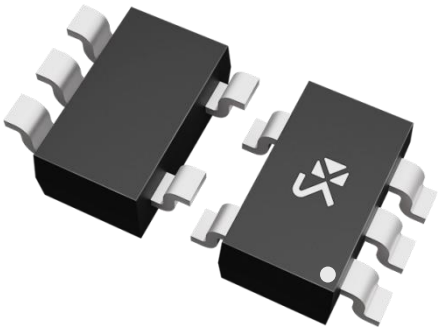
LMV321

Rail-to-Rail Low Power Single Operational Amplifiers

Features

- Low power consumption: 45uA
- Rail-to-rail output swing
- No crossover distortion
- Supply voltage range: 2.1V to 5.5V
- Slew rate: 0.5V/us
- Gain bandwidth product: 1.5MHz



SOT-23-5

Applications

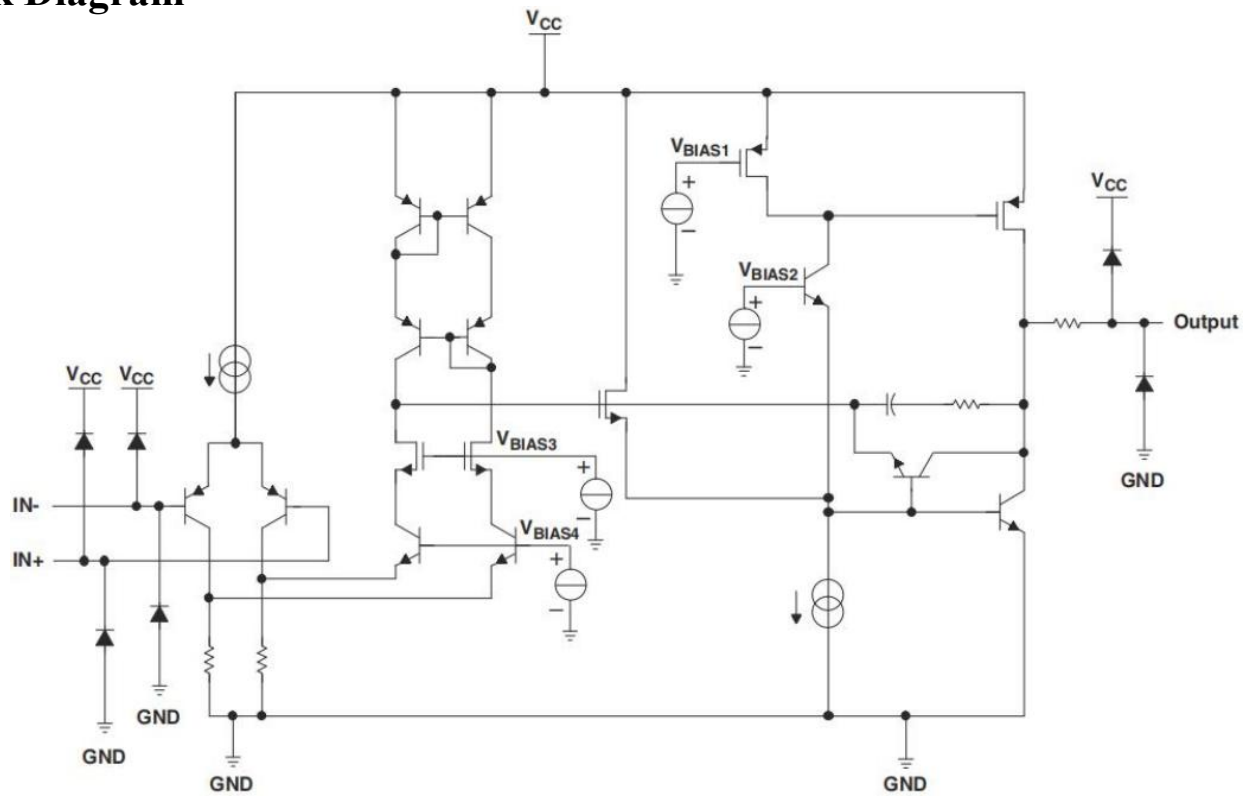
- Desktop computers
- HVAC
- Motor Control: AC induction
- Portable media players
- Professional audio mixers
- Refrigerators

Description

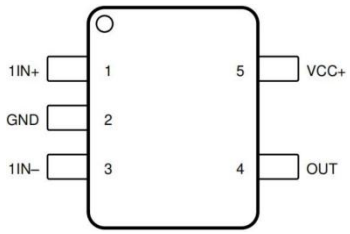
The LMV321 is a low-power single operational amplifier featuring rail-to-rail output swing. It offers a cost-effective solution for applications requiring low supply voltage, small footprint, and low cost. Specifically designed for low-voltage operation, the LMV321 can operate at a minimum supply voltage as low as 2.1V, with a maximum recommended supply voltage of 5.5V.

