

芯伯乐®  
X I N B O L E

# Product Specification

XBLV321, XBLV358

1.5MHz, RRIO, CMOS, Op Amps

WEB | [www.xinboleic.com](http://www.xinboleic.com)



## DESCRIPTION

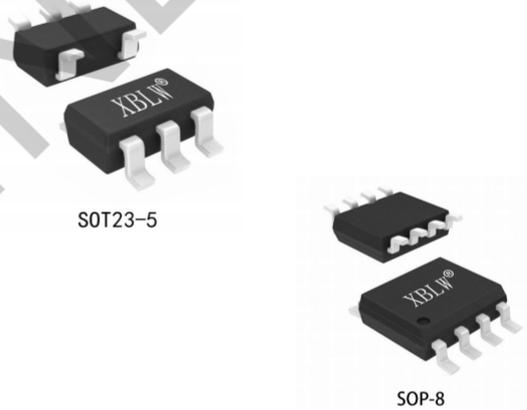
The LMV321(Single), LMV358 (Dual) is low cost, voltage feedback amplifiers. These devices can operate from 2.1V to 5.5V single supply, and consume only 40 $\mu$ A quiescent current per amplifier. They provide rail-to-rail input with a wide input common mode voltage range and rail-to-rail output voltage 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.

## FEATURES

- Low Cost
- Supply Voltage Range: 2.1V to 5.5V
- Low Supply Current : 40 $\mu$ A/Amp (TYP)
- Low Offset Voltage:  $\pm$ 0.8mV (TYP)
- Unity-Gain Stable
- Gain-Bandwidth Product : 1.5MHz (TYP)
- Slew Rate: 0.6V/ $\mu$ s (TYP)
- Rail-to-Rail Input and Output
- Input Voltage Range: -0.1V to 5.6V with  $V_S = 5.5V$
- Operating Temperature: -20 $^{\circ}$ C~+85 $^{\circ}$ C



## APPLICATIONS

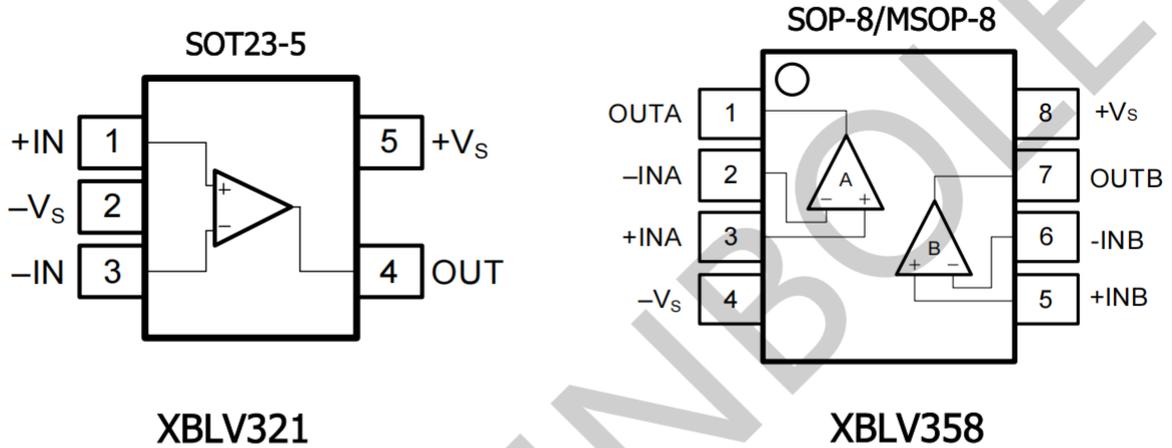
- Active filter
- Electronic instrumentation
- General Purpose Portable Devices
- General Purpose Low Voltage



## Ordering Information

Product Model	Package Type	Marking	Packing	Packing Qty
XBLV321DTR	SOT23-5	V321	Tape	3000Pcs/Reel
XBLV358DTR	SOP-8	V358	Tape	2500Pcs/Reel
XBLV358MDTR	MSOP-8	V358M	Tape	3000Pcs/Reel

