

UNISONIC TECHNOLOGIES CO., LTD

UT3401 Power MOSFET

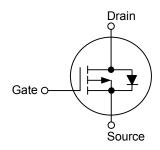
P-CHANNEL ENHANCEMENT MODE POWER MOSFET

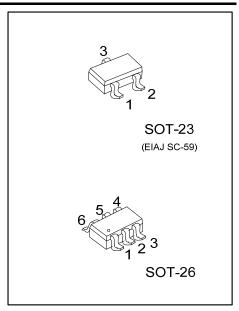
■ DESCRIPTION

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

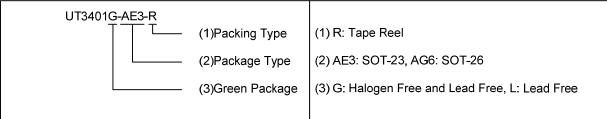




■ ORDERING INFORMATION

Ordering Number		Deelsese	Pin Assignment					Dealing		
Lead Free	Halogen Free	Package	1	2	3	4	5	6	Packing	
UT3401L-AE3-R	UT3401G-AE3-R	SOT-23	G	S	D	-	-	-	Tape Reel	
UT3401L-AG6-R	UT3401G-AG6-R	SOT-26	D	D	G	S	D	D	Tape Reel	

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



MARKING



UT3401

■ 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	Α
Pulsed Drain Current (Note 2)	I _{DM}	-30	Α
Power Dissipation (Note 1)	P_D	1.25	W
Junction Temperature	TJ	+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.

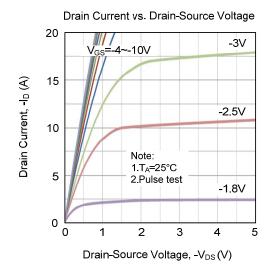
■ **ELECTRICAL CHARACTERISTICS** (T_A=25°C, unless otherwise specified)

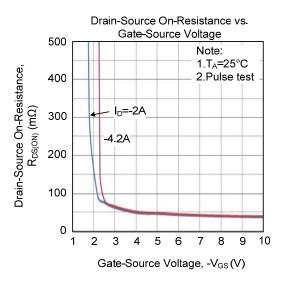
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT		
OFF CHARACTERISTICS								
Drain-Source Breakdown Voltage	BV _{DSS}	I _D =-250μA, V _{GS} =0V	-30			V		
Drain-Source Leakage Current	I _{DSS}	V _{DS} =-24V, V _{GS} =0V			-1	μΑ		
Gate-Source Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±12V			±100	nA		
ON CHARACTERISTICS								
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS}=V_{GS}$, $I_{D}=-250\mu A$	-0.7	-1.0	-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}			875		pF		
Output Capacitance	Coss	V_{GS} =0V, V_{DS} =-15V, f=1MHz		125		pF		
Reverse Transfer Capacitance	C _{RSS}			100		pF		
SWITCHING PARAMETERS								
Total Gate Charge (Note 2)	Q_G			10.6		nC		
Gate-Source Charge	Q_GS	V_{GS} =-4.5V, V_{DS} =-15V, I_{D} =-4A		2		nC		
Gate-Drain Charge	Q_GD			2.5		nC		
Turn-ON Delay Time (Note 2)	t _{D(ON)}			1.6		ns		
Turn-ON Rise Time	t _R	V _{GS} =-10V, V _{DS} =-15V		16		ns		
Turn-OFF Delay Time	t _{D(OFF)}	$R_L=3.6\Omega$, $R_G=6\Omega$		38		ns		
Turn-OFF Fall Time	t _F			24		ns		
SOURCE- DRAIN DIODE RATINGS AND C	HARACTER	ISTICS						
Maximum Continuous Drain-Source Diode	Is				-2.2	Α		
Forward Current	IS				-2.2	^		
Drain-Source Diode Forward Voltage	V_{SD}	V _{DS} =0V. I _S =-1A		-0.75	-1	V		
(Note2)	V SD	V _{DS} -0V, IS1A		-0.75	-1	v		
Reverse Recovery Time	t _{rr}	 _{I=} =-4A, dl/dt=100A/µs		20.2		ns		
Reverse Recovery Charge	Q_{rr}			11.2		nC		

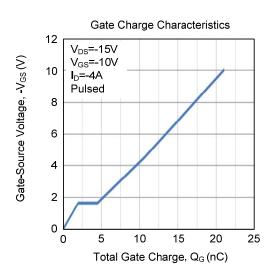
Notes: 1. Repetitive Rating: Pulse width limited by maximum junction temperature.

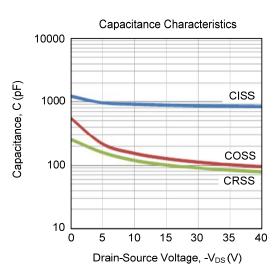
- 2. Pulse width ≤300µs, duty cycle ≤2%.
- 3. Surface mounted on 1 in² copper pad of FR4 board with 2oz. Copper, in a still air environment with $T_A=25$ °C.

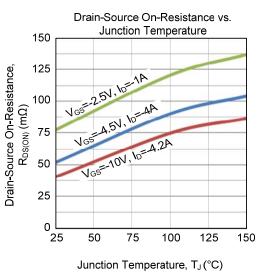
■ TYPICAL CHARACTERISTICS

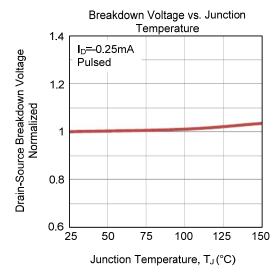




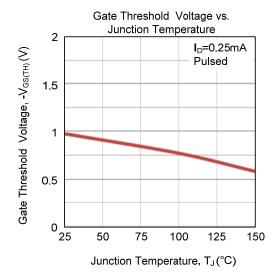


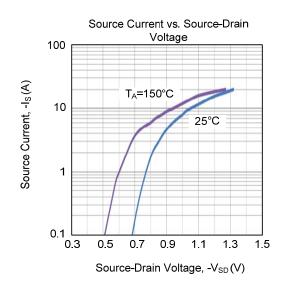


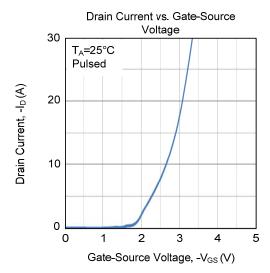


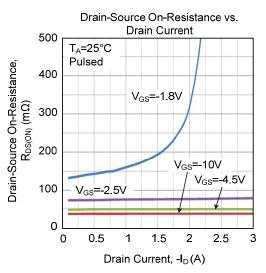


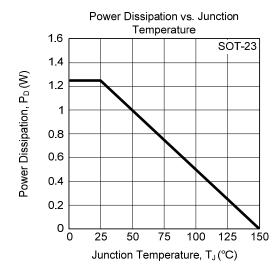
■ TYPICAL CHARACTERISTICS (Cont.)

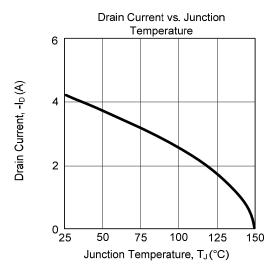




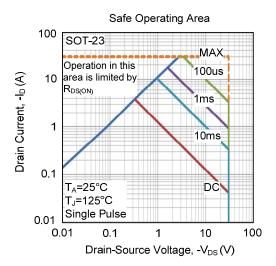








■ TYPICAL CHARACTERISTICS (Cont.)



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