



## UM608

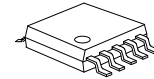
## LINEAR INTEGRATED CIRCUIT

### CONSTANT VOLTAGE AND CONSTANT CURRENT CONTROLLER FOR BATTERY CHARGERS

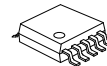
#### DESCRIPTION

The UTC **UM608** is a highly integrated solution for a constant voltage/constant current mode SMPS application.

The UTC **UM608** contains one 2.5V voltage reference, one operational amplifier for voltage control loop, one operational amplifier for current control loop and two operational amplifiers for charge status. It is suitable for battery charger and other battery systems.



SSOP-10



MSOP-10

#### FEATURES

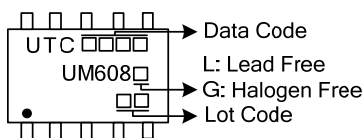
- \* Constant Voltage and Constant Current Control
- \* Precision Internal Voltage Reference
- \* Few External Components
- \* Easy Compensation
- \* Charge status output for LED
- \* build-in overvoltage protection for battery

#### ORDERING INFORMATION

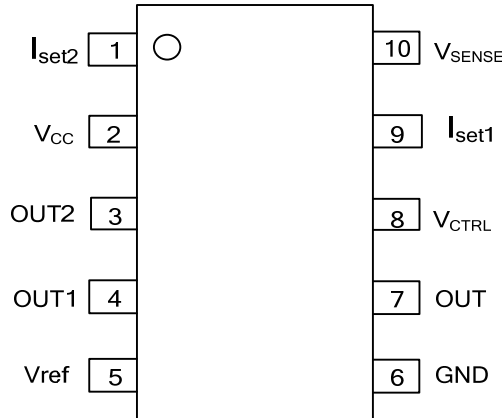
Ordering Number		Package	Packing
Lead Free	Halogen Free		
UM608L-R10-R	UM608G-R10-R	SSOP-10	Tape Reel
UM608L-SM2-R	UM608G-SM2-R	MSOP-10	Tape Reel

<p>UM608G-R10-R</p> <ul style="list-style-type: none"> <li>(1) Packing Type</li> <li>(2) Package Type</li> <li>(3) Green Package</li> </ul>	<ul style="list-style-type: none"> <li>(1) R: Tape Reel</li> <li>(2) R10: SSOP-10, SM2: MSOP-10</li> <li>(3) G: Halogen Free and Lead Free, L: Lead Free</li> </ul>
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#### MARKING



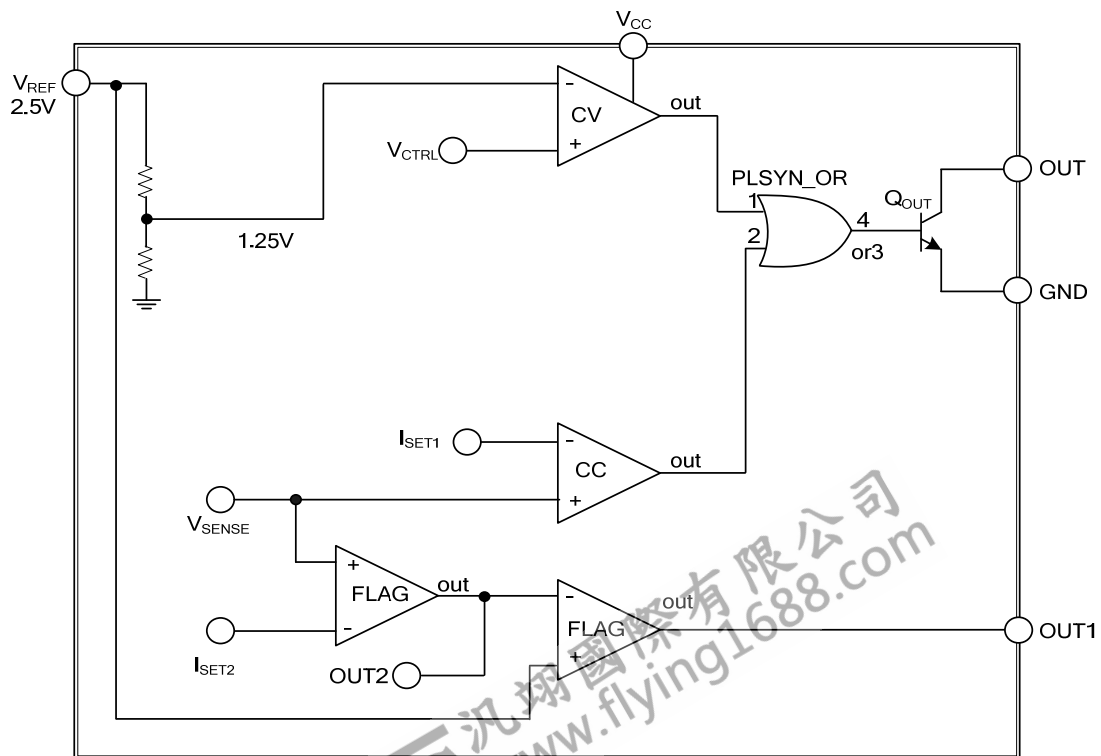
## PIN CONFIGURATION



## PIN DESCRIPTION

PIN NO.	PIN NAME	DESCRIPTION
1	I <sub>SET2</sub>	Input of charge status op
2	V <sub>CC</sub>	Power supply
3	OUT2	Charge status output
4	OUT1	Charge status output
5	V <sub>ref</sub>	Reference voltage:2.5V
6	GND	Ground
7	OUT	Output pin. Sinking current only
8	V <sub>CTRL</sub>	Input pin of the voltage control loop
9	I <sub>SET1</sub>	Input pin of the current control loop
10	V <sub>SENSE</sub>	Input pin of the voltage control loop

