



## UT2301

Power MOSFET

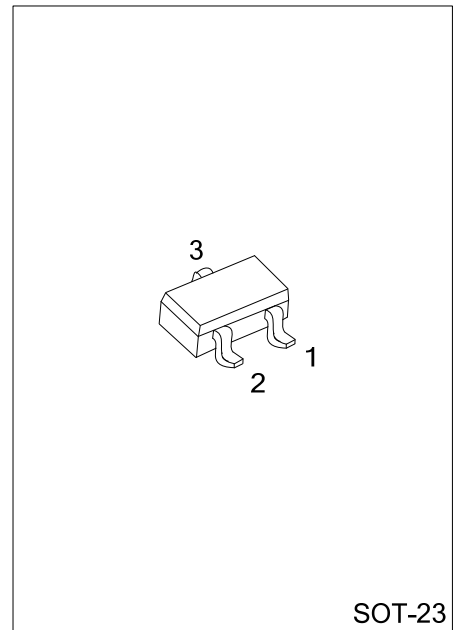
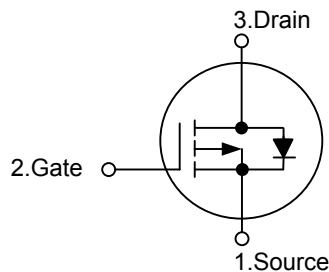
### P-CHANNEL ENHANCEMENT MODE

#### DESCRIPTION

The UTC **UT2301** is P-channel enhancement mode Power MOSFET, designed in serried ranks. With fast switching speed, low on-resistance, favorable stabilization.

Used in commercial and industrial surface mount applications and suited for low voltage applications such as DC/DC converters.

#### SYMBOL

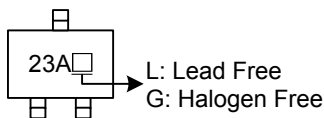


#### ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UT2301L-AE3-R	UT2301G-AE3-R	SOT-23	S	G	D	Tape Reel

<p>UT2301L-AE3-R</p>	<p>(1)Packing Type</p> <p>(2)Package Type</p> <p>(3)Lead Plating</p>	<p>(1) R: Tape Reel</p> <p>(2) AE3: SOT-23</p> <p>(3) G: Halogen Free, L: Lead Free</p>
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#### MARKING



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

PARAMETER	SYMBOL	RATING	UNITS
Drain-Source Voltage	V <sub>DSS</sub>	-20	V
Gate-Source Voltage	V <sub>GSS</sub>	±8	V
Continuous Drain Current	I <sub>D</sub>	-2.3	A
Pulsed Drain Current (Note 1, 2)	I <sub>DM</sub>	-10	A
Total Power Dissipation	P <sub>D</sub>	1.25	W
Junction Temperature	T <sub>J</sub>	+150	°C
Storage Temperature	T <sub>STG</sub>	-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