## Pin Configuration



## 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<sub>A</sub> = 25°C unless otherwise noted)

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

## TYPICAL APPLICATIONS

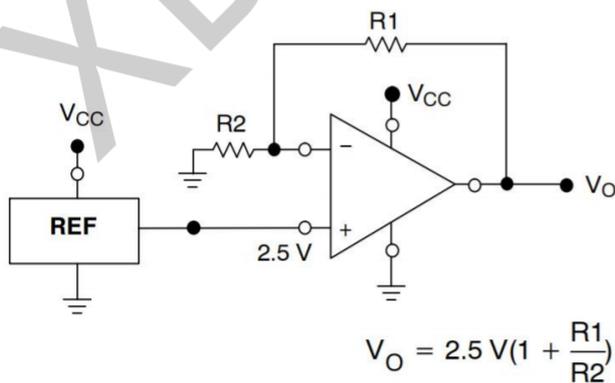


Figure 1. Reference Voltage

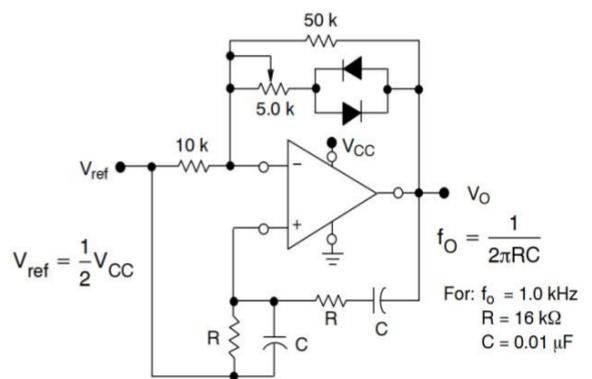


Figure 2. Wien Bridge Oscillator

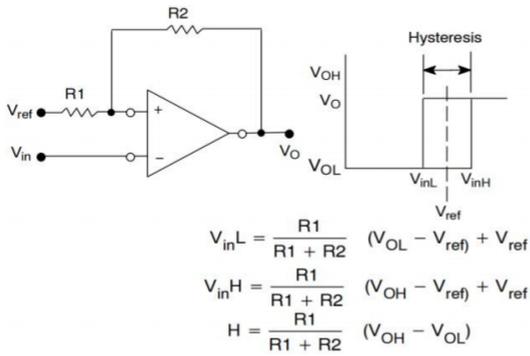


Figure 3. Lag Comparator

