LMV321

General Purpose, Low Voltage, Rail-to-Rail Output Amplifier

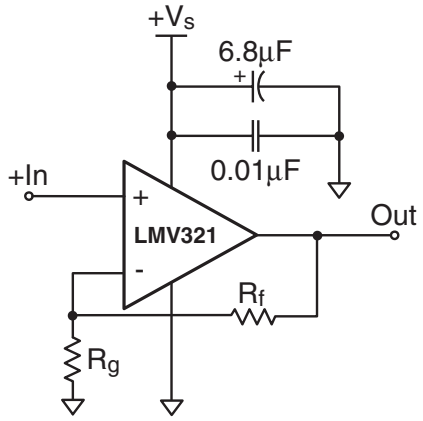
Features at +2.7V

- 80µA supply current
- 1.2MHz gain bandwidth product
- Output voltage range: 0.01V to 2.69V
- Input voltage range: -0.25V to +1.5V
- 1.5V/µs slew rate
- Competes with other industry standard LMV321 amplifiers
- Package options (SC70-5 and SOT23-5)
- Fully specified at +2.7V and +5V supplies

Applications

- Low cost general purpose applications
- Cellular phones
- Personal data assistants
- A/D buffer
- DSP interface
- Smart card readers
- Portable test instruments
- Keyless entry
- Infrared receivers for remote controls
- Telephone systems
- Audio applications

Typical Application



Description

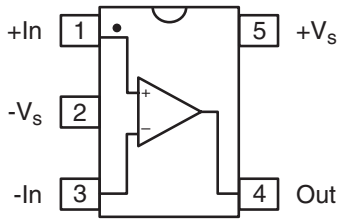
The LMV321 is a low cost, voltage feedback amplifier that consumes only 80µA of supply current. The LMV321 is designed to operate from 2.7V (±1.35V) to 5.5V (±2.75V) supplies. The common mode voltage range extends below the negative rail and the output provides rail-to-rail performance.

The LMV321 is designed on a CMOS process and provides 1.2MHz of bandwidth and 1.5V/µs of slew rate at a low supply voltage of 2.7V. The combination of low power, rail-to-rail performance, low voltage operation, and tiny package options make the LMV321 well suited for use in personal electronics equipment such as cellular handsets, pagers, PDAs, and other battery powered applications.

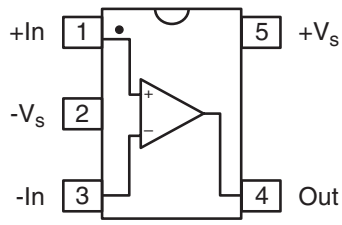
TBD

Pin Assignments

SC70-5



SOT23-5



Absolute Maximum Ratings

Parameter	Min.	Max.	Unit
Supply Voltages	0	+6	V
Maximum Junction Temperature	–	+175	°C
Storage Temperature Range	-65	+150	°C
Lead Temperature, 10 seconds	–	+260	°C
Operating Temperature Range, recommended	-40	+125	°C
Input Voltage Range	$-V_S$ -0.5	$+V_S$ +0.5	V

Package Thermal Resistance

Package	θ_{JA}
5 lead SC70	331.4°C/W
5 lead SOT23	256°C/W

Electrical Specifications

(T_C = 25°C, V_S = +2.7V, G = 2, R_L = 10kΩ to V_S/2, R_f = 10kΩ, $V_{O\ (DC)}$ = V_{CC}/2; unless otherwise noted)

Parameter	Conditions	Min.	Typ.	Max.	Unit
AC Performance					
Gain Bandwidth Product	C_L = 50pF, R_L = 2kΩ		1.2		MHz
Phase Margin			–		deg
Gain Margin			–		dB
Slew Rate	500mV_{pp}		1.5		V/µs
Input Voltage Noise	>50kHz		35		nV/√Hz
Input Current Noise			–		pA/√Hz
DC Performance					
Input Offset Voltage[1]			1.7		mV
Average Drift			–		µV/°C
Input Bias Current[1]			<10		nA
Average Drift			–		nA/°C
Input Offset Current			<10		nA
Power Supply Rejection Ratio	DC		65		dB
Supply Current[1]			80		µA
Input Characteristics					
Input Resistance			–		MΩ
Input Capacitance			–		pF
Input Common Mode Voltage Range			-0.25 to 1.5		V
Common Mode Rejection Ratio			70		dB
Output Characteristics					
Output Voltage Swing	R_L = 10kΩ to V_S/2		0.01 to 2.69		V
Power Supply Operating Range		2.5	2.7	5.5	V

Min/max ratings are based on product characterization and simulation. Individual parameters are tested as noted. Outgoing quality levels are determined from tested parameters.

Notes:
1. 100% tested at +25°C.

Electrical Specifications

(T_C = 25°C, V_S = +5V, G = 2, R_L = 10kΩ to V_S/2, R_f = 10kΩ, $V_{O\ (DC)}$ = V_{CC}/2; unless otherwise noted)

Parameter	Conditions	Min.	Typ.	Max.	Unit
AC Performance					
Gain Bandwidth Product	C_L = 50pF, R_L = 2kΩ		1.4		MHz
Phase Margin			–		deg
Gain Margin			–		dB
Slew Rate			1.5		V/µs
Input Voltage Noise	>50kHz		33		nV/√Hz
Input Current Noise			–		pA/√Hz
DC Performance					
Input Offset Voltage[1]			1.7		mV
Average Drift			–		µV/°C
Input Bias Current[1]			<10		nA
Average Drift			–		nA/°C
Input Offset Current[1]			<10		nA
Power Supply Rejection Ratio[1]	DC		65		dB
Open Loop Gain			68		dB
Supply Current[1]			96		µA
Input Characteristics					
Input Resistance			–		MΩ
Input Capacitance			–		pF
Input Common Mode Voltage Range			-0.4 to 3.8		V
Common Mode Rejection Ratio[1]			78		dB
Output Characteristics					
Output Voltage Swing	R_L = 2kΩ to V_S/2		0.035 to 4.96		V
	R_L = 10kΩ to V_S/2		0.020 to 4.98		V
Short Circuit Output Current			+35/-25		mA
Power Supply Operating Range		2.5	5	5.5	V

Min/max ratings are based on product characterization and simulation. Individual parameters are tested as noted. Outgoing quality levels are determined from tested parameters.

Notes:
1. 100% tested at +25°C.

Ordering Information

Model	Part Number	Package	Container	Pack Qty
LMV321	LMV321AP5X	SC70-5	Reel	3000
LMV321	LMV321AS5X	SOT23-5	Reel	3000

Temperature range for all parts: -40°C to +125°C.