GS321LVLF

General Purpose CMOS Operational Amplifiers

Product Description

The GS321LV is a general CMOS operational amplifier with low power, low noise and rail to rail output swing.

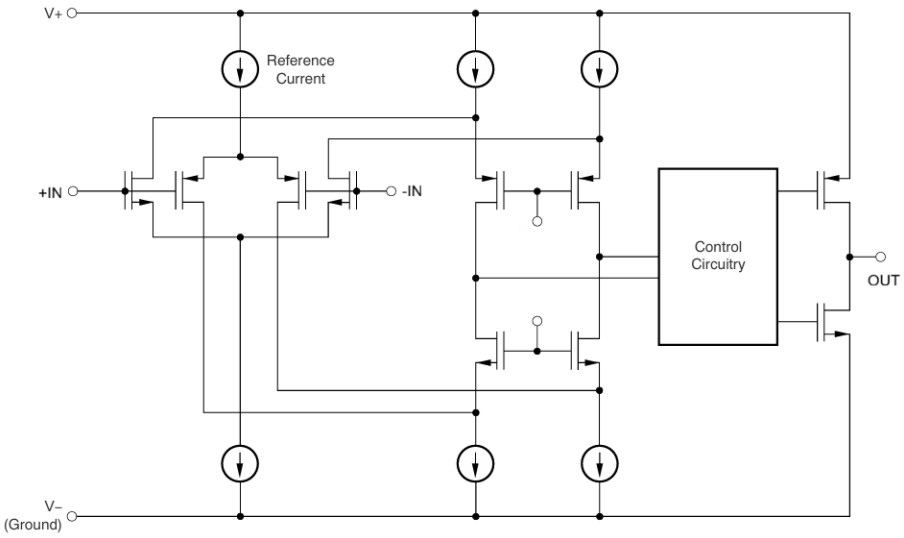
Features

- Supply Range +2.1V to +5.5V
- GBP 1.2MHz
- Low supply current 60μA
- Rail-to-rail output swing
- SOT-23-5L Package
- RoHS Compliant & Halogen Free

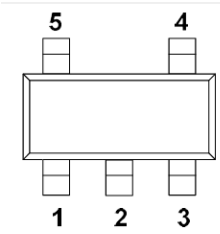
Applications

- Chargers
- Power supplies
- Industrial: controls, instruments
- Desktops
- Communications infrastructure

Block Diagram



Packages & Pin Assignments



To View

Pin	Pin Name	I/O	Description
1	+IN	Input	Noninverting Input
2	V-	-	Negative (lowest) supply or ground (for single-supply operation)
3	-IN	Input	Inverting Input
4	OUT	Output	Output
5	V+	-	Positive (highest) supply

Ordering and Marking Information

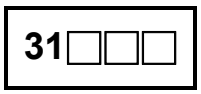
Ordering Information

Part Number	Package	Part Marking	Quantity / Reel
GS321LVLF	SOT-23-5L	321 / 31□□□	3,000 PCS

GSM321LV 1 2

- **Product Code:** GS321LV
- **Package Code:** 1 is **L** for SOT-23-5L
- **Green Level:** 2 is **F** for RoHS Compliant and Halogen Free

Marking Information



- **Product Code:** 31 or 321
- **GS Code:** □□□

Absolute Maximum Ratings

Symbol	Parameter	Value	Unit
V+ to V-	Supply voltage	-0.3 to 6.0	V
IN	Input voltage	-0.3 to 6.3	V
T_J	Maximum junction temperature	150	ºC
T_{STG}	Storage temperature range	-65 to +150	ºC
$R\theta_{JA}$	Thermal resistance junction to ambient	190	ºC/W
ESD	Human body mode (HBM)	4000	V

Note

1. Stresses beyond those listed under" absolute maximum ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated under "recommended operating conditions" is not implied. Exposure to absolute-maximum-rated conditions for extended periods may affect device reliability.
2. This integrated circuit can be damaged by ESD if you don't pay attention to ESD protection. Recommends that all integrated circuits be handled with appropriate precautions. Failure to observe proper handling and installation procedures can cause damage. ESD damage can range from subtle performance degradation to complete device failure. Precision integrated circuits may be more susceptible to damage because very small parametric changes could cause the device not to meet its published specifications.

Recommended Operating Conditions

Symbol	Parameter	Range	Unit
V_S	Supply voltage	2.1 to 5.5	V
T_A	Ambient temperature	-40 to 85	ºC

Electrical Characteristics (V_S=+5V, T_A=25°C, V_{CM}=V_S/2, unless otherwise noted)

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
V_{OS}	Input offset voltage			1	3.7	mV
I_B	Input bias current			1		pA
I_{OS}	Input offset current			1		pA
V_{CM}	Common-mode voltage range	V_S=5.5V	-0.1		5.6	V
CMRR	Common-mode rejection ratio	V_S=5.5V, V_{CM}=-0.1V to 4.0V	60	80		dB
		V_S=5.5V, V_{CM}=-0.1V to 5.6V	64	75		dB
A_{OL}	Open-loop voltage gain	R_L=5KΩ, V_O=0.15V to 4.85V	70	80		dB
		R_L=10KΩ, V_O=0.05V to 4.95V	75	85		dB
$\Delta V_{OS}/\Delta_T$	input offset voltage drift			2.7		μV/ºC
	Output voltage swing from rail	R_L=10KΩ		0.015		V
		R_L=100KΩ		0.015		V
PSRR	Power supply rejection ratio	V_S=+2.5V to +5.5V V_{CM}=(-V_S)+0.5V	70	80		dB
I_Q	Quiescent current	I_{OUT}=0A	60	85		μA
GBP	Gain-bandwidth product			1.2		MHz
SR	Slew rate	G=+1,2V Output step		0.65		V/μs
ts	Settling time to 0.1%	G=+1,2V Output step		5		μs
	Overload recovery time	V_{IN} Gain=V_S		1		μs