## BLOCK DIAGRAM



### ■ ABSOLUTE MAXIMUM RATING

PARAMETER	SYMBOL	RATINGS	UNIT
Power Supply Voltage	$V_{CC}$	35	V
Junction Temperature	$T_J$	150	°C
Operating Temperature	$T_{OPR}$	-40~+105	°C
Storage Temperature	$T_{STG}$	-65 ~ +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	$\theta_{JA}$	140	°C/W

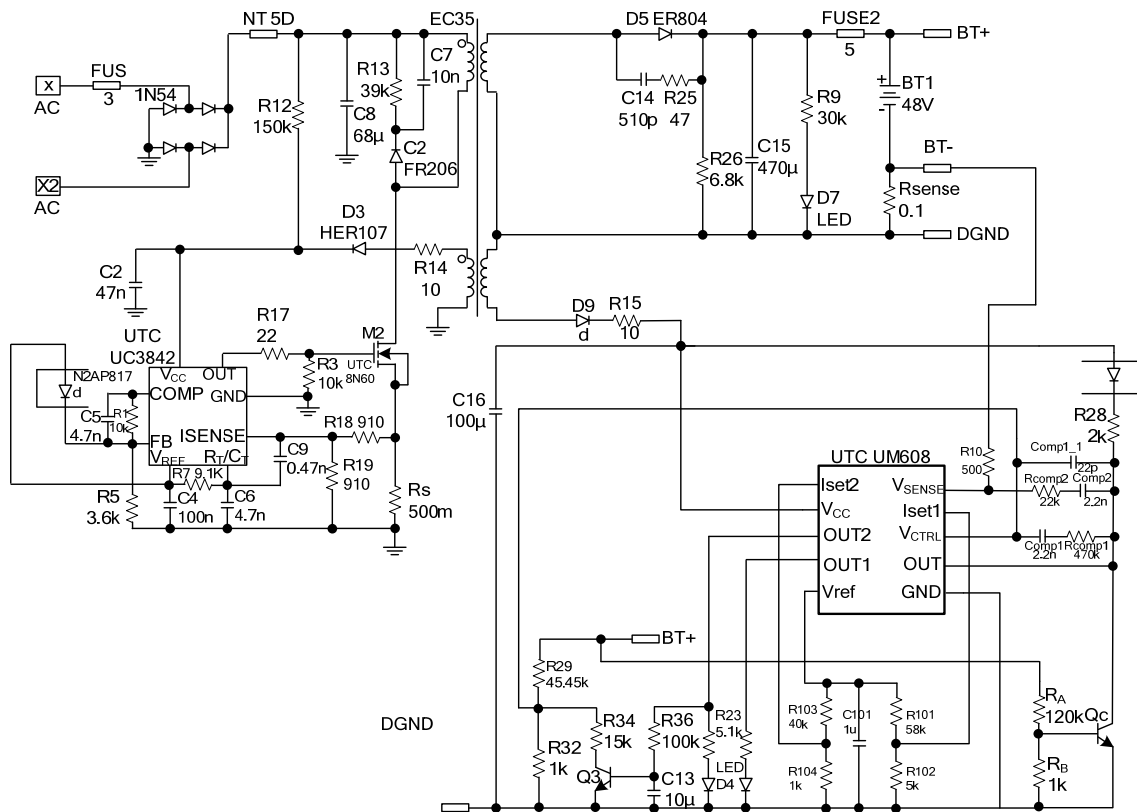
### ■ RECOMMENDED OPERATING CONDITIONS

PARAMETER	SYMBOL	RATINGS	UNIT
Voltage Operating	$V_{CC}$	5 ~ 32	V

### ■ ELECTRICAL CHARACTERISTICS ( $V_{CC}=15V$ , $T_A=25^\circ C$ , unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
<b>DEVICE SUPPLY</b>						
Supply Current	$I_{CC}$	$V_{CC}=15V$		2	4	mA
<b>VOLTAGE CONTROL LOOP</b>						
Transconduction Gain ( $V_{CTRL}$ )	$G_{MV}$	$I/(V1-V2)$	1	3.5		mA/mV
Voltage Control Loop Reference	$V_{REF}$			1.25		V
Input Bias Current	$I_{IBV}$			50		nA
<b>CURRENT CONTROL LOOP</b>						
Transconduction Gain ( $V_{SENSE}$ )	$G_{MI}$	$I/(V1-V2)$	1.5	7		mA/mV
<b>VREF</b>						
Reference Voltage	$V_{REF}$	At 1mA sinking current	2.4	2.5	2.6	V
<b>OUTPUT OF VOLTAGE AND CURRENT CONTROL LOOP</b>						
Low Output Voltage at 10mA Sinking Current	$V_{OL}$			200		mV
Max Output Current	$I_{OM}$	Output to $V_{CC}$ sink current only		27	50	mA
<b>OUTPUT OF CHARGE SUTUS</b>						
High Output Voltage at 10mA Source Current	$V_{OH}$		13	13.5	14	V
Max Output Current	$I_{OM}$	Output to GND source current only		20	40	mA

## TYPICAL APPLICATION CIRCUIT



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