

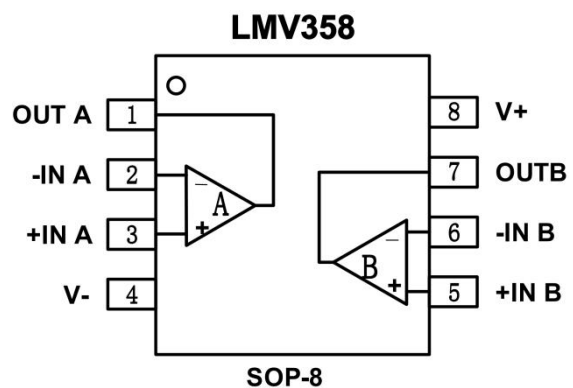
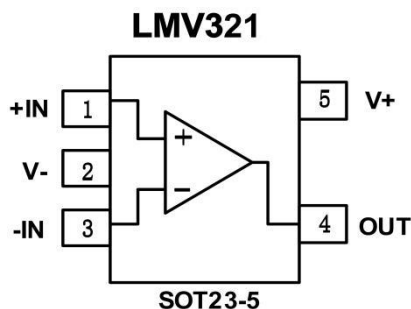
DESCRIPTION

The LMV321(Single), LMV358 (Dual) is low cost, voltage feedback amplifiers. These devices can operate from 2.1V to 5.5V single supply, and consume only 40 μ A quiescent current per amplifier. They provide rail-to-rail input with a wide input common mode voltage range and rail-to-rail output voltage swing. This feature makes LMV321/358 appropriate for buffering ASIC.

The LMV321/358 offer a gain-bandwidth product of 1.5MHz and an ultra-low input bias current of 10pA. They are well suited for piezoelectric sensors, integrators and photo diode amplifiers.

The LMV321/358 are designed into a wide range of applications, such as portable systems, safety monitoring, battery-powered instrumentation, and portable systems.

Pin Configuration



FEATURES

Low Cost

Supply Voltage Range: 2.1V to 5.5V

Low Supply Current : 40 μ A/Amp(TYP)

Low Offset Voltage: ± 0.8 mV(TYP)

Unity-Gain Stable

Gain-Bandwidth Product : 1.5MHz(TYP)

Slew Rate: 0.6V/ μ s(TYP)

Rail-to-Rail Input and Output

Input Voltage Range: -0.1V to 5.6V

with $V_S = 5.5$ V

Operating Temperature: -20 $^{\circ}$ C~+85 $^{\circ}$ C

APPLICATIONS

Active filter

Electronic instrumentation

General Purpose Portable Devices

General Purpose Low Voltage

Absolute Maximum Ratings

Over operating free-air temperature range (unless otherwise noted)

PARAMETER	MIN	MAX	UNIT
Power Supply Voltage(V+ to V-)	2.1	6	V
Differential Input Voltage		±5.5	V
Common mode Input Voltage	-0.3	VCC+0.3V	V
Maximum Junction Temperature		+150	°C
Storage Temperature Range	-65	+150	°C
Lead Temperature(Soldering, 10 sec)		260	°C

Stresses beyond those listed under Absolute Maximum Ratings may cause permanent damage to the device. Exposure to any Absolute Maximum Rating condition for extended periods may affect device reliability and lifetime.

Recommended Operating Conditions

Over operating free-air temperature range (unless otherwise noted)

	MIN	NOM	MAX	UNIT
Supply Voltage, Vs=(V+) - (V-)	2.1		5.5	V
Operating Temperature Range	-20		+85	°C

ELECTRICAL CHARACTERISTICS

(V+=5V, T_A = 25°C, unless otherwise noted)

PARAMETER	SYMBOL	CONDITIONS	SPEC			
			MIN	TYP	MAX	UNIT
Input offset voltage	V _{IO}		-	±0.8	±5	mV
Input offset current	I _{IO}		-	±10	-	pA
Input bias current	I _{BIAS}		-	±10	-	pA
Input Common Mode Voltage	V _{ICM}	V+=5.5V	-0.1	-	5.6	V
Quiescent Current/Amplifier	I _Q			40		μA
Output short-circuit current	I _{SC}		-	60	-	mA
Large Signal Voltage Gain	G _v	R _L =5KΩ, V _o =0.1 to 4.9V	70	90	-	dB
		R _L =100KΩ, V _o =0.035 to 4.965V	80	94	-	dB
Common Mode Rejection Ratio	CMRR	V+=5.5V, V _{ICM} =-0.1 to 4V	62	90	-	dB
		V+=5.5V, V _{ICM} =-0.1 to 5.6V	56	88	-	dB
Power supply Rejection Ratio	PSRR	V+=2.5V to 5.5V, V _{ICM} =0.5V	60	80	-	dB
Output Swing	V _{OH}	R _L =10KΩ	V ₊ - 0.1	V ₊ -0.01	-	V
	V _{OL}		-	10	-	mV
Gain-Bandwidth Product	GBWP		-	1.5	-	MHz
Slew Rate	SR		-	0.6	-	V/us