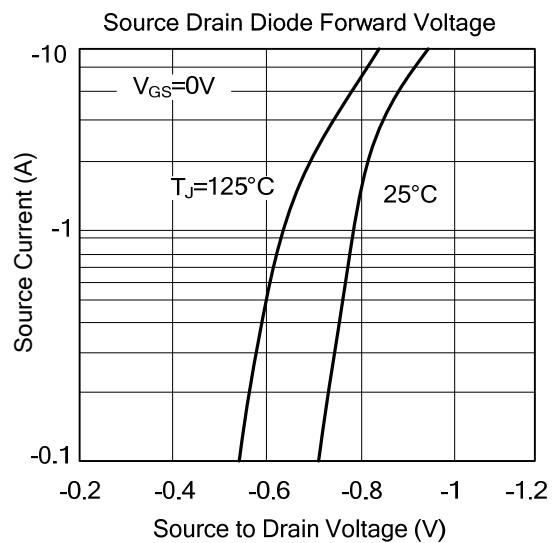
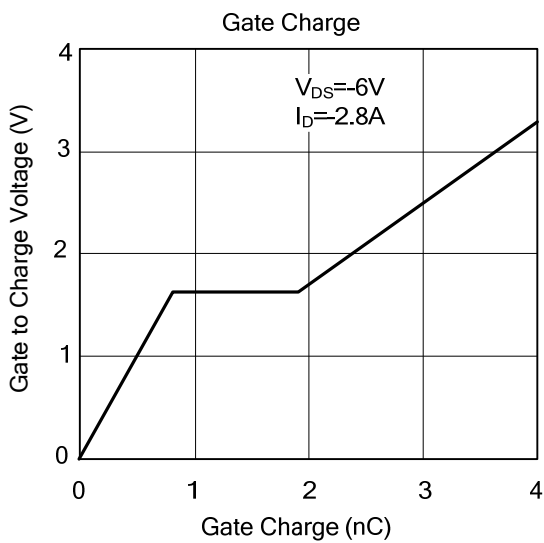
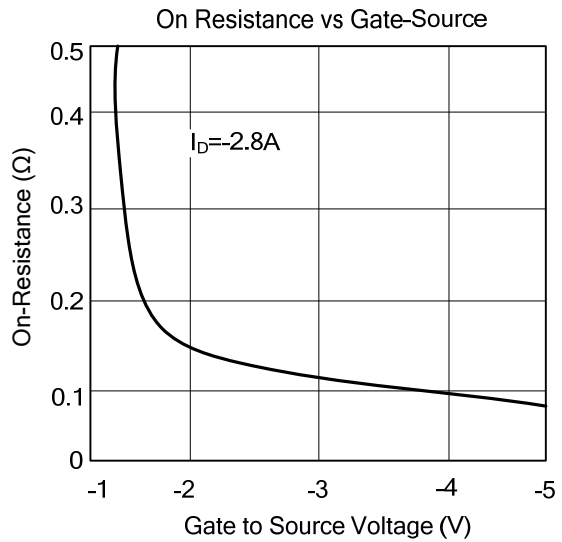
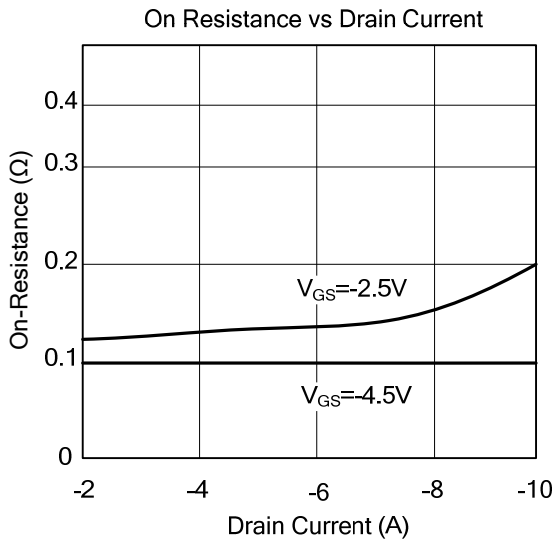
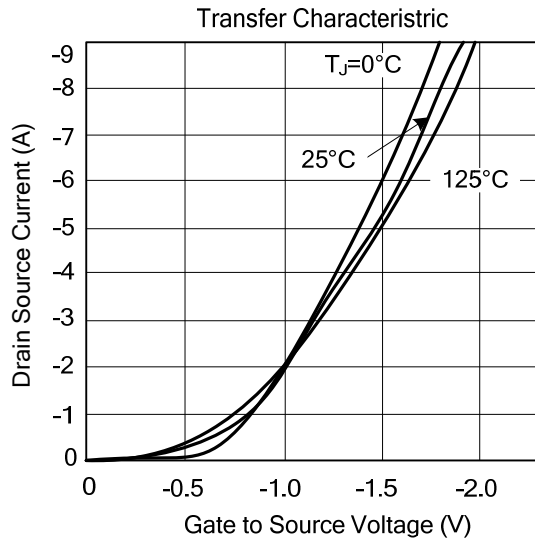
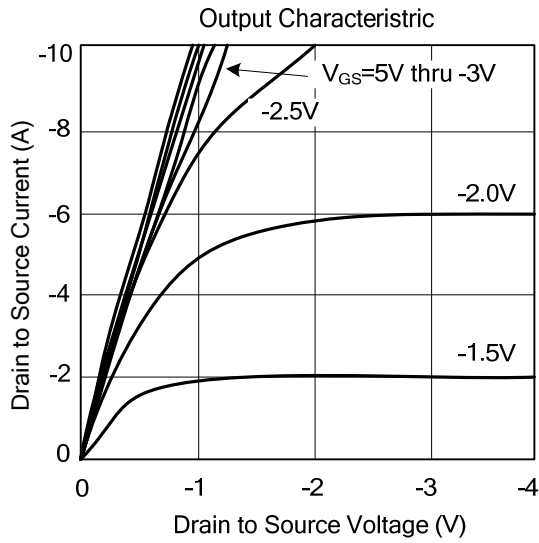
PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
Junction to Ambient (Note 3)	θ <sub>JA</sub>			100	°C/W

