

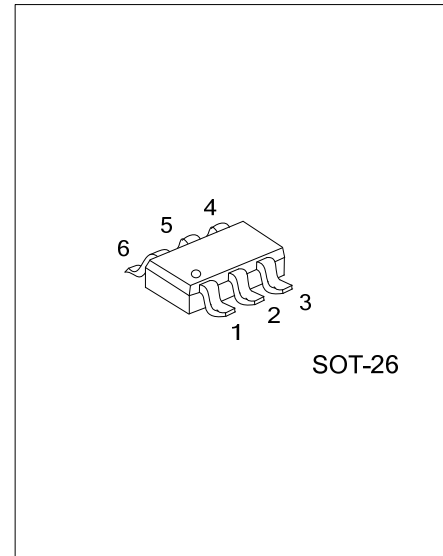


## LV711

Preliminary

CMOS IC

### SINGLE LOW-POWER, RRIO OPERATIONAL AMPLIFIER WITH HIGH OUTPUT CURRENT DRIVE AND SHUTDOWN



#### DESCRIPTION

The UTC **LV711** is single BiCMOS operational amplifier designed to meet the demands of low power, low cost, and small size required by battery-powered portable electronics. This device has an input common-mode voltage range that exceeds the rails, rail-to-rail output, and high output-current drive. The device offers a bandwidth of 5MHz and a slew rate of 5V/μs.

On the UTC **LV711** a separate shutdown pin can be used to disable the device and reduce the supply current to 0.2μA typical. It is an ideal solution for power-sensitive applications, such as cellular phones, pagers, palm computers, etc.

The UTC **LV711** is characterized for operation from -40°C to 85°C.

#### FEATURES

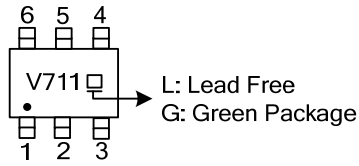
- \* Supply Voltage: 2.7~5V
- \* Supply Current/Amplifier: 1.07 mA (Max)
- \* Input Offset Voltage: 3mV (Max)
- \* Rail-to-Rail Input and Output
- \* Slew Rate: 5V/μs (Typ.)
- \* Shutdown Current: 0.2μA (Typ.)

#### ORDERING INFORMATION

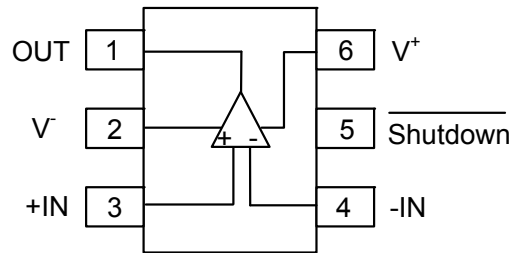
Ordering Number		Package	Packing
Lead Free	Halogen Free		
LV711L-AG6-R	LV711G-AG6-R	SOT-26	Tape Reel

<p>LV711G-AG6-R</p> <p>(1) Packing Type (2) Package Type (3) Green Package</p>	<p>(1) R: Tape Reel (2) AG6: SOT-26 (3) G: Halogen Free and Lead Free, L: Lead Free</p>
--	---

