



UT3401

Power MOSFET

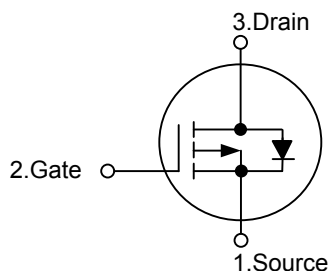
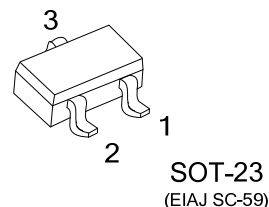
P-CHANNEL ENHANCEMENT MODE

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



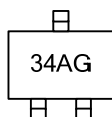
ORDERING INFORMATION

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

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

UT3401G-AE3-R	(1)Packing Type (2)Package Type (3)Green Package	(1) R: Tape Reel (2) AE3: SOT-23 (3) G: Halogen Free and 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_{DS}	-30	V
Gate-Source Voltage	V_{GS}	± 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	1.4	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 DATA

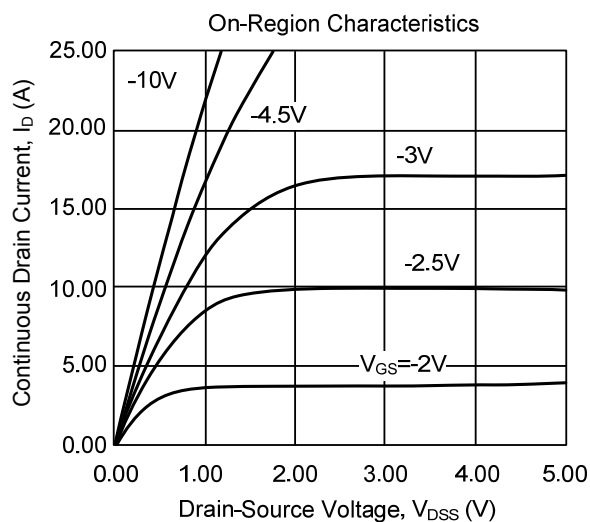
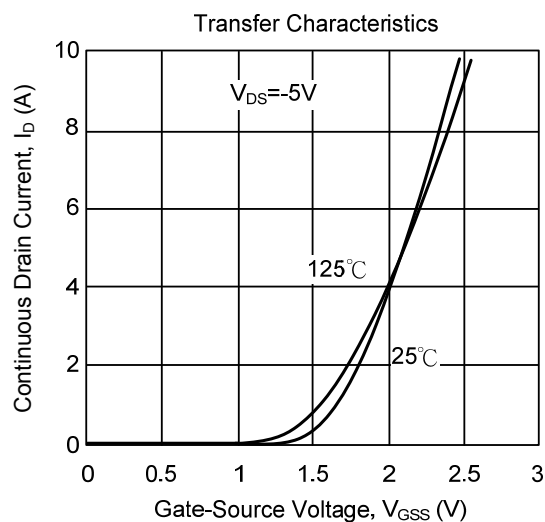
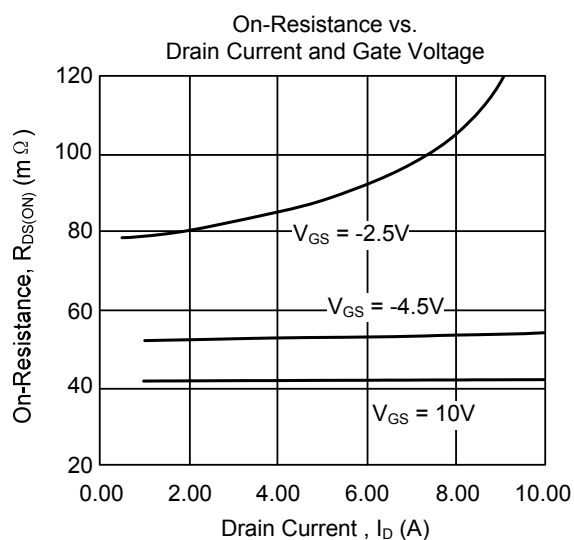
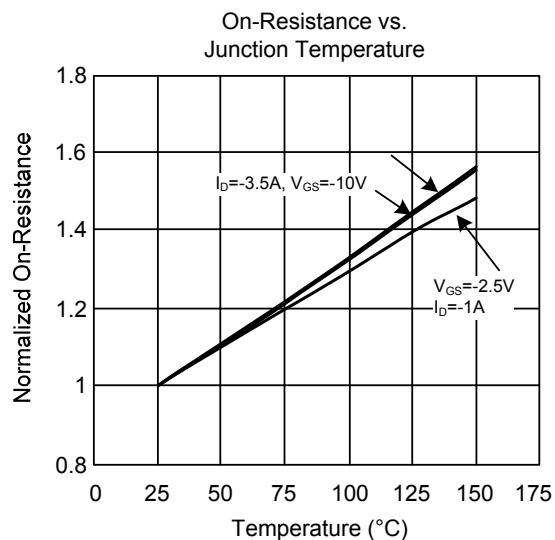
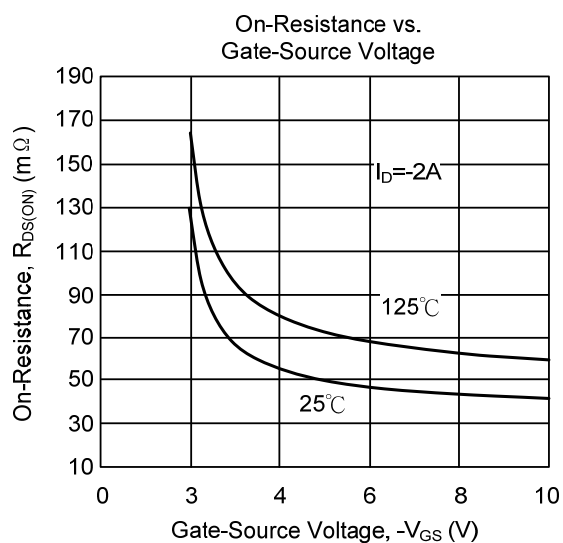
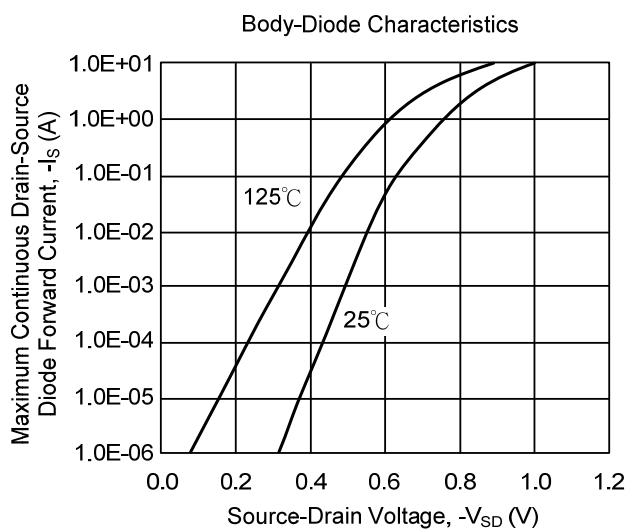
PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
Junction-to-Ambient	θ_{JA}		65	90	$^{\circ}\text{C}/\text{W}$

