



# UT3400

Power MOSFET

## N-CHANNEL ENHANCEMENT MODE POWER MOSFET

### DESCRIPTION

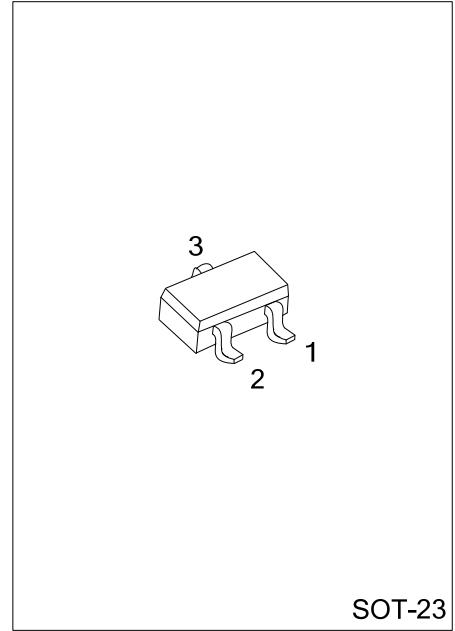
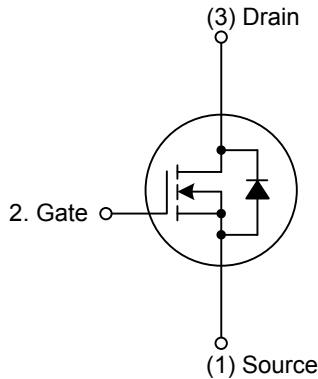
The UTC **UT3400** is an N-ch enhancement MOSFET providing the customers with perfect  $R_{DS(ON)}$  and low gate charge. This device can be operated with 2.5V low gate voltage.

The UTC **UT3400** is optimized for applications, such as a load switch or in PWM.

### FEATURES

- \*  $V_{DS}$  (V)=30V
- \*  $I_D$ =5.8 A
- \*  $R_{DS(ON)} < 28m\Omega @ V_{GS}=10V$
- $R_{DS(ON)} < 33m\Omega @ V_{GS}=4.5V$
- $R_{DS(ON)} < 52m\Omega @ V_{GS}=2.5V$
- \* Halogen Free

### SYMBOL

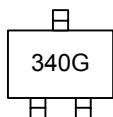


### ORDERING INFORMATION

Ordering Number	Package	Pin Assignment			Packing
		1	2	3	
UT3400G-AE3-R	SOT-23	S	G	D	Tape Reel

<p>UT3400G-AE3-R</p> <p>(1)Packing Type (2)Package Type (3)Halogen Free</p>	<p>(1) R: Tape Reel (2) AE3: SOT-23 (3) G: Halogen Free</p>
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### MARKING



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

PARAMETER	SYMBOL	RATINGS	UNIT
Drain-Source Voltage	V <sub>DS</sub>	30	V
Gate-Source Voltage	V <sub>GS</sub>	±12	V
Continuous Drain Current	I <sub>D</sub>	5.8	A
Pulsed Drain Current (Note 2)	I <sub>DM</sub>	30	A
Power Dissipation	P <sub>D</sub>	1.4	W
Junction Temperature	T <sub>J</sub>	+150	°C
Storage Temperature	T <sub>STG</sub>	-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. Pulse width limited by T<sub>J(MAX)</sub>

3. Pulse width ≤300μs, duty cycle≤0.5%.

■ THERMAL DATA

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
Junction to Ambient (Note)	θ <sub>JA</sub>		85	125	°C/W