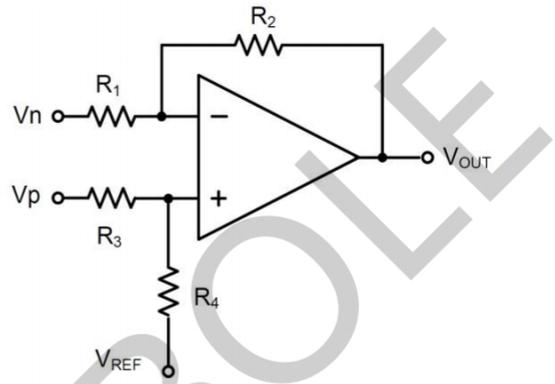


Figure 4. Differential Amplifier

## TYPICAL CHARACTERISTICS

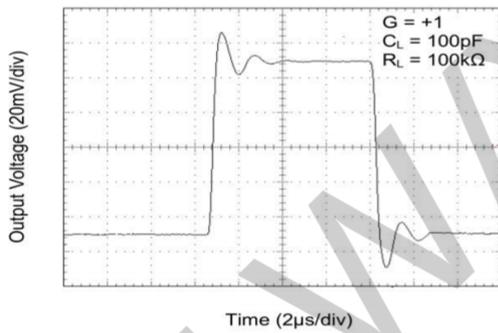


Figure 5. Small-Signal Step Response

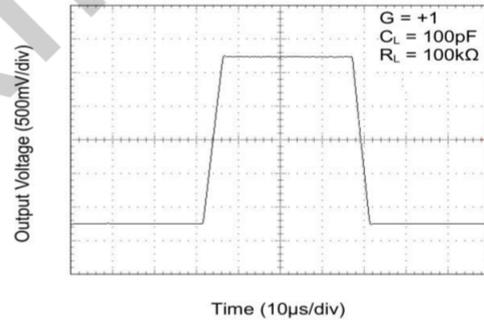


Figure 6. Large-Signal Step Response

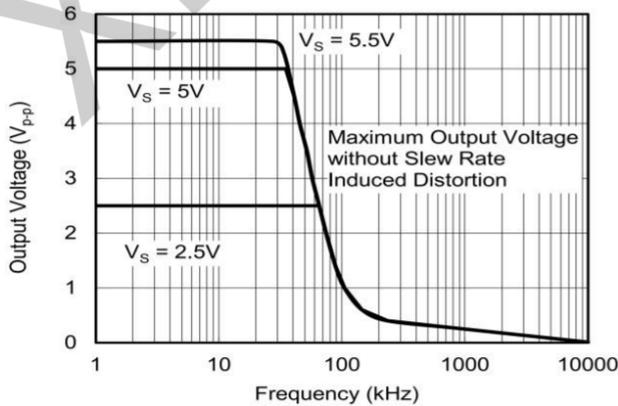


Figure 7. Maximum Output Voltage vs. Frequency

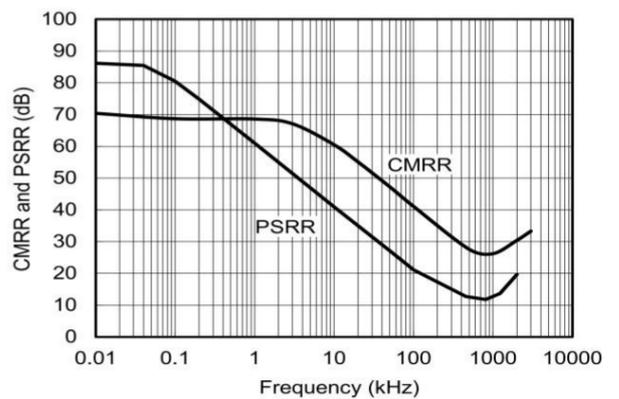
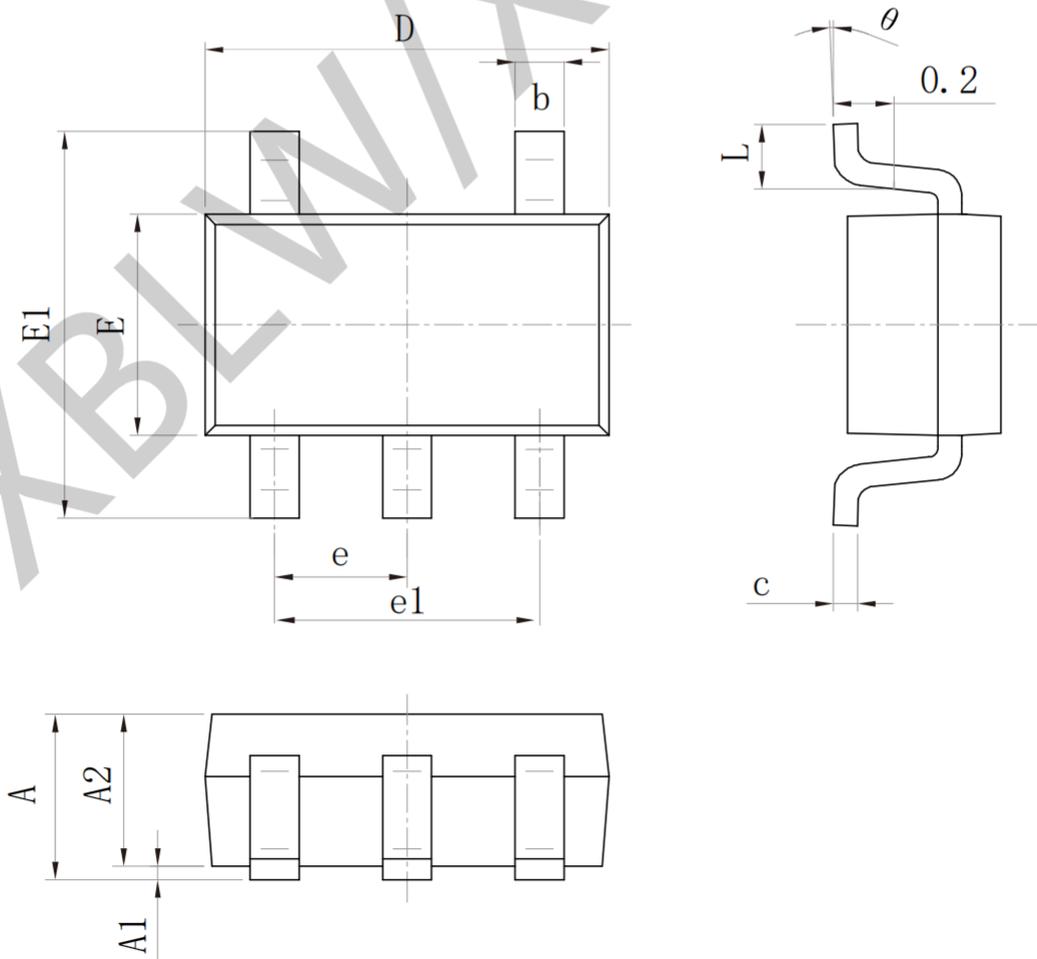


