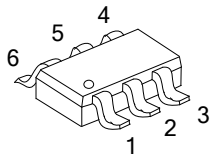
UM607

LINEAR INTEGRATED CIRCUIT

CC, CV CONTROL FOR BATTERY CHARGER AND ADAPTOR



SOT-26

■ DESCRIPTION

The UTC **UM607** is a voltage and current control IC which has precision voltage reference. These devices have been optimized for battery charger, adapter, second controller of switching regulator systems, and other battery systems.

■ FEATURES

* Constant Voltage Control (CV) and Constant Current Control (CC)
* Input voltage ranging from 2.2V to 14V
* 40mA photo coupler drive current typically
* 1mA maximum operating current
* Internal Precision Voltage Reference : 1.240V ± 1%
* Easy compensation and low external component count.

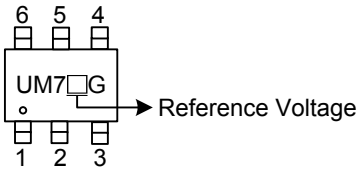
■ ORDERING INFORMATION

Ordering Number		Package	Packing
Lead Free	Halogen Free		
UM607xL-AG6-R	UM607xG-AG6-R	SOT-26	Tape Reel

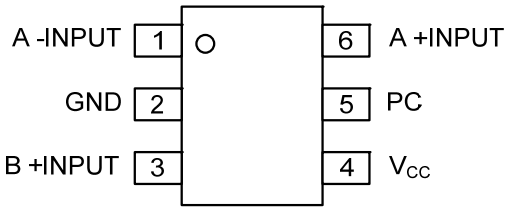
UM607xL-AG6-R (1) Packing Type (2) Package Type (3) Lead Free (4) Reference Voltage	(1) R: Tape Reel (2) AG6: SOT-26 (3) G: Halogen Free, L: Lead Free (4) refer to Marking Information

Copyright © 2011 Unisonic Technologies Co., Ltd

■ MARKING INFORMATION

PACKAGE	A-CH REFERENCE VOLTAGE	CODE	MARKING
SOT-26	150mV 70mV	B D	

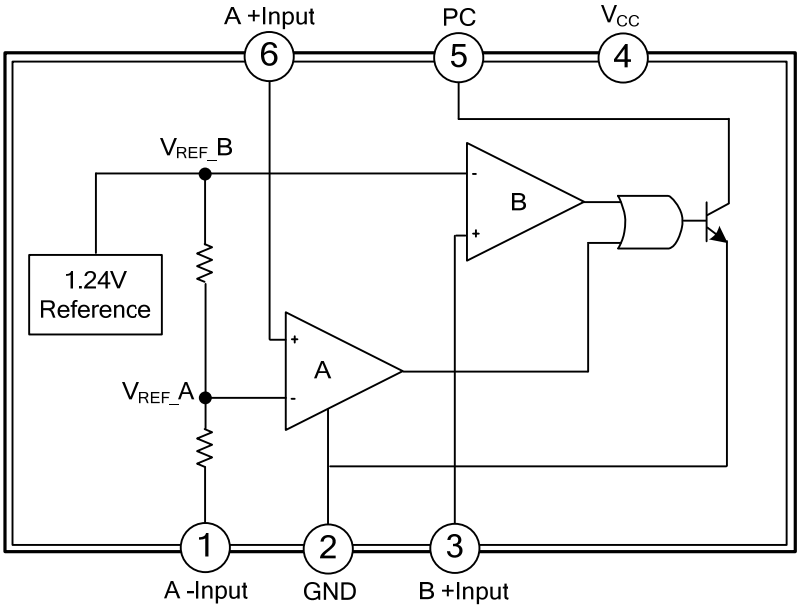
■ PIN CONFIGURATION



■ PIN DESCRIPTION

PIN NO.	PIN NAME	DESCRIPTION
1	A-INPUT	Input Pin of the Current Control Loop
2	GND	Ground Line. 0V Reference For All Voltages
3	B+INPUT	Input Pin of the Voltage Control Loop
4	V_{CC}	DC Supply Line
5	PC	Photo Coupler (P/C) Drive Pin. Sinking Current Only
6	A+INPUT	Input Pin of the Current Control Loop

■ BLOCK DIAGRAM



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

PARAMETER	SYMBOL	RATINGS	UNIT
DC Supply Voltage	V_{CC}	16	V
Power Dissipation (Note 2)	P_D	500	mW
Operating Temperature	T_{OPR}	-40 ~ +85	°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. Mount on a glass epoxy circuit board of 30x30mm Pad dimension of $50mm^2$

