



UT3401

Power MOSFET

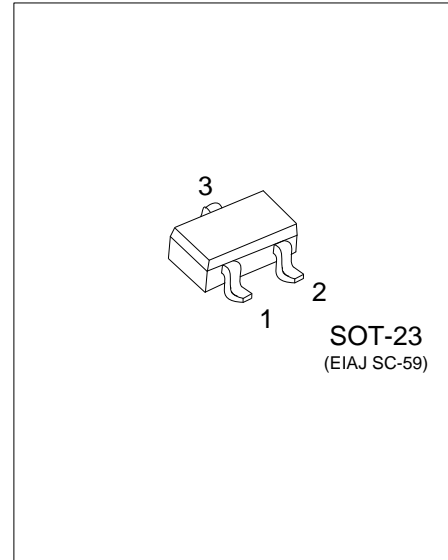
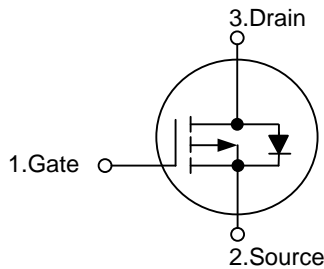
P-CHANNEL ENHANCEMENT MODE

DESCRIPTION

The UTC **UT3401** is P-channel enhancement mode Power MOSFET, designed with high density cell, with fast switching speed, low on-resistance, excellent thermal and electrical capabilities and operation with low gate voltages.

This device is suitable for use as a load switch or in PWM applications.

SYMBOL



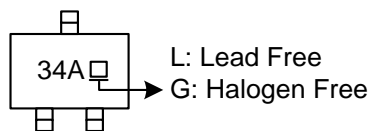
ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UT3401L-AE3-R	UT3401G-AE3-R	SOT-23	G	S	D	Tape Reel

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

	<p>(1) Packing Type</p> <p>(2) Package Type</p> <p>(3) Green Package</p>	<p>(1) R: Tape Reel</p> <p>(2) 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}	±12	V
Continuous Drain Current (Note 1)	I _D	-4.2	A
Pulsed Drain Current (Note 2)	I _{DM}	-30	A
Power Dissipation (Note 1)	P _D	1.25	W
Junction Temperature	T _J	+150	°C
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	RATINGS	UNIT
Junction-to-Ambient	θ _{JA}	100	°C/W

Notes: Surface mounted on 1 in² copper pad of FR4 board with 2oz. Copper, in a still air environment with T_A=25°C.

