UNISONIC TECHNOLOGIES CO., LTD

UT3406

3.6A, 30V   N-CHANNEL ENHANCEMENT MODE FIELD EFFECT TRANSISTOR
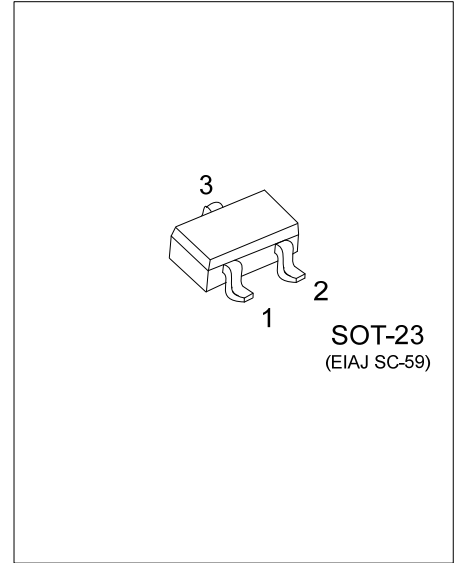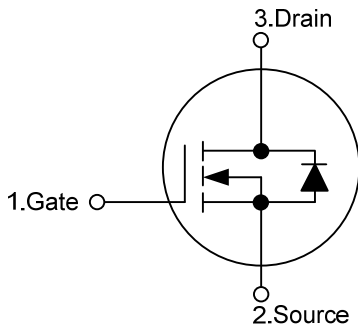

SOT-23
(EIAJ SC-59)

■ DESCRIPTION

The **UT3406** uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and can be operated at low gate voltages. This device is perfect fit for use as a load switch or in PWM applications.

■ FEATURES

* $R_{DS(ON)}$ ≤ 65mΩ @ V_{GS}=10V, I_D=3.6A
* $R_{DS(ON)}$ ≤ 105mΩ @ V_{GS}=4.5V, I_D=2.8A

■ SYMBOL

3.Drain

1.Gate

2.Source

■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
UT3406L-AE3-R	UT3406G-AE3-R	SOT-23	G	S	D	Tape Reel

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

UT3406G-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, L: Lead Free

■ MARKING

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L: Lead Free
G: Halogen Free
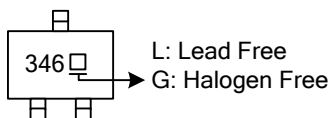
■ **ABSOLUTE MAXIMUM RATINGS** (T_A = 25°C, unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Drain-Source Voltage	V_{DSS}	30	V
Gate-Source Voltage	V_{GSS}	±20	V
Continuous Drain Current (T_A = 25°C)	I_D	3.6	A
Pulsed Drain Current (Note 2)	I_{DM}	15	A
Power Dissipation (T_A = 25°C)	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. Repetitive Rating: Pulse width limited by maximum junction temperature.

■ **THERMAL CHARACTERISTICS**

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
Junction to Ambient	θ_{JA}		100	125	°C/W

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0 V, I_D=250 µA	30			V
Drain-Source Leakage Current	I_{DSS}	V_{DS}=24 V,V_{GS}=0 V			1	µA
Gate-Source Leakage Current	I_{GSS}	V_{GS}=±20 V, V_{DS}=0 V			100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(TH)}$	V_{DS}= V_{GS}, I_D=250 µA	1	1.9	3	V
On State Drain Current	$I_{D(ON)}$	V_{GS} =10 V, V_{DS} =5 V	15			A
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=10 V, I_D=3.6 A		50	65	mΩ
		V_{GS}=4.5 V, I_D=2.8 A		75	105	mΩ
DYNAMIC PARAMETERS						
Input Capacitance	C_{ISS}	V_{DS}=15V, V_{GS}=0 V, f=1MHz		288	375	pF
Output Capacitance	C_{OSS}			57		pF
Reverse Transfer Capacitance	C_{RSS}			39		pF
SWITCHING PARAMETERS						
Total Gate Charge	Q_G	V_{GS}=10V, V_{DS}=15 V, I_D=3.6A		6.5	8.5	nC
Gate Source Charge	Q_{GS}			1.2		nC
Gate Drain Charge	Q_{GD}			1.6		nC
Turn-ON Delay Time	$t_{D(ON)}$	V_{GS}=10V,V_{DS}=15V, R_L=2.2Ω, R_{GEN}=3Ω		4.6		ns
Turn-ON Rise Time	t_R			1.9		ns
Turn-OFF Delay Time	$t_{D(OFF)}$			20.1		ns
Turn-OFF Fall-Time	t_F			2.6		ns
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Maximum Body-Diode Continuous Current	I_S				2.5	A
Drain-Source Diode Forward Voltage	V_{SD}	I_S=1 A		0.79	1	V
Body Diode Reverse Recovery Time	t_{rr}	I_F=3.6A, dI/dt=100A/µs		10.2	14	ns
Body Diode Reverse Recovery Charge	Q_{rr}			3.5		nC

Note: Surface mounted on 1 in^2 copper pad of FR4 board.

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