■ MARKING



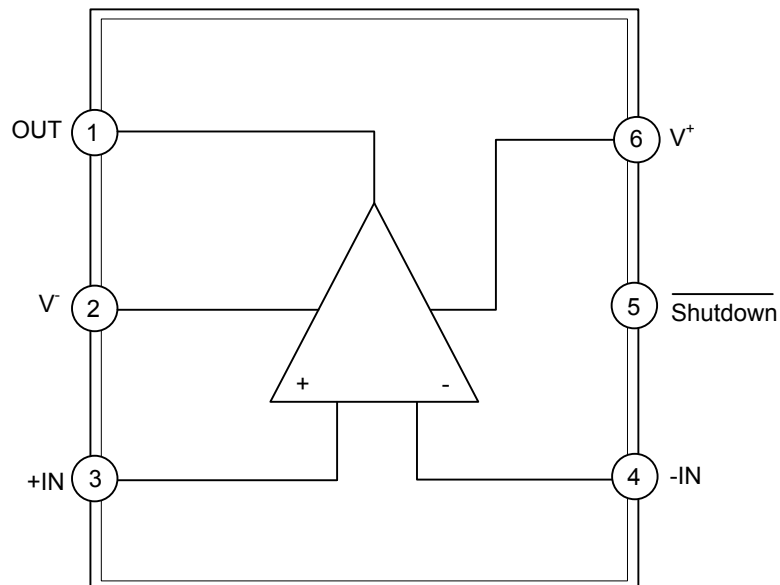
■ PIN CONFIGURATION



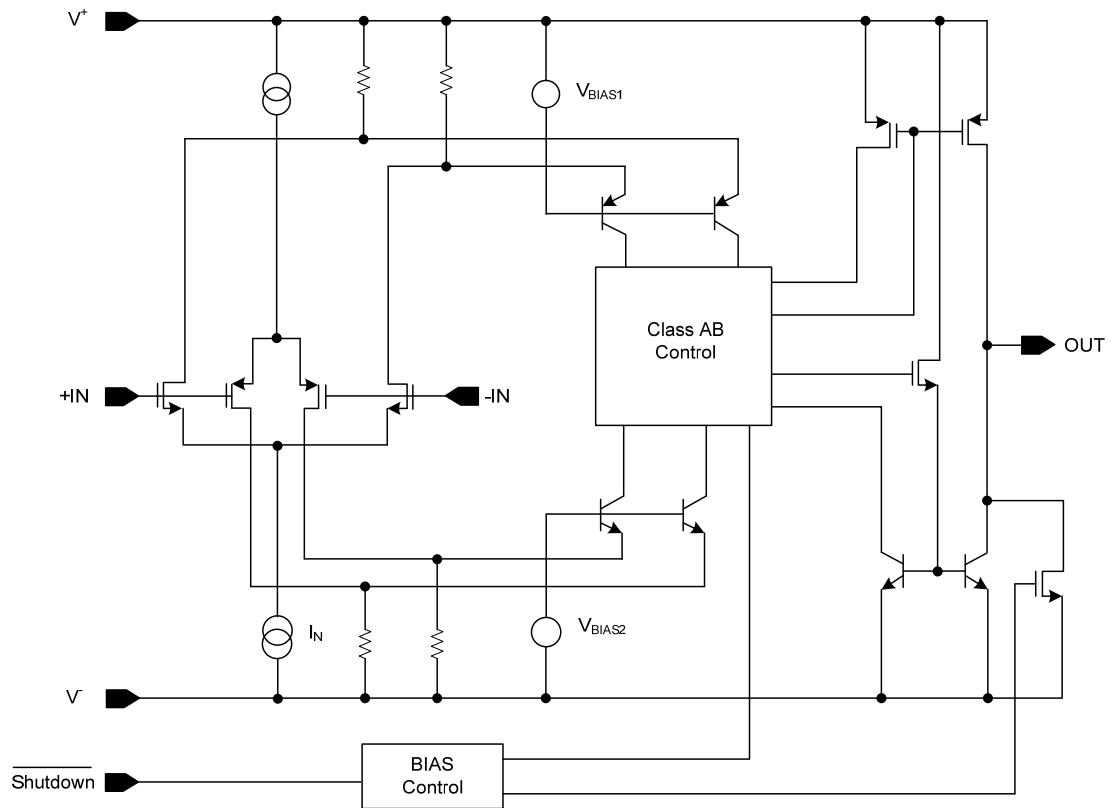
■ PIN DESCRIPTION

PIN NO.	PIN NAME	DESCRIPTION
1	OUT	Output
2	V <sup>-</sup>	Negative supply input
3	+IN	Non-inverting input
4	-IN	Inverting input
5	Shutdown	Active low enable input
6	V <sup>+</sup>	Positive supply power