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

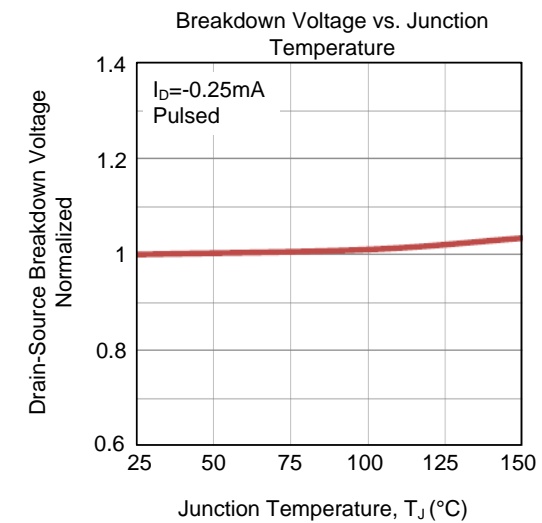
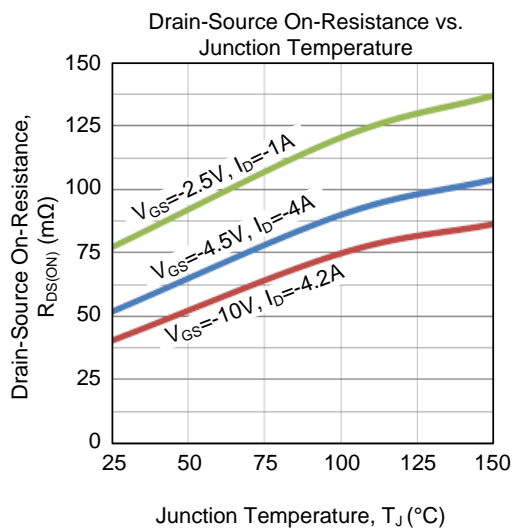
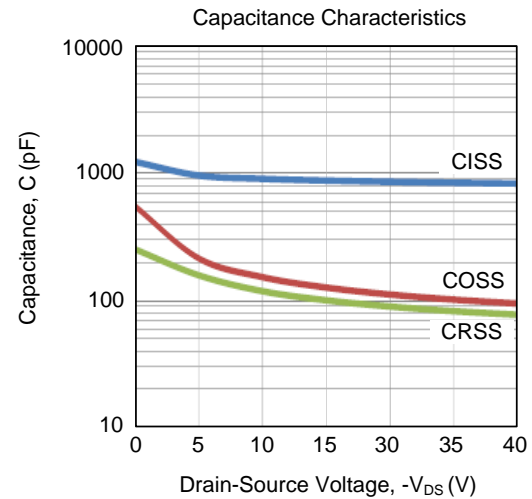
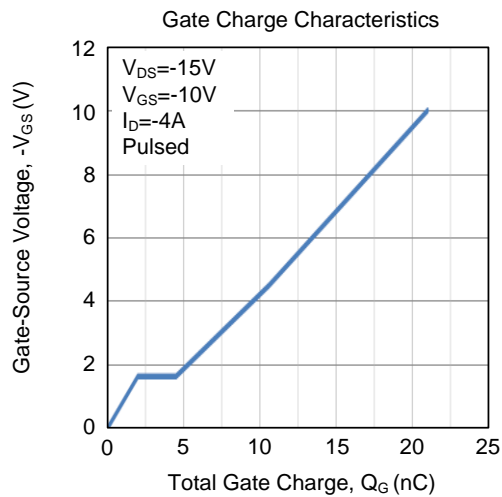
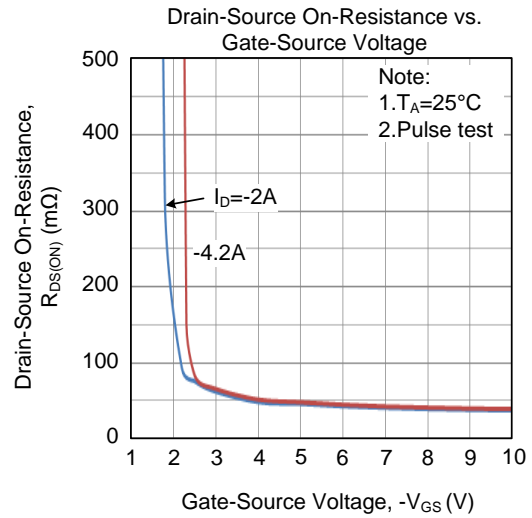
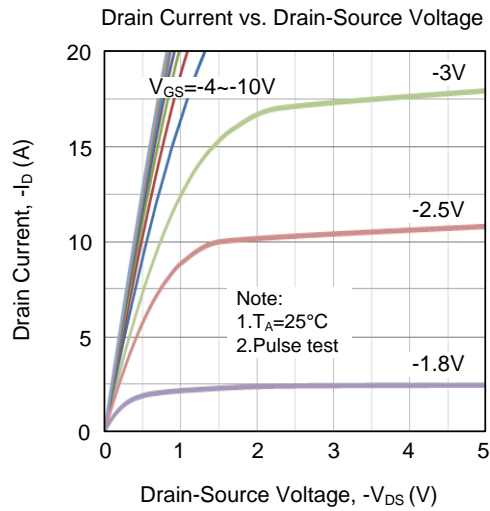
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	I _D =-250μA, V _{GS} =0V	-30			V
Drain-Source Leakage Current	I _{DSS}	V _{DS} =-24V, V _{GS} =0V			-1	μA
Gate-Source Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±12V			±100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} , I _D =-250μA	-0.7	-1	-1.3	V
Drain-Source On-State Resistance (Note 2)	R _{DS(ON)}	V _{GS} =-10V, I _D =-4.2A		42	50	mΩ
		V _{GS} =-4.5V, I _D =-4A		53	65	mΩ
		V _{GS} =-2.5V, I _D =-1A		80	120	mΩ
DYNAMIC PARAMETERS						
