



UT3401Z

Power MOSFET

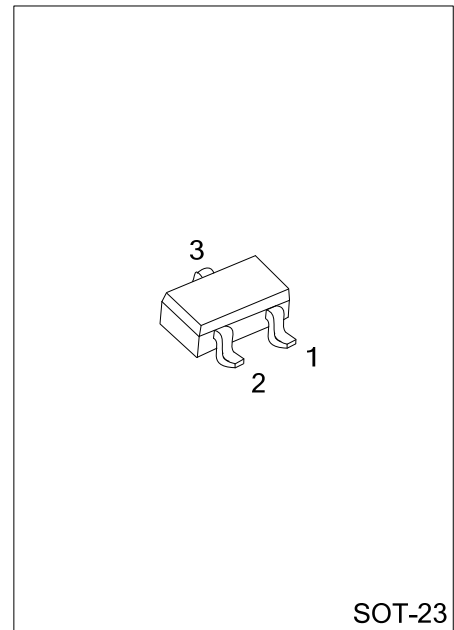
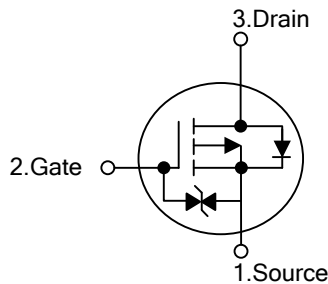
P-CHANNEL ENHANCEMENT MODE

■ DESCRIPTION

The UTC **UT3401Z** 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

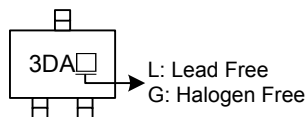


■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UT3401ZL-AE3-R	UT3401ZG-AE3-R	SOT-23	S	G	D	Tape Reel

<p>UT3401ZL-AE3-R</p> <p>(1) Packing Type (2) Package Type (3) Lead Plating</p>	<p>(1) R: Tape Reel (2) AE3: SOT-23 (3) G: Halogen Free, L: Lead Free</p>
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■ MARKING



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

PARAMETER	SYMBOL	RATINGS	UNITS
Drain-Source Voltage	V _{DSS}	-30	V
Gate-Source Voltage	V _{GSS}	±12	V
Drain Current	Continuous (Note2)	I _D	-4.2
	Pulsed (Note3)	I _{DM}	-30
Power Dissipation (Note 2)	P _D	1.4	W
ESD(HBM)		±100	V
Junction Temperature	T _J	+150	°C
Storage Temperature	T _{STG}	-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_{J(MAX)}

3. Pulse width ≤300μs, duty cycle ≤2%

■ THERMAL DATA

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
Junction to Ambient	θ _{JA}		65	90	°C/W