TYPICAL APPLICATIONS

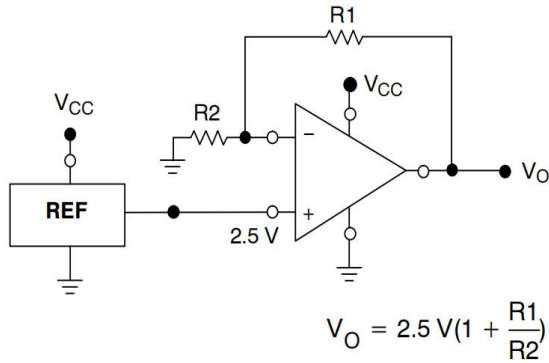


Figure 1. Reference Voltage

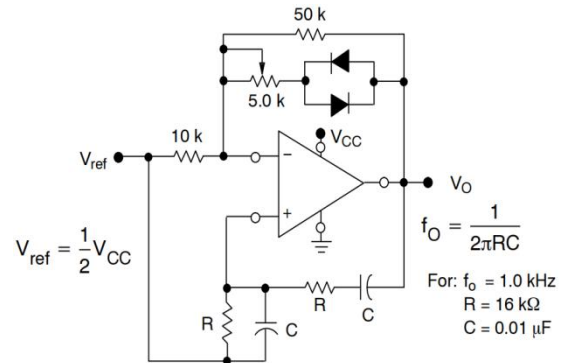


Figure 2. Wien Bridge Oscillator

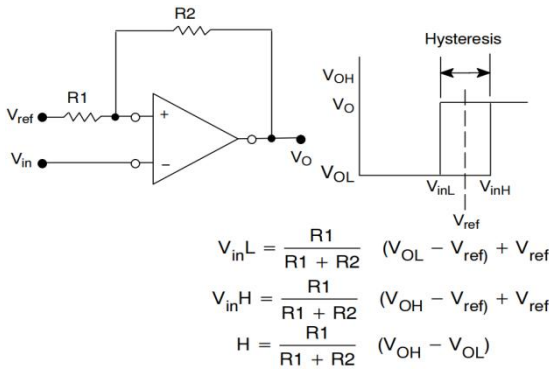


Figure 3. Lag Comparator

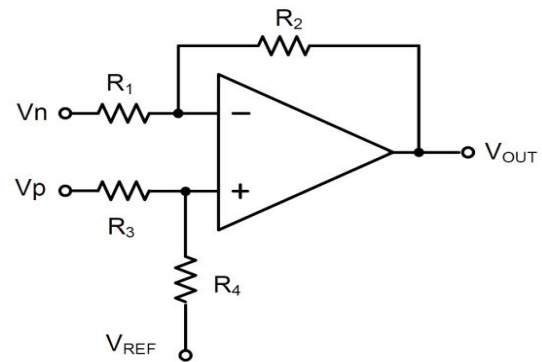


Figure 4. Differential Amplifier

TYPICAL CHARACTERISTICS