Input Capacitance	C _{ISS}	V _{GS} =0V, V _{DS} =-15V, f=1MHz		875		pF
Output Capacitance	C _{OSS}			125		pF
Reverse Transfer Capacitance	C _{RSS}			100		pF
SWITCHING PARAMETERS						
Total Gate Charge (Note 2)	Q _G	V _{GS} =-4.5V, V _{DS} =-15V, I _D =-4A		10.6		nC
Gate-Source Charge	Q _{GS}			2		nC
Gate-Drain Charge	Q _{GD}			2.5		nC
Turn-ON Delay Time (Note 2)	t _{D(ON)}	V _{GS} =-10V, V _{DS} =-15V R _L =3.6Ω, R _G =6Ω		1.6		ns
Turn-ON Rise Time	t _R			16		ns
Turn-OFF Delay Time	t _{D(OFF)}			38		ns
Turn-OFF Fall Time	t _F			24		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Maximum Continuous Drain-Source Diode Forward Current	I _S				-2.2	A
Drain-Source Diode Forward Voltage (Note2)	V _{SD}	V _{DS} =0V, I _S =-1A		-0.75	-1	V
Reverse Recovery Time	t _{rr}	I _F =-4A, dI/dt=100A/μs		20.2		ns
Reverse Recovery Charge	Q _{rr}				11.2	