Note: Surface mounted on 1 in<sup>2</sup> copper pad of FR4 board with 2oz

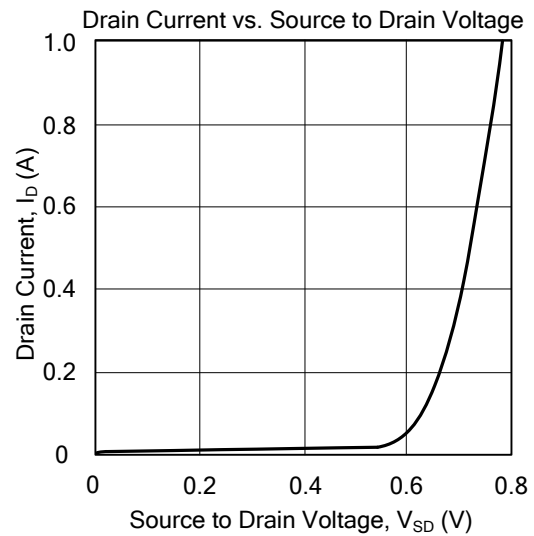
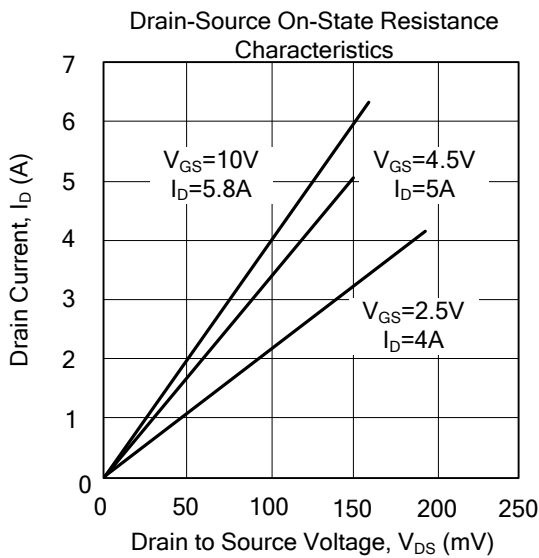
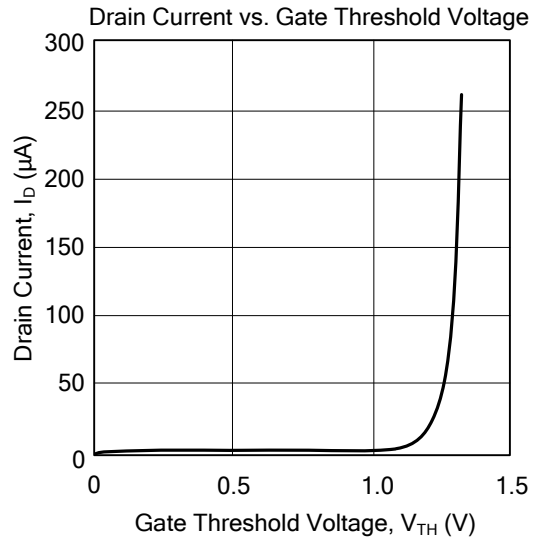
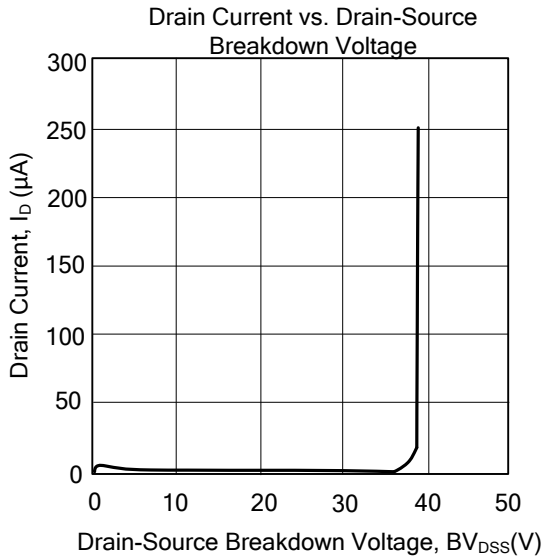
■ ELECTRICAL CHARACTERISTICS (T<sub>J</sub>=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
<b>OFF CHARACTERISTICS</b>						
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	V <sub>GS</sub> =0V, I <sub>D</sub> =250μA	30			V
Drain-Source Leakage Current	I <sub>DSS</sub>	V <sub>DS</sub> =24V, V <sub>GS</sub> =0V			1	μA
Gate-Source Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =±12V, V <sub>DS</sub> =0V			100	nA
<b>ON CHARACTERISTICS</b>						
Gate Threshold Voltage	V <sub>GS(TH)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA	0.7	1.1	1.4	V
On-State Drain Current	I <sub>D(ON)</sub>	V <sub>DS</sub> =5V, V <sub>GS</sub> =4.5V	30			A
Drain to Source On-state Resistance	R <sub>DS(ON)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =5.8A		22.8	28	mΩ
		V <sub>GS</sub> =4.5V, I <sub>D</sub> =5A		27.3	33	mΩ
		V <sub>GS</sub> =2.5V, I <sub>D</sub> =4 A		43.3	52	mΩ
<b>DYNAMIC PARAMETERS</b>						
Input Capacitance	C <sub>ISS</sub>	V <sub>DS</sub> =15V, V <sub>GS</sub> =0V, f=1MHz		823		pF
Output Capacitance	C <sub>OSS</sub>			99		pF
Reverse Transfer Capacitance	C <sub>RSS</sub>			77		pF
Gate Resistance	R <sub>G</sub>	V <sub>GS</sub> =0V, V <sub>DS</sub> =0V, f=1MHz		1.2		Ω
<b>SWITCHING PARAMETERS</b>						
Turn-ON Delay Time	t <sub>D(ON)</sub>	V <sub>GS</sub> =10V, V <sub>DS</sub> =15V R <sub>L</sub> =2.7Ω, R <sub>GEN</sub> =6Ω		5.5		ns
Turn-ON Rise Time	t <sub>R</sub>			5.1		ns
Turn-OFF Delay Time	t <sub>D(OFF)</sub>			37		ns
Turn-OFF Fall-Time	t <sub>F</sub>			4.2		ns
Total Gate Charge	Q <sub>G</sub>	V <sub>GS</sub> =4.5V, V <sub>DS</sub> =15V, I <sub>D</sub> =5.8A		9.7		nC
Gate Source Charge	Q <sub>GS</sub>			1.6		nC
Gate Drain Charge	Q <sub>GD</sub>			3.1		nC
<b>SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS</b>						
Drain-Source Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =1A, V <sub>GS</sub> =0V		0.71	1	V
Diode Continuous Forward Current ( Note 1)	I <sub>S</sub>				2.5	A
Reverse Recovery Time	t <sub>RR</sub>	I <sub>F</sub> =5A, dI/dt=100A/μs		16		ns
Reverse Recovery Charge	Q <sub>RR</sub>				8.9	

Notes: 1. Pulse width limited by T<sub>J(MAX)</sub>

2. Pulse width ≤300μs, duty cycle≤0.5%.

### TYPICAL CHARACTERISTICS



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