The LMV321 is available in the SOT23-5 package.

Block Diagram



Pin Description

Pin Number	Pin Name	I/O	Description	Pin Configuration Diagram
1	1IN+	I	Non-inverting input	
2	GND	P	Negative supply	
3	1IN-	I	Inverting input	
4	OUT	O	Output	
5	VCC+	P	Positive supply	

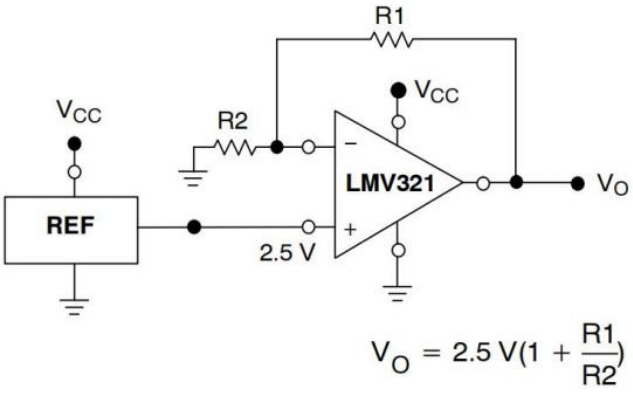
Absolute Maximum Ratings (T_A=25℃ unless otherwise noted)

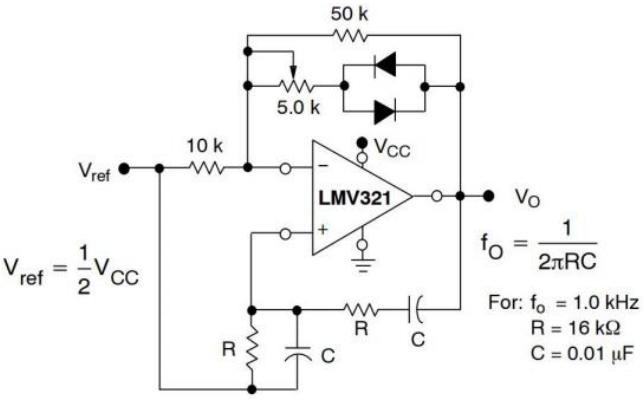
Parameter	Symbol	Value	Unit
Supply Voltage	V_{CC}	2.1~5.5	V
Differential Input Voltage	V_{ID}	±5.5	V
Common-mode Input Voltage	V_{ICM}	-0.5~V_{CC}+0.5V	V
Maximum Operating Junction Temperature	T_J	150	℃
Operating Ambient Temperature	T_A	-20~+85	℃
Storage Temperature	T_{STG}	-65~+150	℃
Lead Temperature(Soldering , 10 s)	T_W	260	℃

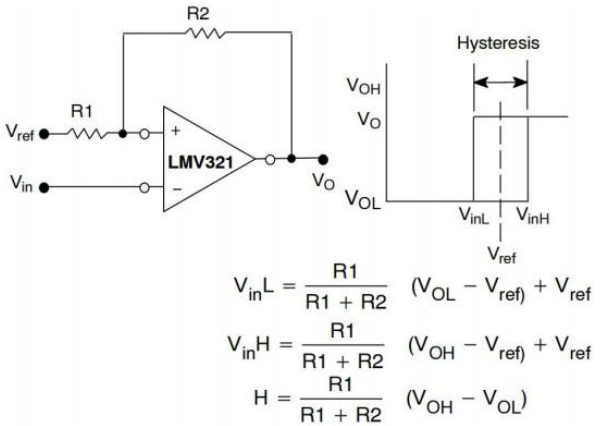
Electrical Characteristics(T_A=25℃ VCC=2.7V unless otherwise noted)