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

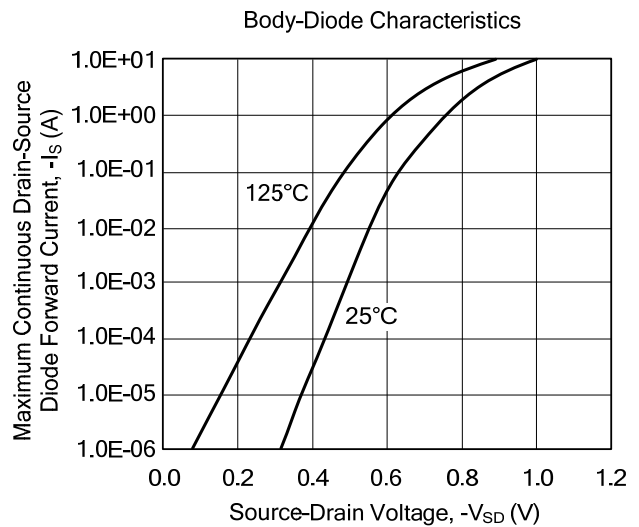
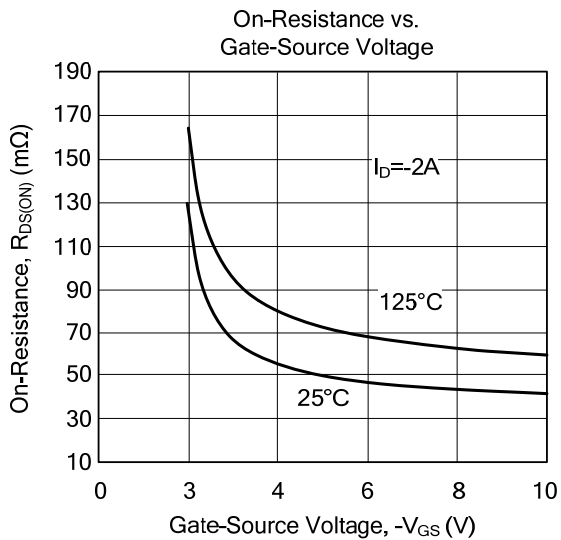
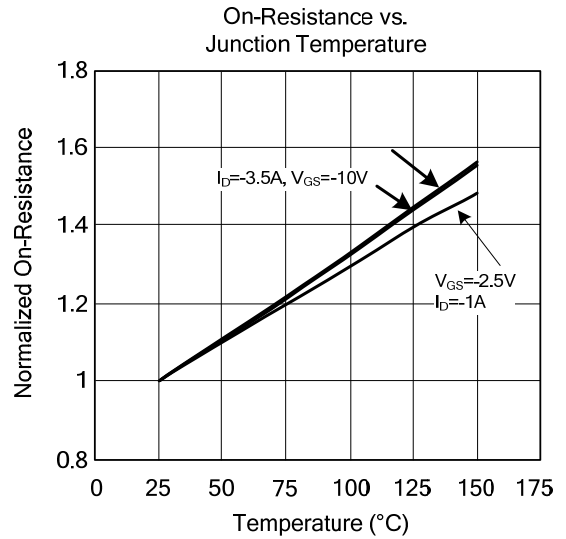
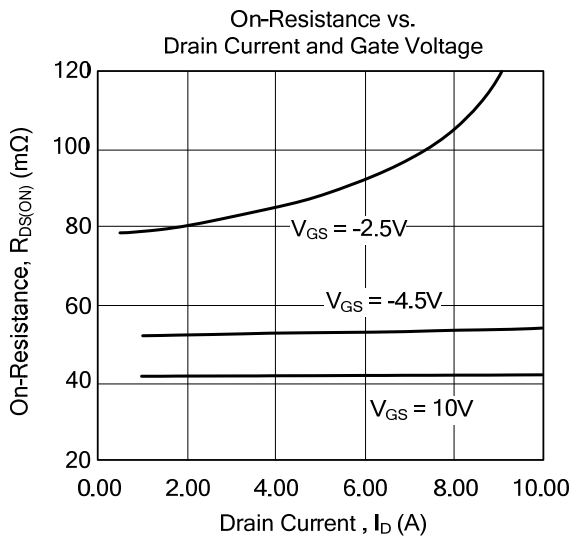
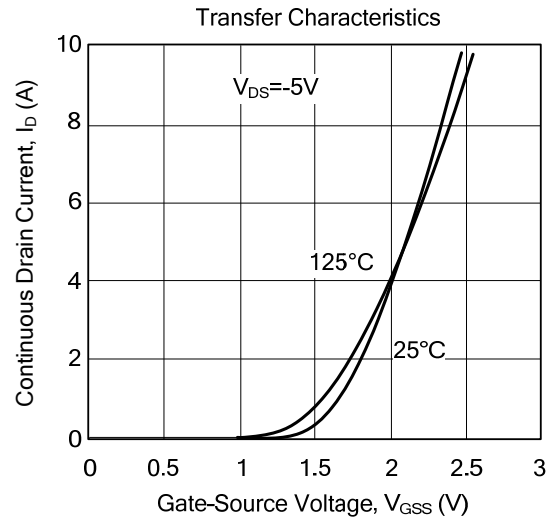
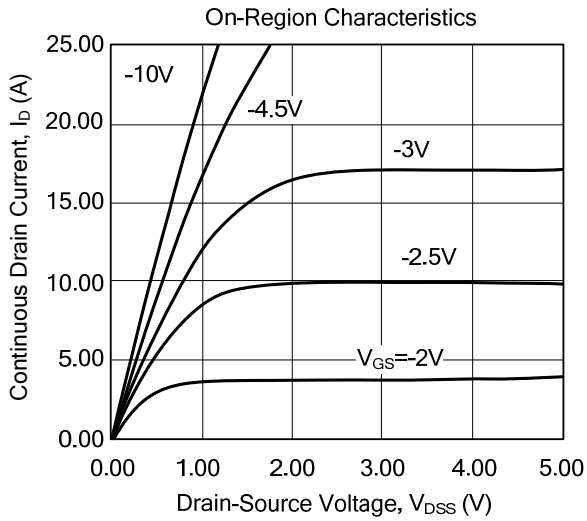
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	I _D =-250μA, V _{GS} =0V	-30			V
Drain-Source Leakage Current	I _{DSS}	V _{DS} =-24V, V _{GS} =0V			-1	μA
Gate-Source Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±12V			±5	μA
ON CHARACTERISTICS						
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			12		ns
Total Gate Charge (Note 2)	Q _G	V _{GS} =-4.5V, V _{DS} =-15V, I _D =-4A		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	

