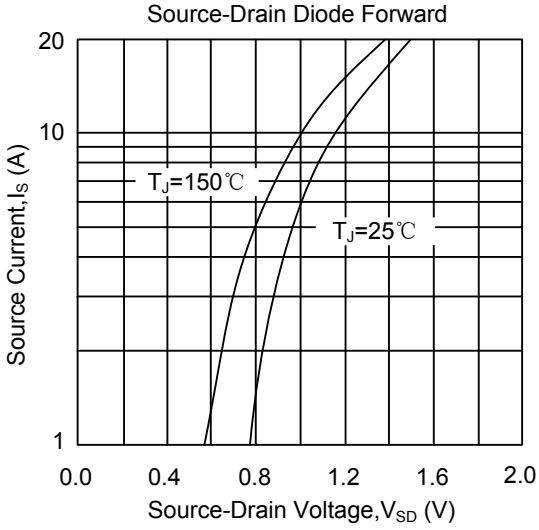












■ TYPICAL CHARACTERISTICS(Cont.)