Figure 8. CMRR & PSRR vs. Frequency

### Package Information

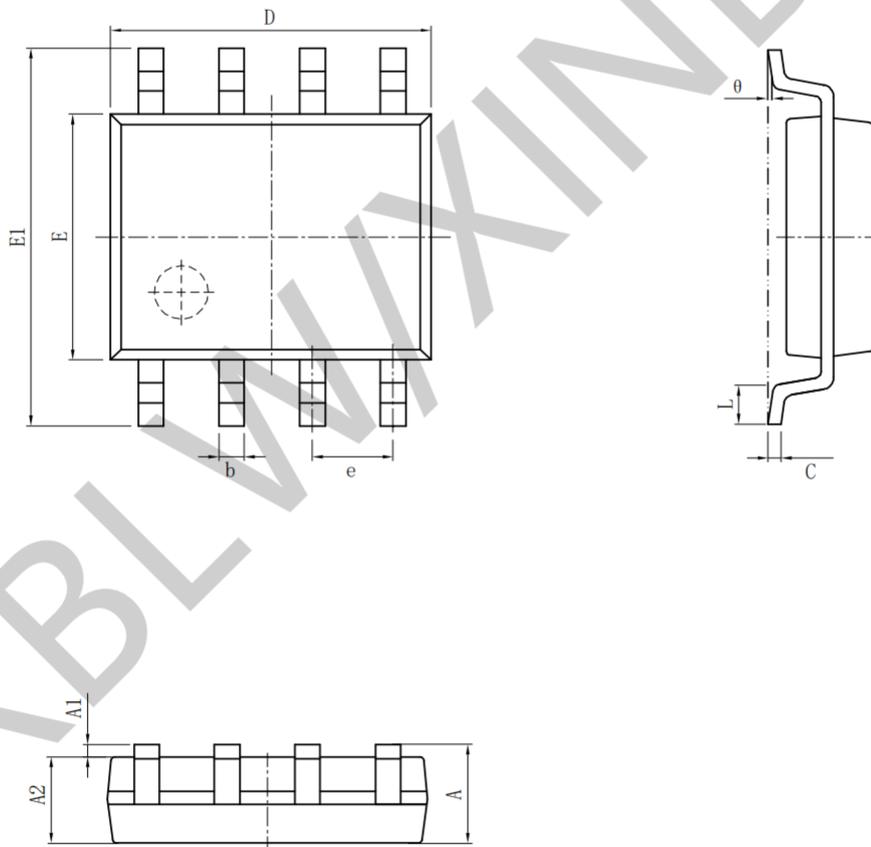
- SOT23-5

SIZE SYMBOL	Dimensions In Millimeters		SIZE SYMBOL	Dimensions In Inches	
	MIN (mm)	MAX (mm)		MIN (in)	MAX (in)
A	1.050	1.250	A	0.041	0.049
A1	0.000	0.100	A1	0.000	0.004
A2	1.050	1.150	A2	0.041	0.045
b	0.300	0.500	b	0.012	0.020
c	0.100	0.200	c	0.004	0.008
D	2.820	3.020	D	0.111	0.119
E	1.500	1.700	E	0.059	0.067
E1	2.650	2.950	E1	0.104	0.116
e	0.95 (BSC)		e	0.037 (BSC)	
e1	1.800	2.000	e1	0.071	0.079
L	0.300	0.600	L	0.012	0.024
$\theta$	0°	8°	$\theta$	0°	8°



