



UT3409

Power MOSFET

P-CHANNEL ENHANCEMENT MODE FIELD EFFECT TRANSISTOR

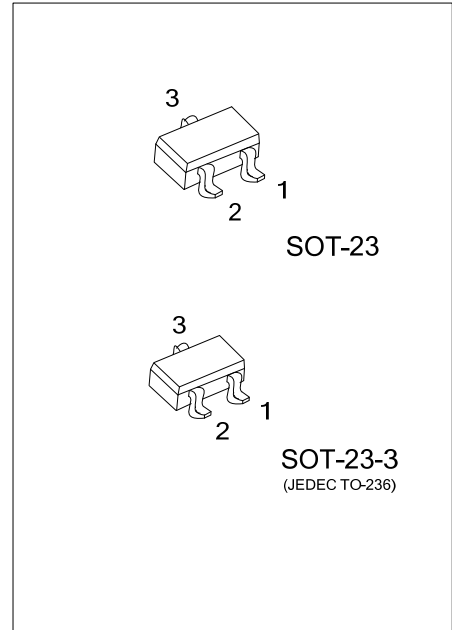
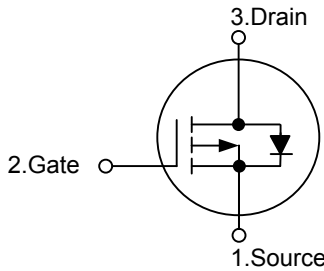
■ DESCRIPTION

The UTC **UT3409** uses advanced trench technology to provide excellent $R_{DS(ON)}$ and low gate charge. This device is suitable for use as a load switch or in PWM applications.

■ FEATURES

- * $R_{DS(ON)} < 130m\Omega @ V_{GS} = -10V$
- * $R_{DS(ON)} < 200m\Omega @ V_{GS} = -4.5V$
- * Low capacitance
- * Low gate charge
- * Fast switching capability
- * Avalanche energy specified

■ SYMBOL

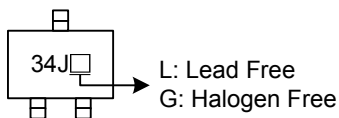


■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UT3409L-AE2-R	UT3409G-AE2-R	SOT-23-3	S	G	D	Tape Reel
UT3409L-AE3-R	UT3409G-AE3-R	SOT-23	S	G	D	Tape Reel

<p>UT3409L-AE3-R</p>	<p>(1) Packing Type</p> <p>(2) Package Type</p> <p>(3) Lead Free</p>	<p>(1) R: Tape Reel</p> <p>(2) AE2: SOT-23-3, AE3: SOT-23</p> <p>(3) G: Halogen Free, L: Lead Free</p>
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■ MARKING



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

PARAMETER	SYMBOL	RATINGS	UNIT
Drain-Source Voltage	V _{DSS}	-30	V
Gate-Source Voltage	V _{GSS}	±20	V
Continuous Drain Current (Note 3)	I _D	-2.6	A
Pulsed Drain Current (Note 2)	I _{DM}	-20	A
Power Dissipation	P _D	1.4	W
Junction Temperature	T _J	150	°C
Storage Temperature	T _{STG}	-55 ~ +150	°C

Note: 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. Surface mounted on 1 in² copper pad of FR4 board