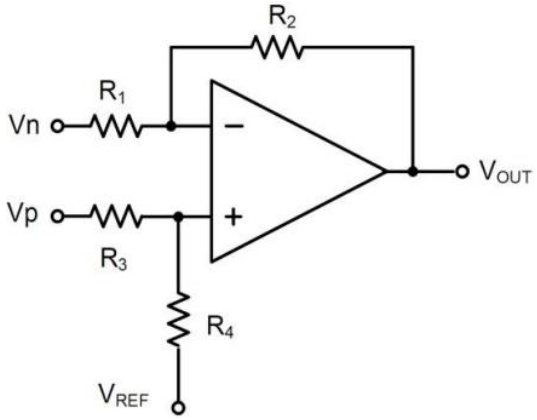
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Input Offset Voltage	V_{IO}			±0.8	±5	mV
Input Offset Current	I_{IO}			±10		nA
Input Bias Current	I_B			±10		pA
Input Common-mode Voltage Range	V_{ICM}	V_{CC} = 5.5V	-0.1		5.6	V
Open-loop Voltage Gain	A_{OL}	R_L=5KΩ, V_O=0.1~4.9V	70	90		dB
		R_L=100KΩ,V_O=0.035~4.965V	80	94		dB
Common-mode Rejection Ratio	CMRR	V_{CC}=5.5V, V_{ICM}=-0.1~4V	62	90		dB
		V_{CC}=5.5V, V_{ICM}=-0.1~5.6V	56	88		dB
Power Supply Rejection Ratio	PSRR	V_{CC}=+2.5V~5.5V,V_{ICM}=0.5V	60	80		dB
Output Voltage Swing	$V_{(OH)}$	R_L=10KΩ, Referenced to 1.35V	V_{CC}-100	V_{CC}-10		mV
	$V_{(OL)}$			80		
Output Short-circuit Current	I_{SC}			50		mA
Supply Current	I_{CC}			45		uA
Gain Bandwidth Product	GBWP			1.5		MHz
Slew Rate	S_R			0.5		V/uS

Typical Applications









Typical Characteristics

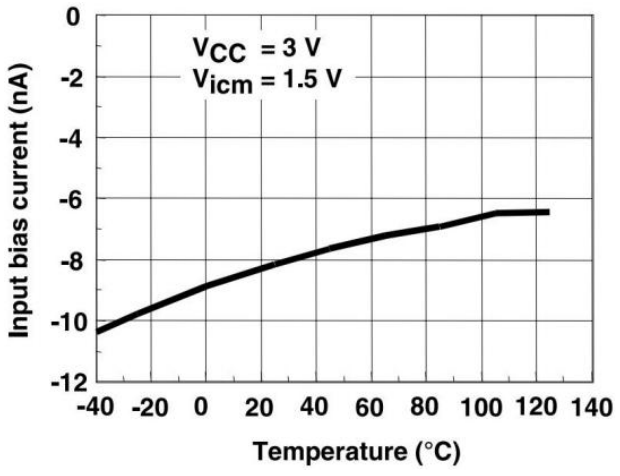


Fig.5 Input Bias Current vs. Temperature(V_{CC}=3V)

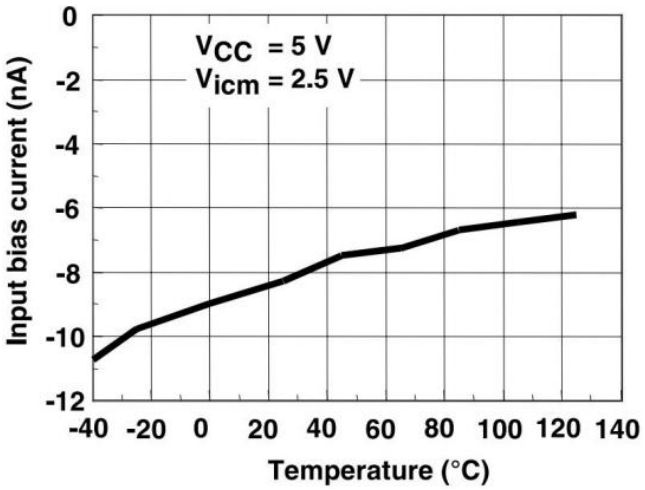


Fig.6 Input Bias Current vs. Temperature(V_{CC}=5V)