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

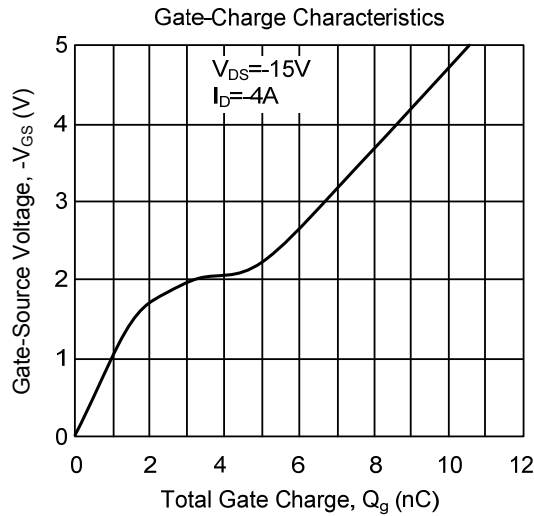
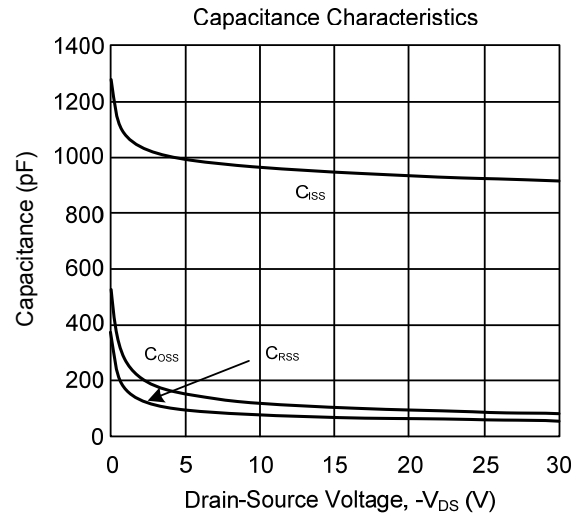
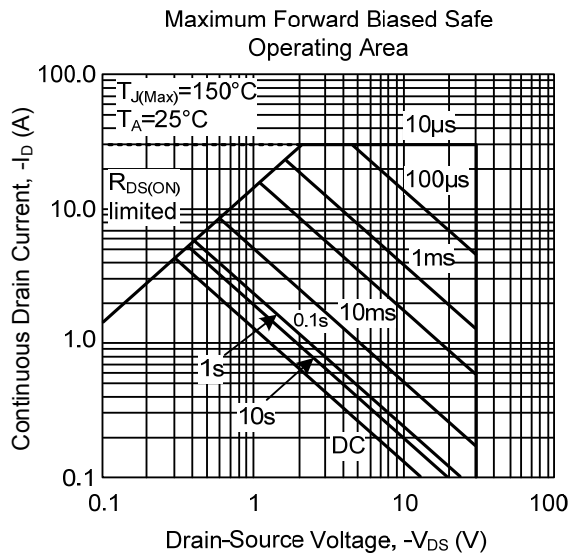
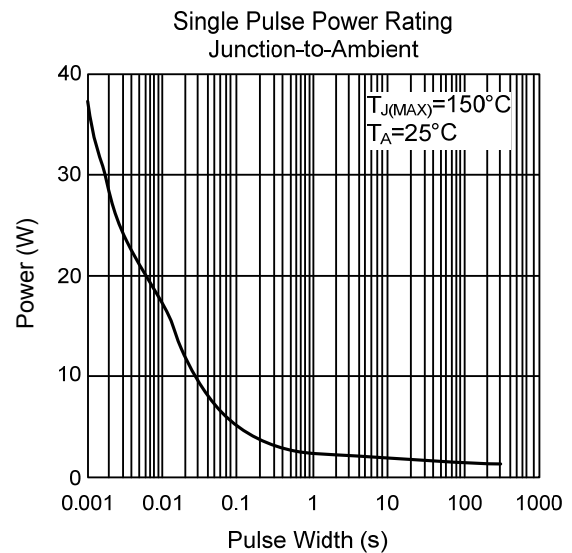
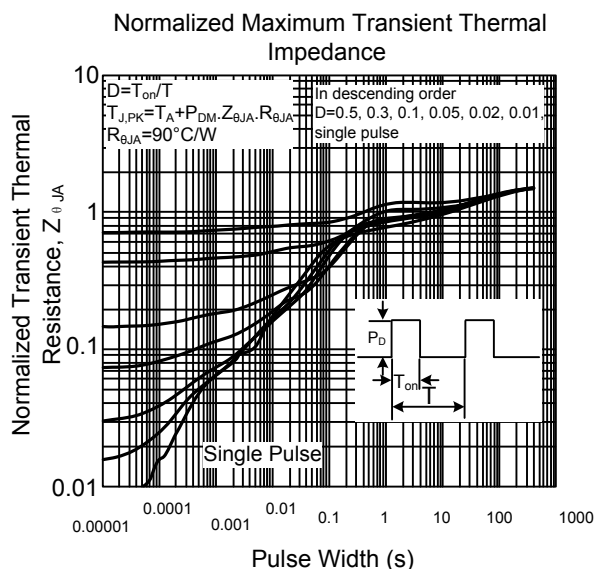
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	I _D =-250μA, V _{GS} =0V	-30			V
Drain-Source Leakage Current	I _{DSS}	V _{DS} =-24V, V _{GS} =0V			-1	μA
Gate-Source Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±12V			±100	nA
ON 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		954		pF
Output Capacitance	C _{OSS}			115		pF
Reverse Transfer Capacitance	C _{RSS}			77		pF
SWITCHING PARAMETERS						
Turn-ON Delay Time (Note 2)	t _{D(ON)}	V _{GS} =-10V, V _{DS} =-15V R _L =3.6Ω, R _G =6Ω		6.3		ns
Turn-ON Rise Time	t _R			3.2		ns
Turn-OFF Delay Time	t _{D(OFF)}			38.2		ns
Turn-OFF Fall Time	t _F	V _{GS} =-4.5V, V _{DS} =-15V, I _D =-4A		12		ns
Total Gate Charge (Note 2)	Q _G			9.4		nC
Gate-Source Charge	Q _{GS}			2		nC
Gate-Drain Charge	Q _{GD}			3		nC
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Drain-Source Diode Forward Voltage(Note2)	V _{SD}	V _{DS} =0V, I _S =-1A		-0.75	-1	V
Maximum Continuous Drain-Source Diode Forward Current	I _S				-2.2	A
Reverse Recovery Time	t _{RR}	I _F =-4A, dI/dt=100A/μs		20.2		ns
Reverse Recovery Charge	Q _{RR}			11.2		nC

Notes: 1. Pulse width limited by $T_{J(MAX)}$
2. Pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$
3. Surface mounted on 1 in² copper pad of FR4 board

TYPICAL CHARACTERISTICS



TYPICAL CHARACTERISTICS(Cont.)



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