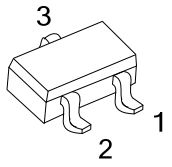
UT3400

Power MOSFET

N-CHANNEL ENHANCEMENT MODE POWER MOSFET



SOT-23

■ DESCRIPTION

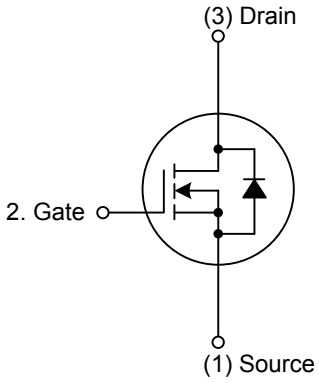
The UTC **UT3400** is an N-ch enhancement MOSFET providing the customers with perfect $R_{DS(ON)}$ and low gate charge. This device can be operated with 2.5V low gate voltage.

The UTC **UT3400** is optimized for applications, such as a load switch or in PWM.

■ FEATURES

* V_{DS} (V)=30V
* I_D=5.8 A
* $R_{DS(ON)}$<28mΩ @V_{GS}=10V
  $R_{DS(ON)}$<33mΩ @V_{GS}=4.5V
  $R_{DS(ON)}$<52mΩ @V_{GS}=2.5V
* Halogen Free

■ SYMBOL

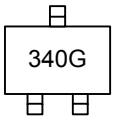


■ ORDERING INFORMATION

Ordering Number	Package	Pin Assignment			Packing
		1	2	3	
UT3400G-AE3-R	SOT-23	S	G	D	Tape Reel

UT3400G-AE3-R (1)Packing Type (2)Package Type (3)Halogen Free	(1) R: Tape Reel (2) AE3: SOT-23 (3) G: Halogen Free

■ MARKING



■ ABSOLUTE MAXIMUM RATINGS (Ta=25°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	I_D	5.8	A
Pulsed Drain Current (Note 2)	I_{DM}	30	A
Power Dissipation	P_D	1.4	W
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≤0.5%.

■ THERMAL DATA

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
Junction to Ambient (Note)	θ_{JA}		85	125	°C/W

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

■ 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} =0V, I_D =250μA	30			V
Drain-Source Leakage Current	I_{DSS}	V_{DS} =24V,V_{GS} =0V			1	μA
Gate-Source Leakage Current	I_{GSS}	V_{GS} =±12V, V_{DS} =0V			100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(TH)}$	V_{DS} =V_{GS}, I_D =250μA	0.7	1.1	1.4	V
On-State Drain Current	$I_{D(ON)}$	V_{DS} =5V, V_{GS} =4.5V	30			A
Drain to Source On-state Resistance	$R_{DS(ON)}$	V_{GS} =10V, I_D =5.8A		22.8	28	mΩ
		V_{GS} =4.5V, I_D =5A		27.3	33	mΩ
		V_{GS} =2.5V, I_D =4 A		43.3	52	mΩ
DYNAMIC PARAMETERS						
Input Capacitance	C_{ISS}	V_{DS} =15V, V_{GS} =0V, f =1MHz		823		pF
Output Capacitance	C_{OSS}			99		pF
Reverse Transfer Capacitance	C_{RSS}			77		pF
Gate Resistance	R_G	V_{GS} =0V, V_{DS} =0V, f =1MHz		1.2		Ω
SWITCHING PARAMETERS						
Turn-ON Delay Time	$t_{D(ON)}$	V_{GS} =10V,V_{DS} =15V R_L =2.7Ω,R_{GEN} =6Ω		5.5		ns
Turn-ON Rise Time	t_R			5.1		ns
Turn-OFF Delay Time	$t_{D(OFF)}$			37		ns
Turn-OFF Fall-Time	t_F			4.2		ns
Total Gate Charge	Q_G	V_{GS} =4.5V, V_{DS} =15V, I_D =5.8A		9.7		nC
Gate Source Charge	Q_{GS}			1.6		nC
Gate Drain Charge	Q_{GD}			3.1		nC
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS						
Drain-Source Diode Forward Voltage	V_{SD}	I_S=1A, V_{GS} =0V		0.71	1	V
Diode Continuous Forward Current (Note 1)	I_S				2.5	A
Reverse Recovery Time	t_{RR}	I_F=5A, dI/dt=100A/μs		16		ns
Reverse Recovery Charge	Q_{RR}			8.9		nC

Notes: 1. Pulse width limited by $T_{J(MAX)}$
2. Pulse width ≤300μs, duty cycle≤0.5%.

■ TYPICAL CHARACTERISTICS