Typical Performance Characteristics

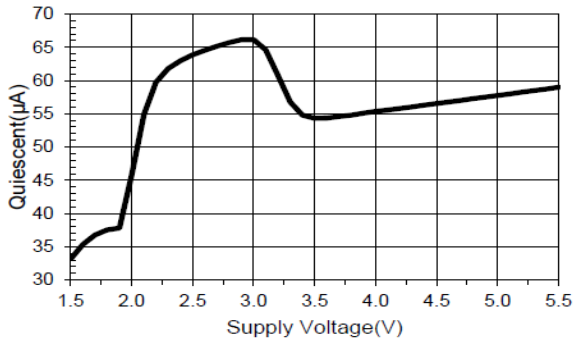


Fig.1 Quiescent Current vs. Supply Voltage

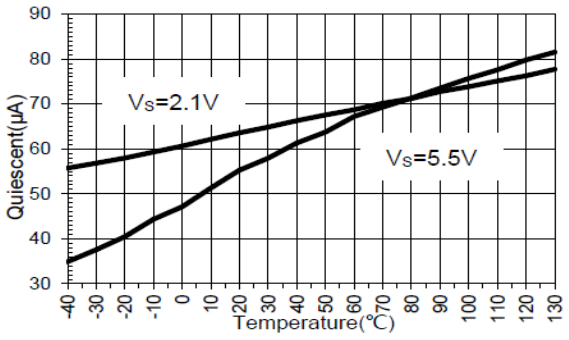


Fig.2 Quiescent Current vs. Temperature

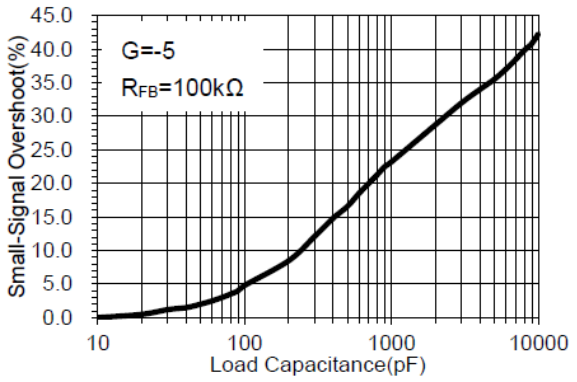


Fig.3 Small-Signal overshoot vs Capacitive load

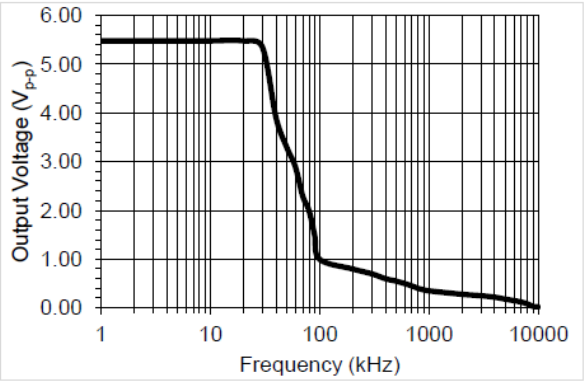
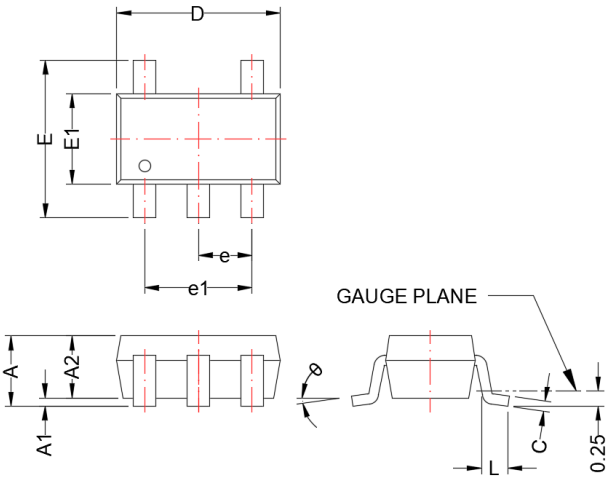


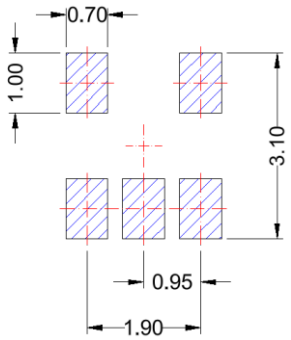
Fig.4 Output voltage vs Frequency

SOT-23-5L

Package Dimension



Recommended Land Pattern



Unit:mm

Dimensions				
Symbol	Millimeters		Inches	
	Min	Max	Min	Max
A	0.90	1.45	0.035	0.057
A1	0.00	0.15	0.000	0.006
A2	0.90	1.30	0.035	0.051
b	0.30	0.50	0.012	0.020
c	0.08	0.26	0.003	0.010
D	2.70	3.10	0.106	0.122
E	2.20	3.00	0.087	0.118
E1	1.30	1.75	0.051	0.069
e	0.95 BSC		0.037 BSC	
e1	1.90 BSC		0.075 BSC	
L	0.30	0.60	0.012	0.024
θ	0°	8°	0°	8°

Note:
Dimensions are exclusive of Burrs, Mold Flash & Tie Bar extrusions.

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