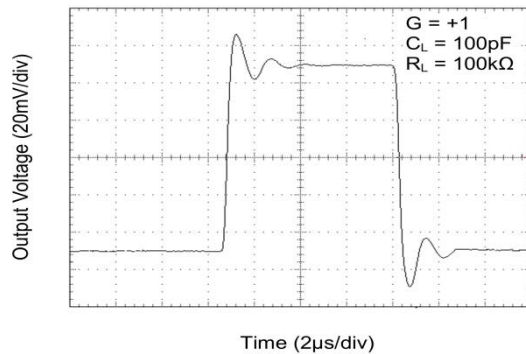


Figure 5. Small-Signal Step Response

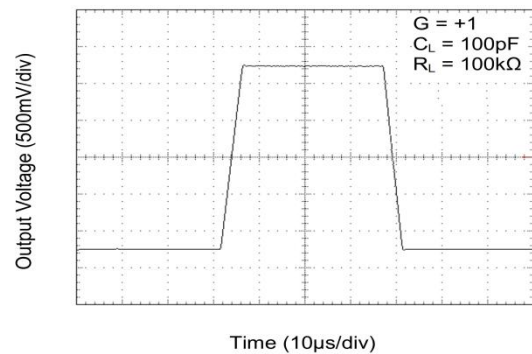


Figure 6. Large-Signal Step Response

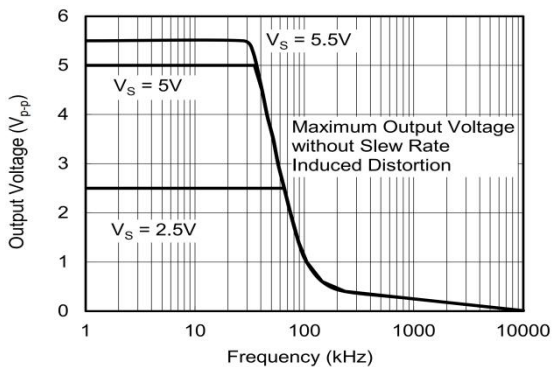


Figure 7. Maximum Output Voltage vs. Frequency

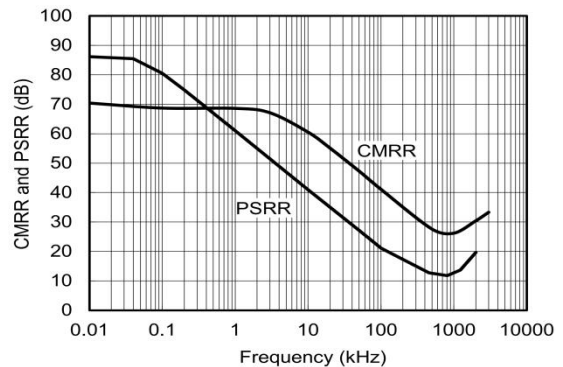
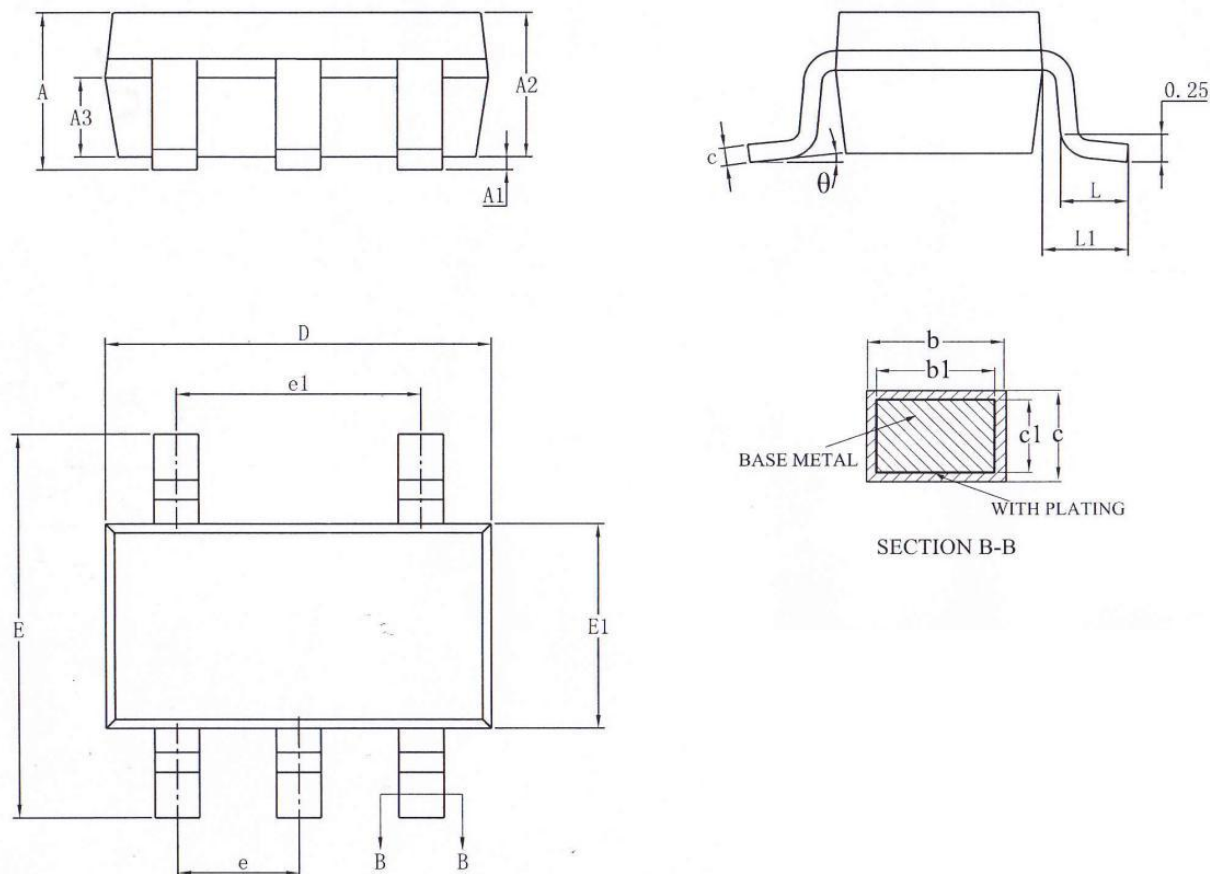
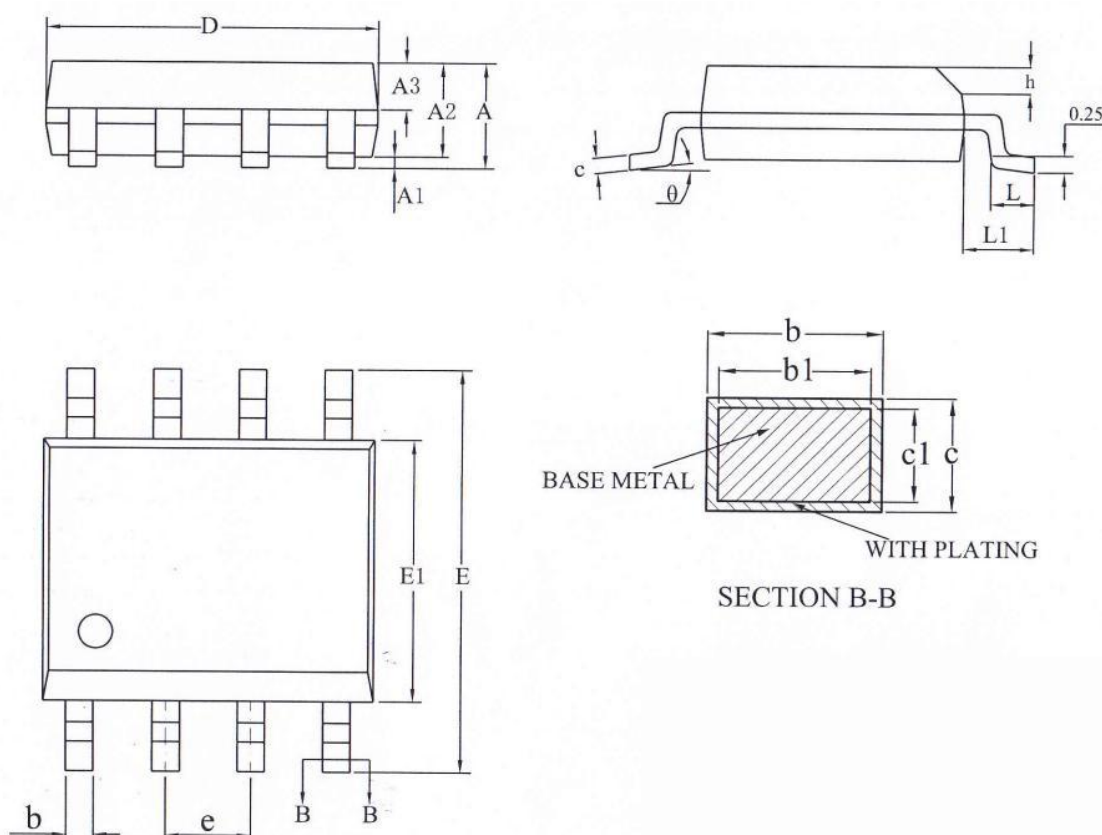