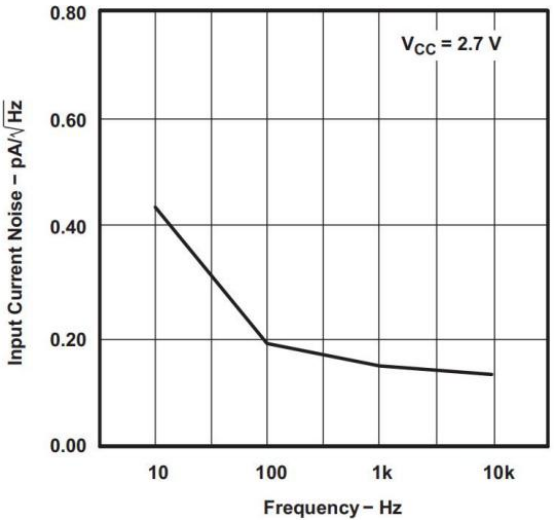


Fig.7 Input Current Nose vs. Frequency(V_{CC}=2.7V)

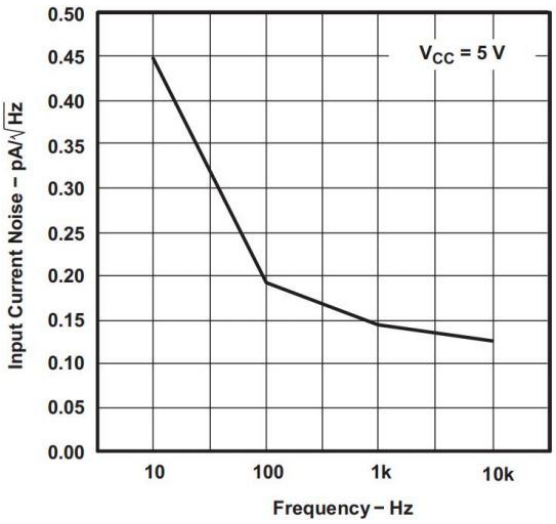


Fig.8 Input Current Nose vs. Frequency(V_{CC}=5V)

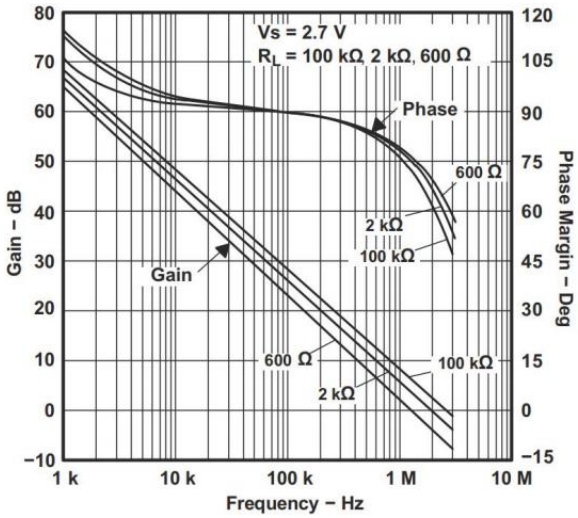


Fig.9 Frequency Response vs. Resistive Load(V_{CC}=2.7V)

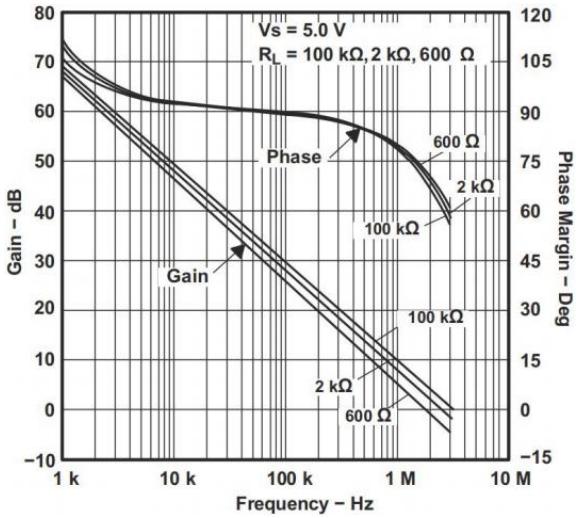


Fig.9 Frequency Response vs. Resistive Load(V_{CC}=5V)