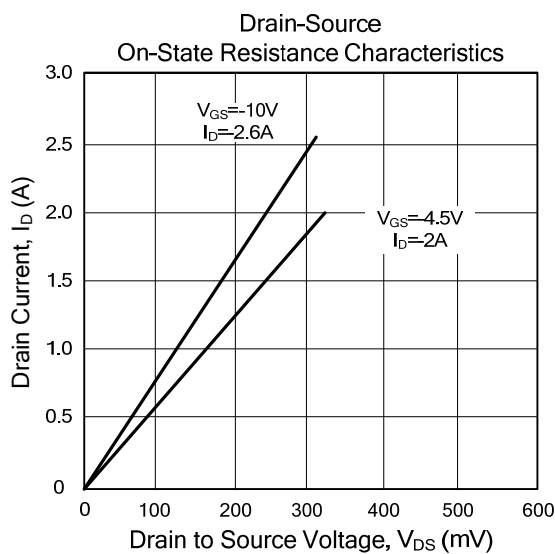
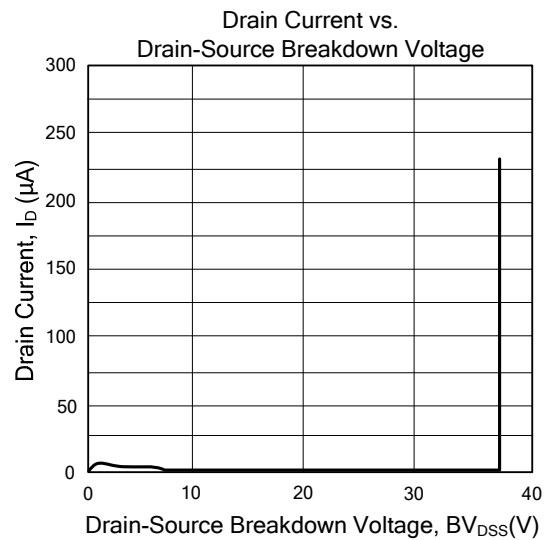
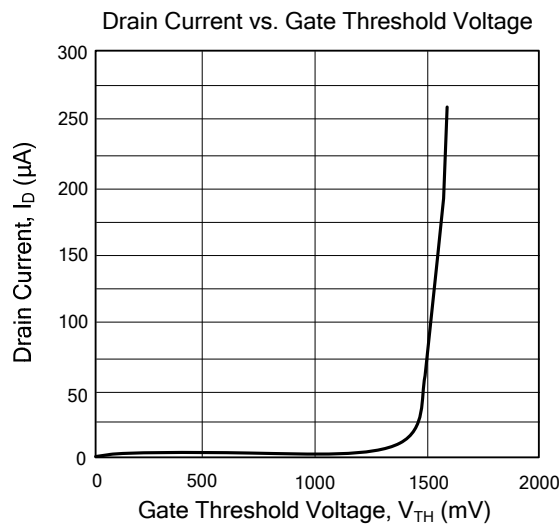
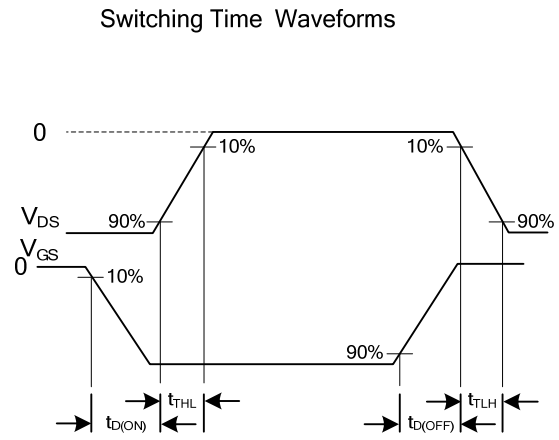
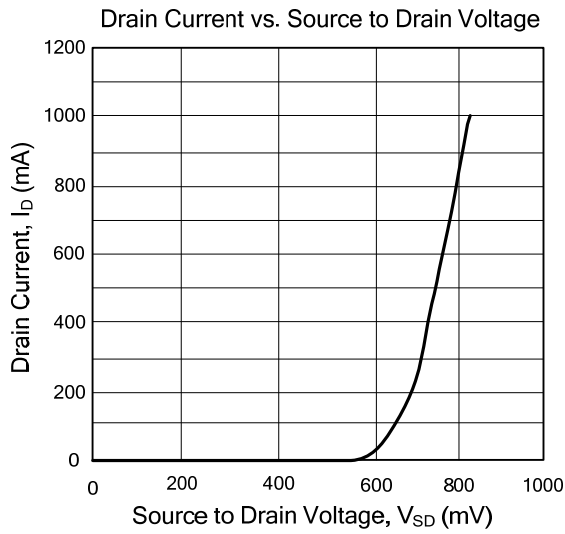
■ THERMAL DATA

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
Junction to Ambient (Note 3)	θ _{JA}			90	°C/W

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
STATIC PARAMETERS						
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} =±20V			±100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} , I _D =-250μA	-1	-1.9	-3	V
On state drain current	I _{D(ON)}	V _{GS} =-4.5V, V _{DS} =-5V	-5			A
Static Drain-Source On-Resistance	R _{DS(ON)}	V _{GS} =-10V, I _D =-2.6A		97	130	mΩ
		V _{GS} =-4.5V, I _D =-2A		166	200	mΩ
DYNAMIC PARAMETERS						
Input Capacitance	C _{ISS}	V _{GS} =0V, V _{DS} =-15V, f=1MHz		302	370	pF
Output Capacitance	C _{OSS}			50.3		pF
Reverse Transfer Capacitance	C _{RSS}			37.8		pF
SWITCHING PARAMETERS						
Total Gate Charge	10V	Q _G	V _{GS} =-10V, V _{DS} =-15V, I _D =-2.6A	6.8	9	nC
	4.5V			2.4		nC
Gate Source Charge	Q _{GS}	1.6			nC	
Gate Drain Charge	Q _{GD}	0.95			nC	
Turn-ON Delay Time	t _{D(ON)}	7.5			ns	
Turn-ON Rise Time	t _R	3.2			ns	
Turn-OFF Delay Time	t _{D(OFF)}	17		ns		
Turn-OFF Fall-Time	t _F	6.8		ns		
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Diode Forward Voltage	V _{SD}	I _S =-1A, V _{GS} =0V		-0.82	-1	V
Maximum Body-Diode Continuous Current	I _S				-2	A
Body Diode Reverse Recovery Time	t _{RR}	I _F =-2.6A, dI/dt=100A/μs		16.8	22	ns
Body Diode Reverse Recovery Charge	Q _{RR}	I _F =-2.6A, dI/dt=100A/μs		10		nC

TYPICAL CHARACTERISTICS



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