Figure 8. CMRR & PSRR vs. Frequency

PACKAGE OUTLINE DIMENSIONS
SOT23-5


SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	—	—	1.25
A1	0.04	—	0.10
A2	1.00	1.10	1.20
A3	0.60	0.65	0.70
b	0.33	—	0.41
b1	0.32	0.35	0.38
C	0.15	—	0.19
c1	0.14	0.15	0.16
D	2.82	2.92	3.02
E	2.60	2.80	3.00
E1	1.50	1.60	1.70
e	0.95BSC		
e1	1.90BSC		
L	0.30	—	0.60
L1		0.60REF	
θ	0	—	8°

SOP8


SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	—	—	1.75
A1	0.10	—	0.225
A2	1.30	1.40	1.50
A3	0.60	0.65	0.70
b	0.39	—	0.47
b1	0.38	0.41	0.44
c	0.20	—	0.24
c1	0.19	0.20	0.21
D	4.80	4.90	5.00
E	5.80	6.00	6.20
E1	3.80	3.90	4.00
e	1.27BSC		
h	0.25	—	0.5
L	0.50	—	0.8
L1	1.05REF		
θ	0	—	8°

Package/Ordering Information

MODEL	CHANNEL	ORDER NUMBER	PACKAGE DESCRIPTION	PACKAGE OPTION	MARKING INFORMATION
LMV321	Single	LMV321IDBVR-CN	SOT23-5	Tape and Reel,3000	RCIF
	Dual	LMV358IDR-CN	SOP-8	Tape and Reel,4000	LMV358

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