



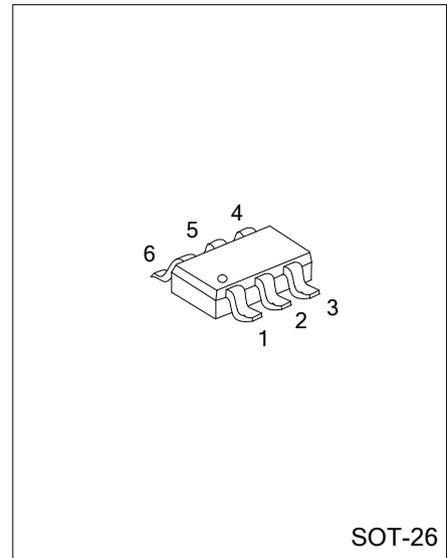
## UM606

## LINEAR INTEGRATED CIRCUIT

### CONSTANT VOLTAGE AND CONSTANT CURRENT CONTROLLER

#### DESCRIPTION

The UTC **UM606**, for a constant voltage/constant current mode SMPS (switch mode power supplies) application which is a highly integrated solution, it contains one 1.21V voltage reference with  $\pm 1\%$  accuracy, one current sensing circuit and two operational amplifiers. The UTC **UM606** is an ideal voltage controller for use in adapters and battery chargers because the voltage reference it's combining with one operational amplifier. And the UTC **UM606** is an ideal current limiter for output low side current sensing because the other low voltage reference is combining with the other operational amplifier.



#### FEATURES

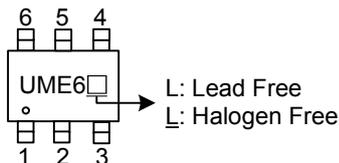
- \*Constant voltage and constant current control
- \*Precision internal voltage reference
- \*Few external components
- \*Easy compensation

#### ORDERING INFORMATION

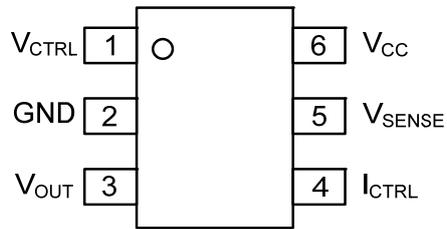
Ordering Number		Package	Packing
Lead Free	Halogen Free		
UM606L-AG6-R	UM606G-AG6-R	SOT-26	Tape Reel

<p>UM606L-AG6-R</p>	<p>(1) Packing Type (1) R: Tape Reel</p> <p>(2) Package Type (2) AG6: SOT-26</p> <p>(3) Lead Plating (3) G: Halogen Free, L: Lead Free</p>
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#### MARKING



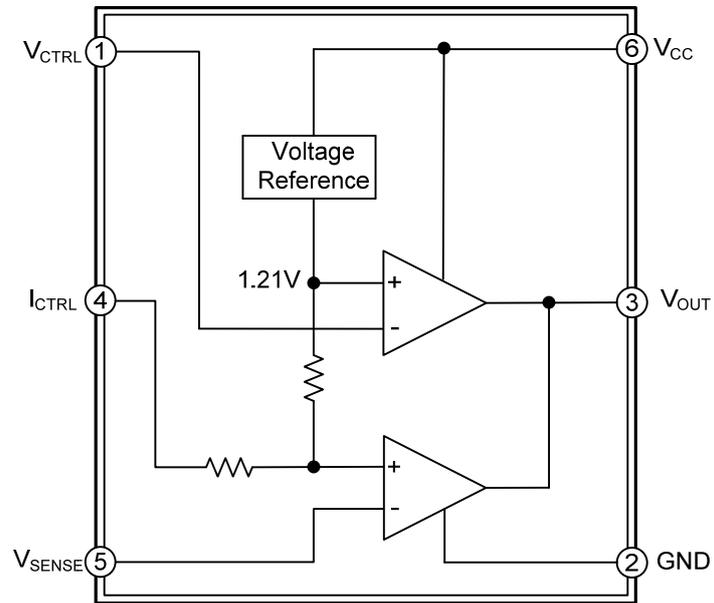
## ■ PIN CONFIGURATION



## ■ PIN DESCRIPTION

PIN NO.	PIN NAME	FUNCTION
1	V <sub>CTRL</sub>	Input pin of the voltage control loop
2	GND	Ground
3	V <sub>OUT</sub>	Output pin. sinking current only
4	I <sub>CTRL</sub>	Input pin of the current control loop
5	V <sub>SENSE</sub>	Input pin of the current control loop
6	V <sub>CC</sub>	Power supply

■ BLOCK DIAGRAM



### ■ ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	RATINGS	UNIT
DC Supply Voltage	$V_{CC}$	20	V
Input Voltage	$V_{IN}$	$-0.3 \sim V_{CC}$	V
Junction Temperature	$T_J$	+150	°C
Storage Temperature	$T_{STG}$	$-65 \sim +150$	°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	MIN	TYP	MAX	UNIT
Junction to Case	$\theta_{JC}$			92	°C/W