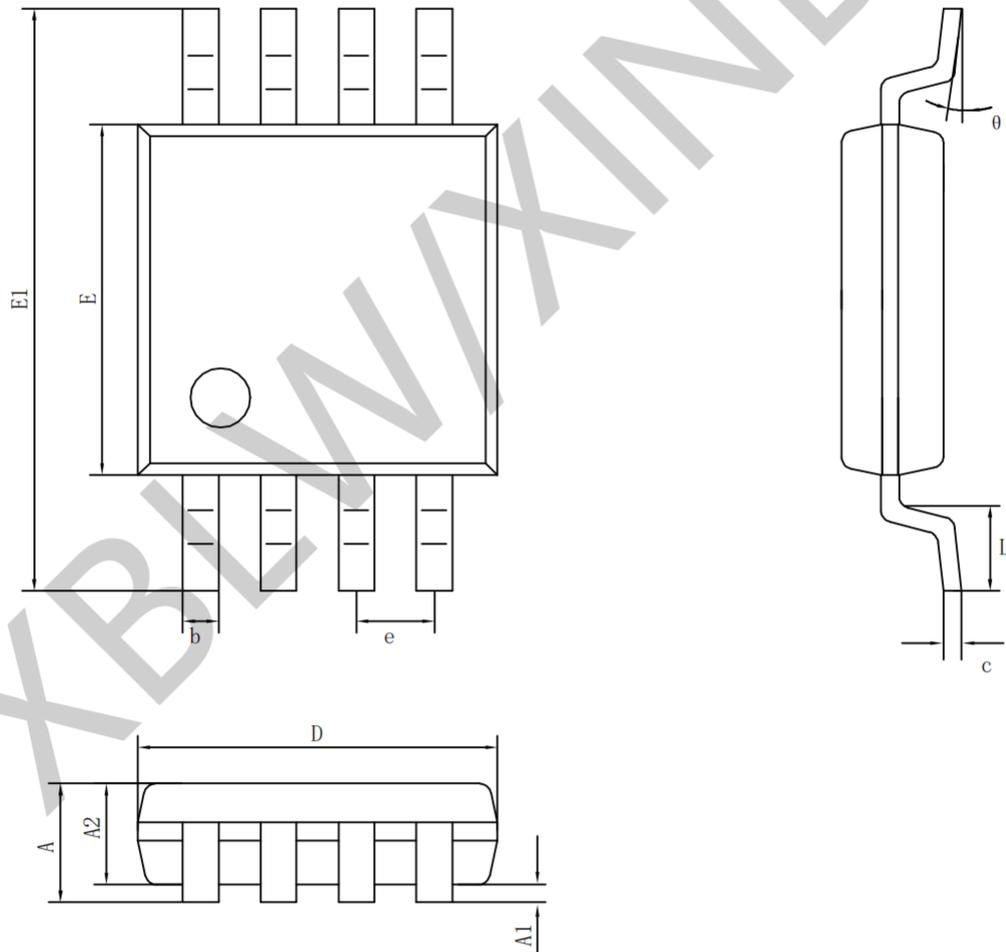
• SOP-8

Symbol	Dimensions In Millimeters		Symbol	Dimensions In Inches	
	Min (mm)	Max (mm)		Min (in)	Max (in)
A	1.350	1.750	A	0.053	0.069
A1	0.100	0.250	A1	0.004	0.010
A2	1.350	1.550	A2	0.053	0.061
b	0.330	0.510	b	0.013	0.020
c	0.170	0.250	c	0.006	0.010
D	4.700	5.100	D	0.185	0.200
E	3.800	4.000	E	0.150	0.157
E1	5.800	6.200	E1	0.228	0.224
e	1.270 (BSC)		e	0.050 (BSC)	
L	0.400	1.270	L	0.016	0.050
$\theta$	0°	8°	$\theta$	0°	8°



• MSOP-8

Symbol	Size	Dimensions In Millimeters		Symbol	Size	Dimensions In Inches	
		Min (mm)	Max (mm)			Min (in)	Max (in)
A		0.820	1.100	A		0.320	0.043
A1		0.020	0.150	A1		0.001	0.006
A2		0.750	0.950	A2		0.030	0.037
b		0.250	0.380	b		0.010	0.015
c		0.090	0.230	c		0.004	0.009
D		2.900	3.100	D		0.114	0.122
e		0.65 (BSC)		e		0.026 (BSC)	
E		2.900	3.100	E		0.114	0.122
E1		4.750	5.050	E1		0.187	0.199
L		0.400	0.800	L		0.016	0.031
θ		0°	6°	θ		0°	6°



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