Notes: 1. Repetitive Rating : Pulse width limited by maximum junction temperature.

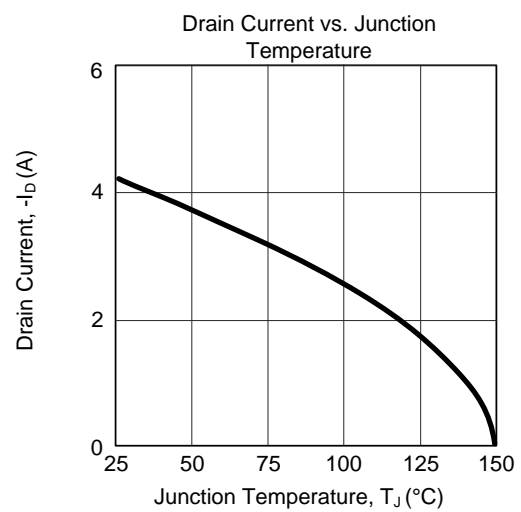
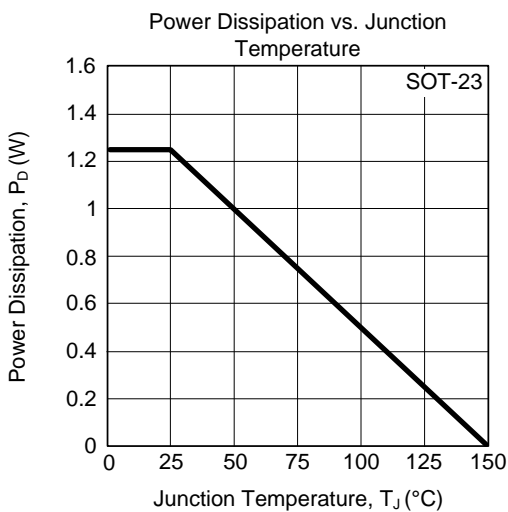
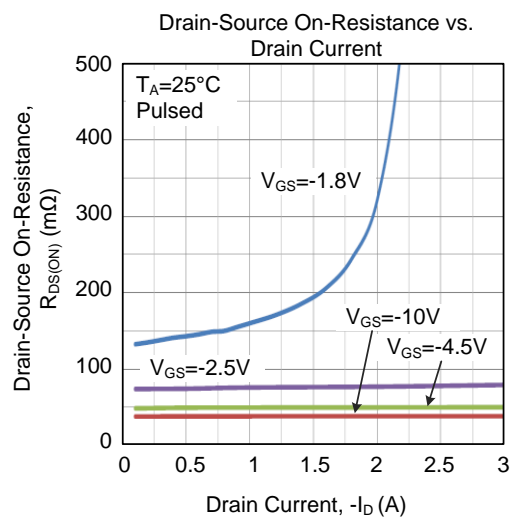
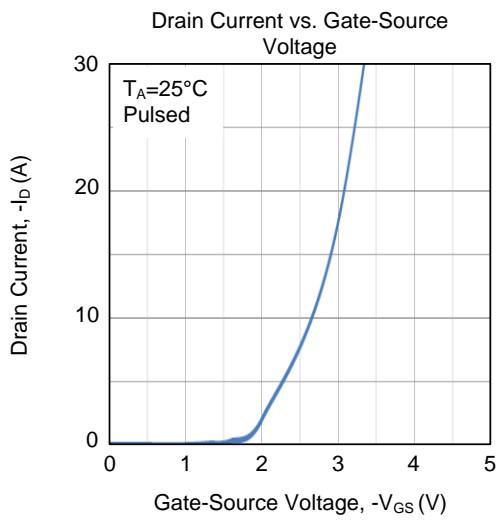
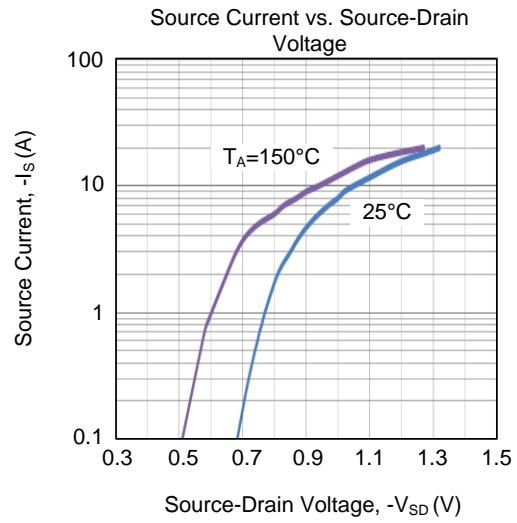
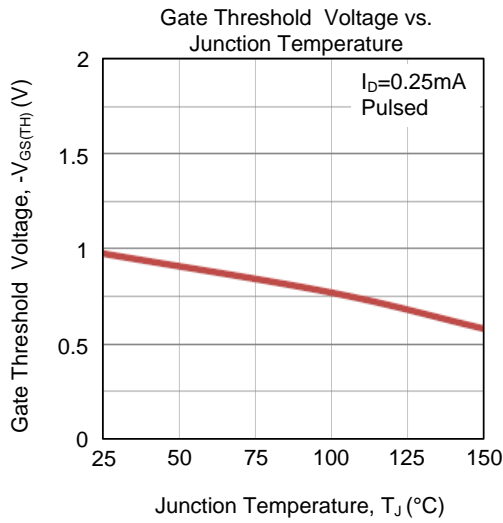
2. Pulse width ≤300μs, duty cycle ≤2%.

3. Surface mounted on 1 in² copper pad of FR4 board with 2oz. Copper, in a still air environment with T_A=25°C.

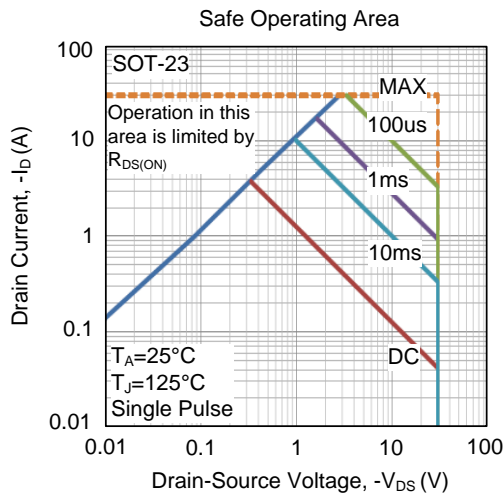
TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS (Cont.)



■ **TYPICAL CHARACTERISTICS (Cont.)**



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