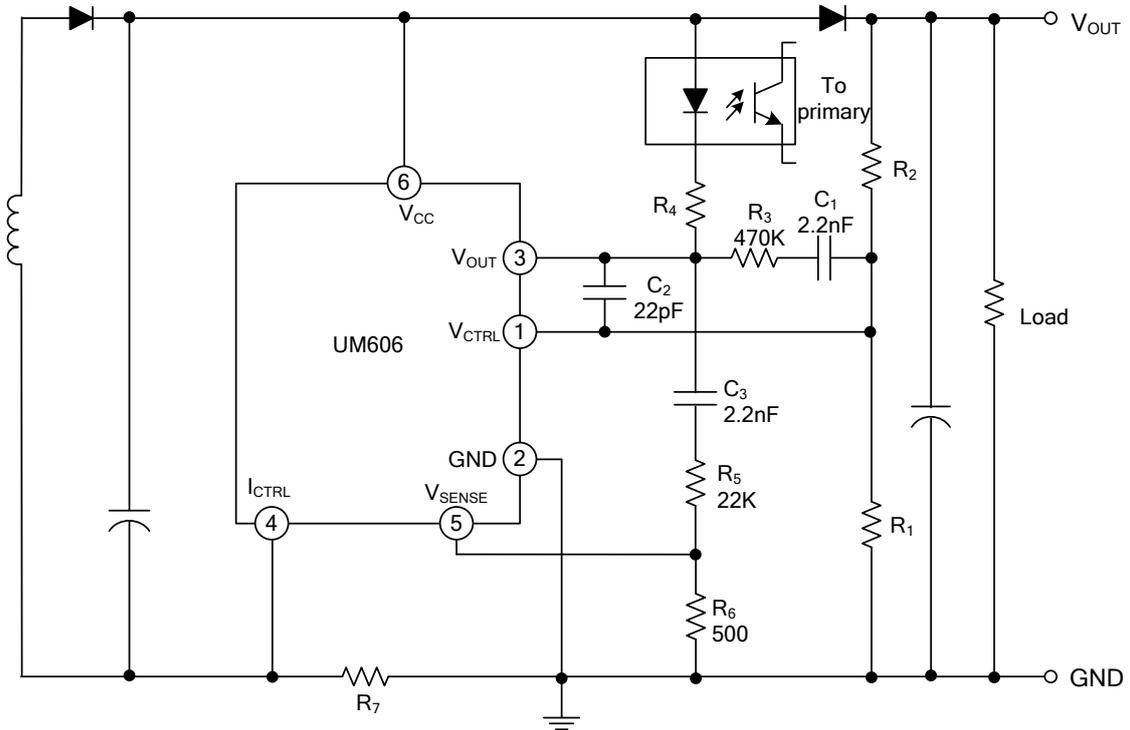
### ■ RECOMMENDED OPERATING CONDITIONS

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
Supply Voltage	$V_{CC}$	2.5		18	V
Operating Temperature	$T_A$	-20		+70	°C