■ RECOMMENDED OPERATING CONDITIONS

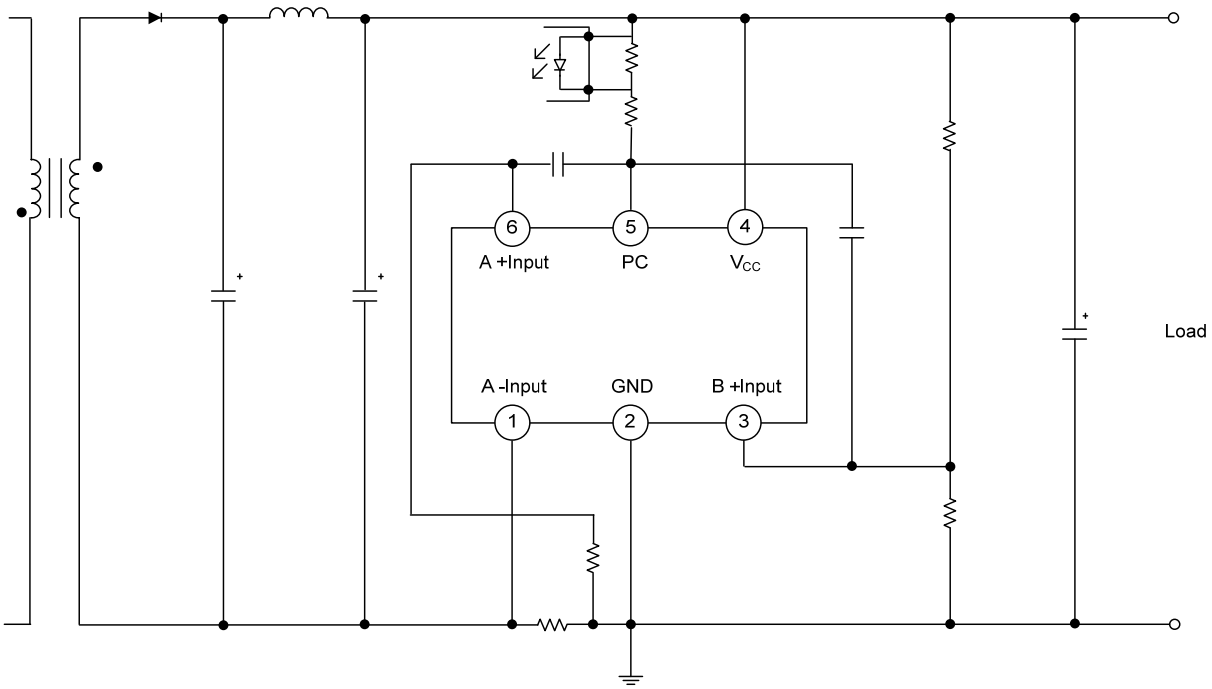
PARAMETER	SYMBOL	RATINGS	UNIT
DC Supply Voltage	V_{CC}	2.2 ~ 14	V

■ ELECTRICAL CHARACTERISTICS (V_{CC} = 5V, Ta=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS		MIN	TYP	MAX	UNIT
Operating Current	I_{CC}	I_{PC}= off			0.6	1.0	mA
Leakage Current	$I_{PC(LEAK)}$	V^+=V_{PC}=14V				10	μA
Saturation Voltage	$V_{PC(SAT)}$	I_{PC}= 20 mA			500	700	mV
PC Terminal Current	I_{PC}			20	40	70	mA
Output Voltage High	V_{OH}	R_L= 30KΩ			V_{CC}-0.1		V
A CH : Current Control Loop							
Reference Voltage	$V_{REF(A)}$	I_{PC}= 2.5mA	UM607B	144	150	156	mV
			UM607D	66.5	70	73.5	
Input Bias Current	$I_{B(A)}$				20	50	μA
Transconduction Gain (Note 1)	$G_{M(A)}$			1.5	8		mA/mV
B CH : Voltage Control Loop							
Reference Voltage (Note 2)	$V_{REF(B)}$	I_{PC}= 1.5mA		1.227	1.240	1.253	V
Input Bias Current	$I_{B(B)}$				50	500	nA
Transconduction Gain (Note 3)	$G_{M(B)}$			1	3		mA/mV

Notes: 1. When the positive input at I_{CTRL} is lower than -151mV, and the voltage is decreased by 1mV, the sinking current at the output OUT will be increased by 8mA.
2. The internal voltage reference is set at 1.240V (bandgap reference). The voltage control loop precision takes into account the cumulative effects of the internal voltage reference deviation as well as the input offset voltage of the trans-conductance operational amplifier.
3. If the voltage on B +Input (the positive input of the amplifier) is higher than the negative amplifier input ($V_{REF(B)}$ = 1.240V), and it is increased by 1mV, the sinking current at the output OUT will be increased by 3mA.