Notes: 1. Pulse width limited by T_{J(MAX)}

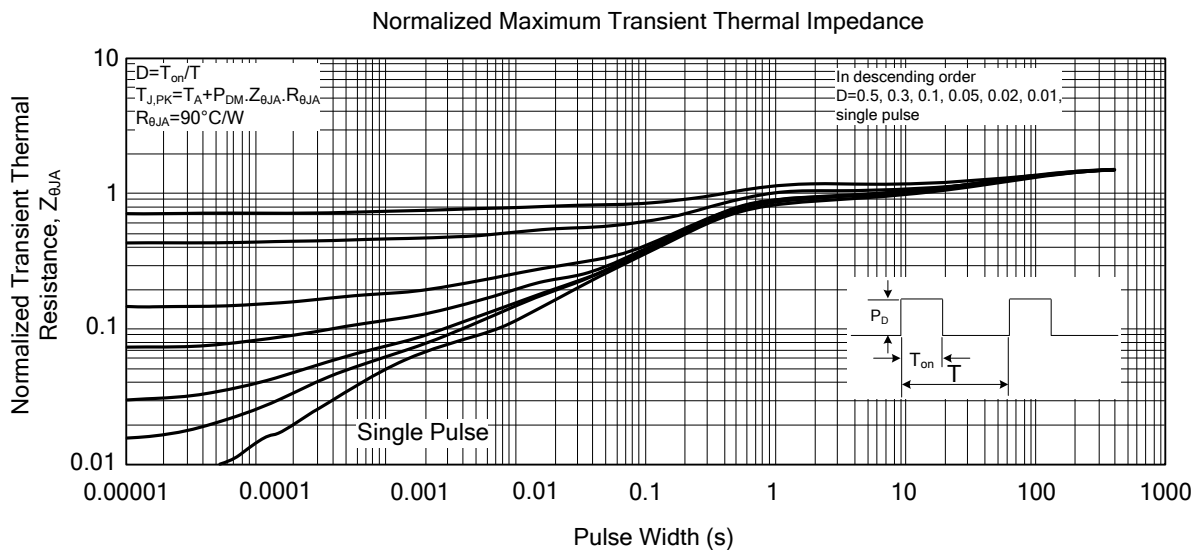
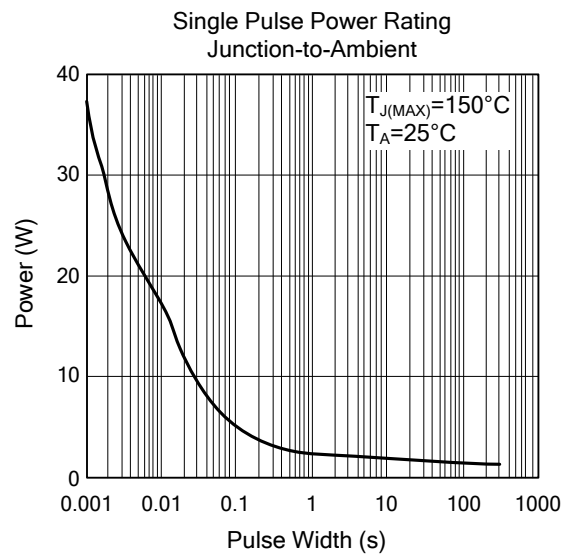
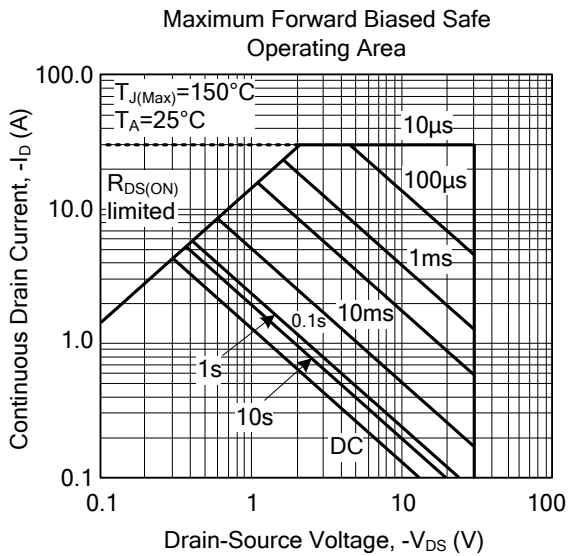
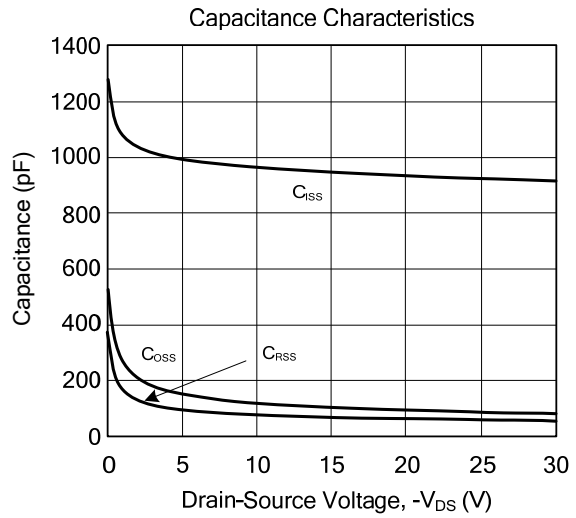
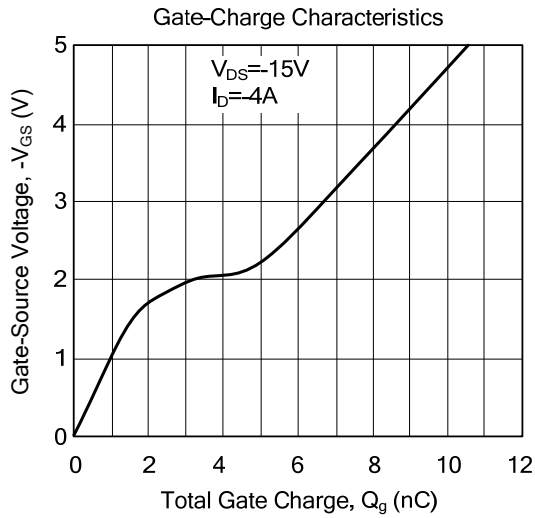
2. Pulse width ≤300μs, duty cycle ≤2%

3. Surface mounted on 1 in² copper pad of FR4 board

TYPICAL CHARACTERISTICS



TYPICAL CHARACTERISTICS(Cont.)



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