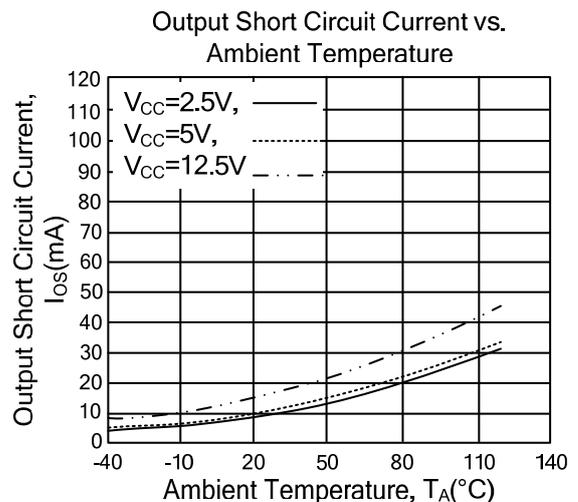
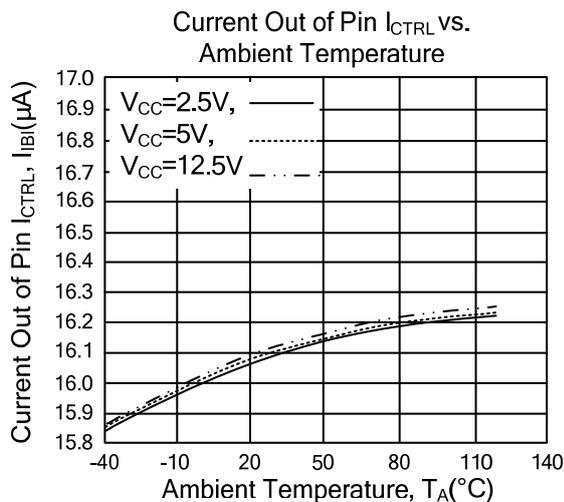
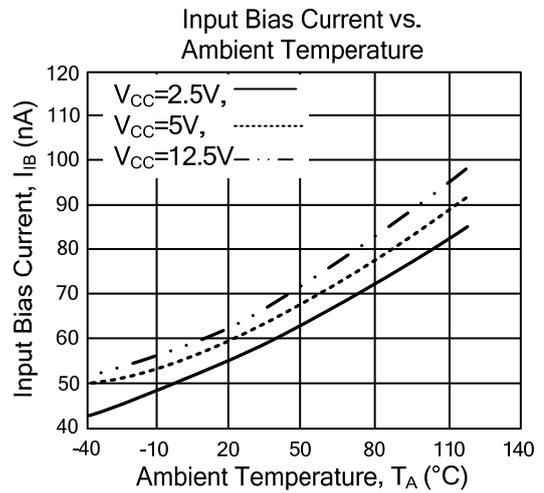
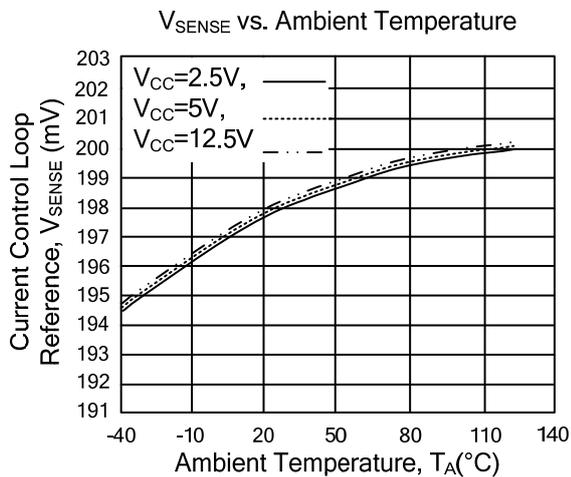
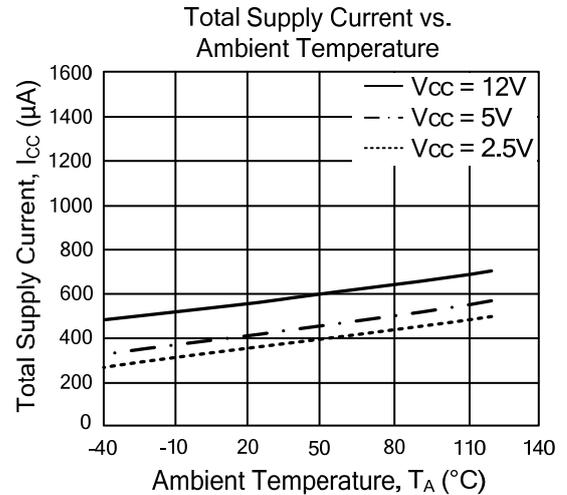
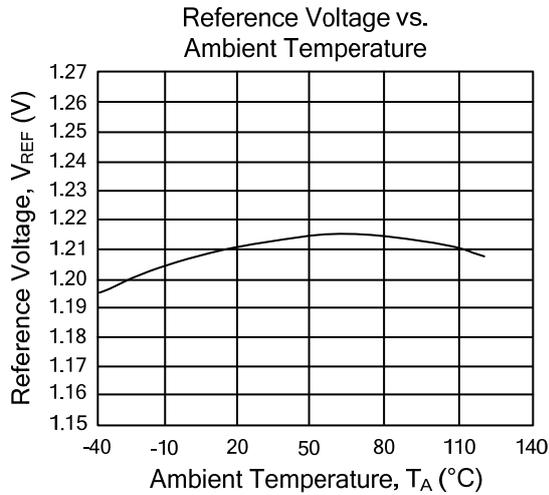
### ■ ELECTRICAL CHARACTERISTICS ( $V_{CC}=5V$ , $T_A=25^\circ C$ , unless otherwise specified.)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Reference Voltage	$V_{REF}$		1.198	1.21	1.222	V
Current Control Loop Reference	$V_{SENSE}$	$I_{OUT}=2.5mA$	196	200	204	mV
Low Output Voltage	$V_{OL}$	@10mA Sinking Current		200		mV
Total Supply Current	$I_{CC}$	$V_{CC}=5V$		0.6	1.2	mA
Input Bias Current	$I_{IB}$			50		nA
Current Out of Pin $I_{CTRL}$	$I_{IBI}$	@-200mV		25		$\mu A$
Output Short Circuit Current.	$I_{OS}$	Output to $V_{CC}$ . Sink Current Only		27	50	mA
Transconduction Gain ( $V_{CTRL}$ )	$G_{mv}$	Sink Current Only	1	3.5		mA/mV
Transconduction Gain ( $I_{CTRL}$ ).	$G_{mi}$		1.5	7		mA/mV

### ■ TYPICAL APPLICATION



■ TYPICAL PERFORMANCE CHARACTERISTICS



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