■ BLOCK DIAGRAM



■ SIMPLIFIED SCHEMATIC



■ ABSOLUTE MAXIMUM RATING

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	$V^+ - V^-$	6	V
Differential Input Voltage	$V_{ID}$	Supply voltage	V
Voltage at Input or Output Pin		$V^- - 0.4 \sim V^+ + 0.4$	V
Current at Input Pin	$I_I$	$\pm 10$	mA
Junction Temperature	$T_J$	+150	°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	$\theta_{JA}$	165	°C/W

■ RECOMMENDED OPERATING CONDITIONS

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	$V^+ - V^-$	2.7 ~ 5	V
Operating Free-Air Temperature	$T_{OPR}$	-40 ~ +85	°C

### ■ ELECTRICAL CHARACTERISTICS

( $T_A=25^\circ\text{C}$ ,  $V^+=2.7\sim 5\text{V}$ ,  $V^- = 0\text{V}$ ,  $V_{IC} = V^+/2\text{ V}$ , and  $R_L>1\text{M}\Omega$ , unless otherwise noted)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Supply Current/Amplifier	$I_Q$	ON mode		1.07	1.7	mA
		Shutdown mode, $\overline{\text{Shutdown}}=0\text{V}$		0.2	10	$\mu\text{A}$
Power Supply Rejection Ratio	PSRR	$2.7\text{V}\leq V^+\leq 5\text{V}$ , $V_{IC}=0.85\text{V}$	70	110		dB
		$2.7\text{V}\leq V^+\leq 5\text{V}$ , $V_{IC}=1.85\text{V}$	70	95		
Input Offset Voltage	$V_{OS}$	$V_{IC}=0.85\text{V}$ and $V_{IC}=1.85\text{V}$		0.4	3	mV
Input Bias Current	$I_B$			4		pA
Common-mode Voltage Range	$V_{CM}$		-0.2		$V^++0.2$	V
Common-Mode Rejection Ratio	CMRR	$0\leq V_{CM}\leq 2.7\text{V}$	50	75		dB
Large Signal Voltage Gain	$A_V$	$R_L=10\text{k}\Omega$ , $V_O=1.35\sim 2.3\text{V}$	80	118		dB
		$R_L=10\text{k}\Omega$ , $V_O=0.4\sim 1.35\text{V}$	80	115		dB
		$R_L=600\Omega$ , $V_O=1.35\sim 2.2\text{V}$	80	105		dB
		$R_L=600\Omega$ , $V_O=0.5\sim 1.35\text{V}$	80	113		dB
Output Voltage	$V_O$	$R_L=10\text{k}\Omega$	$V_{OH}$	$V^+-0.1$	$V^+-0.02$	V
			$V_{OL}$		0.01	0.12
		$R_L=600\Omega$	$V_{OH}$	$V^+-0.2$	$V^+-0.15$	V
			$V_{OL}$		0.05	0.23
		$V^+=3.2\text{V}$ , $I_O=6.5\text{mA}$	$V_{OH}$	2.95	3	V
			$V_{OL}$		0.01	0.18
Output Voltage Level in Shutdown Mode	$V_{O(SD)}$			50	200	mV
Short-Circuit Current	$I_{SC}$	Sourcing, $V_O=0\text{V}$	25	35		mA
		Sinking, $V_O=5\text{V}$	25	40		
Slew Rate	SR			5		V/ $\mu\text{s}$
Gain-Bandwidth Product	GBW			6		MHz
Phase Margin	$\Phi_M$			50		deg
Turnon Time	$T_{ON}$			<10		$\mu\text{s}$
Shutdown Pin Voltage Range	$\overline{\text{Shutdown}}$	ON mode	2.4~	$V^+$		V
		Shutdown mode				0~0.8
Input-Referred Voltage Noise	$V_n$	f=1kHz		20		$\frac{\text{nV}}{\sqrt{\text{Hz}}}$

UTC assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all UTC products described or contained herein. UTC products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably expected to result in personal injury. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. UTC reserves the right to make changes to information published in this document, including without limitation specifications and product descriptions, at any time and without notice. This document supersedes and replaces all information supplied prior to the publication hereof.