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

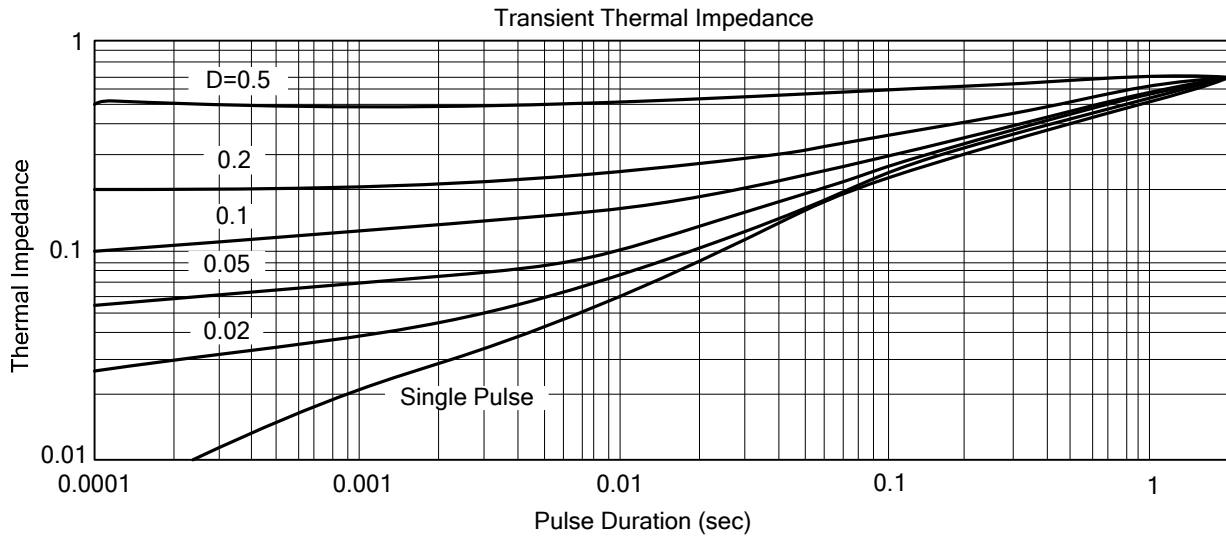
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
<b>OFF CHARACTERISTICS</b>						
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	V <sub>GS</sub> =0V, I <sub>D</sub> =-250uA	-20			V
Drain-Source Leakage Current	I <sub>DSS</sub>	V <sub>DS</sub> =-16V, V <sub>GS</sub> =0V			-1	μA
Gate-Source Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =±8V, 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> =-250uA	-0.45			V
Static Drain-Source On-State Resistance (Note 2)	R <sub>DS(ON)</sub>	V <sub>GS</sub> =-4.5V, I <sub>D</sub> =-2.8A		95	130	mΩ
		V <sub>GS</sub> =-2.5V, I <sub>D</sub> =-2.0A		122	190	mΩ
<b>DYNAMIC CHARACTERISTICS</b>						
Input Capacitance	C <sub>ISS</sub>	V <sub>GS</sub> =0V, V <sub>DS</sub> =-6V, f=1.0MHz		447		pF
Output Capacitance	C <sub>OSS</sub>			127		pF
Reverse Transfer Capacitance	C <sub>RSS</sub>			80		pF
<b>SWITCHING CHARACTERISTICS</b>						
Turn-ON Delay Time (Note 2)	t <sub>D(ON)</sub>	V <sub>DS</sub> =-6V, V <sub>GS</sub> =-4.5V, I <sub>D</sub> =-1A, R <sub>G</sub> =6Ω, R <sub>L</sub> =6Ω		5	25	ns
Turn-ON Rise Time	t <sub>R</sub>			19	60	ns
Turn-OFF Delay Time	t <sub>D(OFF)</sub>			95	110	ns
Turn-OFF Fall Time	t <sub>F</sub>			65	80	ns
Total Gate Charge (Note 2)	Q <sub>G</sub>	V <sub>DS</sub> =-6V, V <sub>GS</sub> =-4.5V, I <sub>D</sub> =-2.8A		5.4	10	nC
Gate-Source Charge	Q <sub>GS</sub>			0.8		nC
Gate-Drain Charge	Q <sub>GD</sub>			1.1		nC
<b>SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS</b>						
Drain-Source Diode Forward Voltage (Note 2)	V <sub>SD</sub>	V <sub>GS</sub> =0V, I <sub>S</sub> =-1.6A		-0.8	-1.2	V
Maximum Continuous Drain-Source Diode Forward Current	I <sub>S</sub>				-1.6	A

- Notes: 1. Pulse width limited by T<sub>J(MAX)</sub>  
 2. Pulse width ≤300μs, duty cycle ≤2%.  
 3. Surface mounted on FR4 board t ≤ 5%sec.

## TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS(Cont.)



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