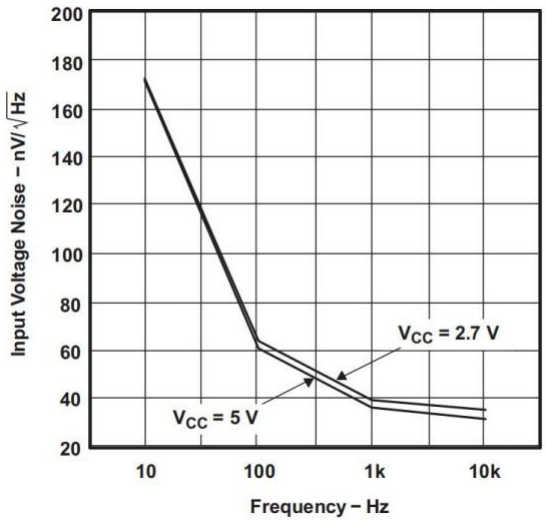
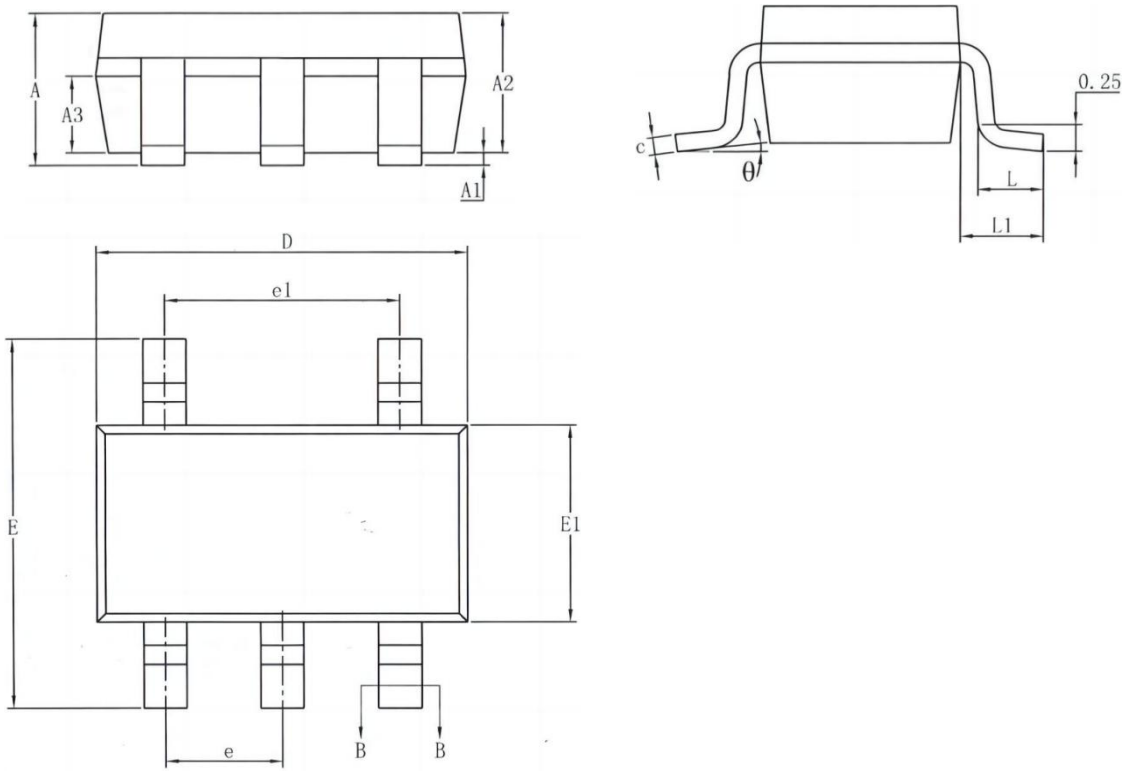


Fig.11 Input Voltage Noise vs. Frequency

Package Information

SOT-23-5

Dimensions in mm



Symbol	Dimensions In Millimeters			Symbol	Dimensions In Millimeters		
	Min	Nom	Max		Min	Nom	Max
A	-	-	1.25	D	2.82	2.92	3.02
A1	0.04	-	0.10	E	2.60	2.80	3.00
A2	1.00	1.10	1.20	E1	1.50	1.60	1.70
A3	0.60	0.65	0.70	e	0.95 BSC		
b	0.33	-	0.41	e1	1.90 BSC		
b1	0.32	0.35	0.38	L	0.30	-	0.60
c	0.15	-	0.19	L1	0.60 REF		
c1	0.14	0.15	0.16	θ	0°	-	8°

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