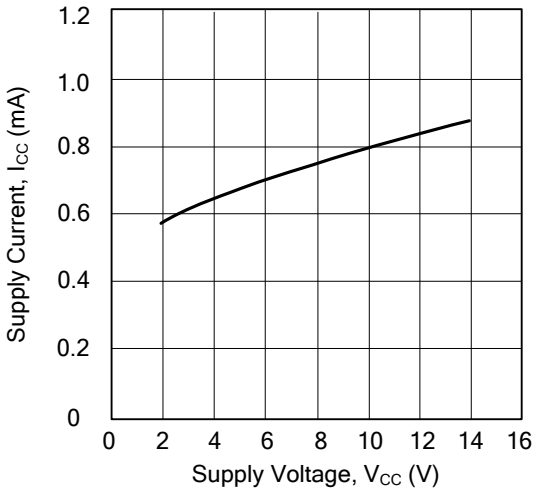
■ TYPICAL APPLICATION CIRCUIT



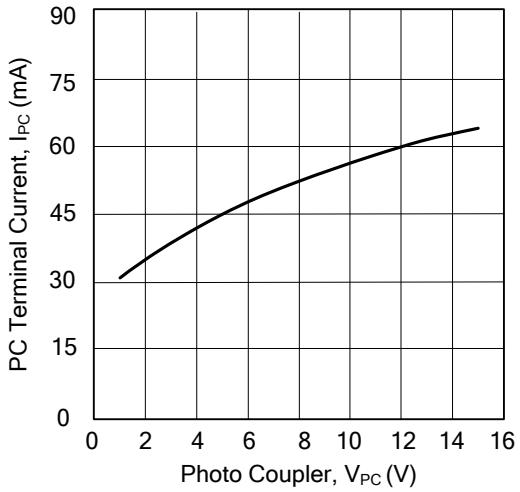
In the above application schematic, the UTC **UM607** is used on the secondary side of a flyback adapter (or battery charger) to provide an accurate control of voltage and current. The above feedback loop is made with an optocoupler.

■ TYPICAL CHARACTERISTICS

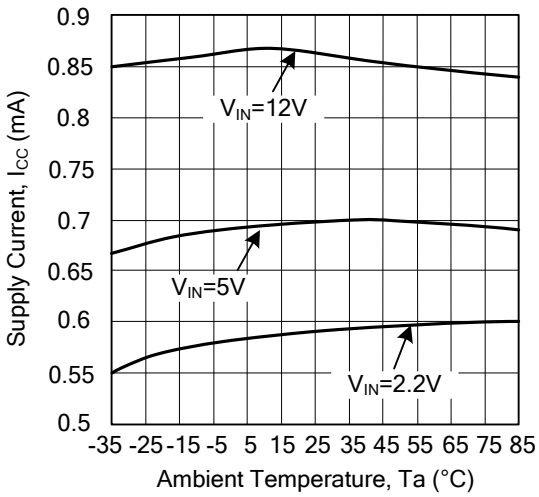
Supply Current vs. Supply Voltage



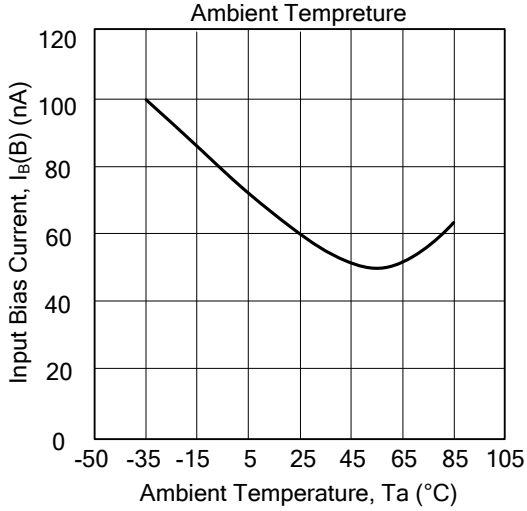
PC Terminal Current vs. Photo Coupler



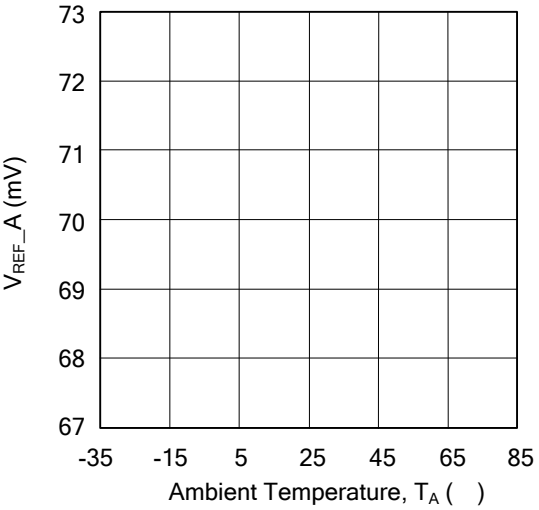
Supply Current vs. Ambient Tempreture



Input Bias Current vs. Ambient Tempreture



V_{REF}_A (mV) vs. Ambient Tempreture



V_{REF}_B (V) vs. Ambient Tempreture

