

**DUAL LOW NOISE OPERATIONAL AMPLIFIERS****AZ4558A****General Description**

The AZ4558A consists of two low noise, high performance operational amplifiers. It is specially suitable for applications in differential-in, differential-out as well as in industrial measurement tools and applications where gain and phase matched channels are mandatory.

The IC features monolithic silicon chip, internal frequency compensation, low noise, low distortion, wide operating voltage range, high gain and high bandwidth. The AZ4558A can operate under dual power supply voltage up to  $\pm 18V$  or single power supply up to 36V.

**Features**

- Operating voltage:  $\pm 2V \sim \pm 18V$
- Large DC voltage gain: 110 dB
- Low input noise voltage:  $1\mu V_{RMS}$
- Wide gain bandwidth product: 7 MHz
- Slew rate:  $3V/\mu s$
- Package outline: DIP8, SOIC8

**Applications**

- Audio AC-3 decoded system
- Audio amplifier
- AC/DC converter

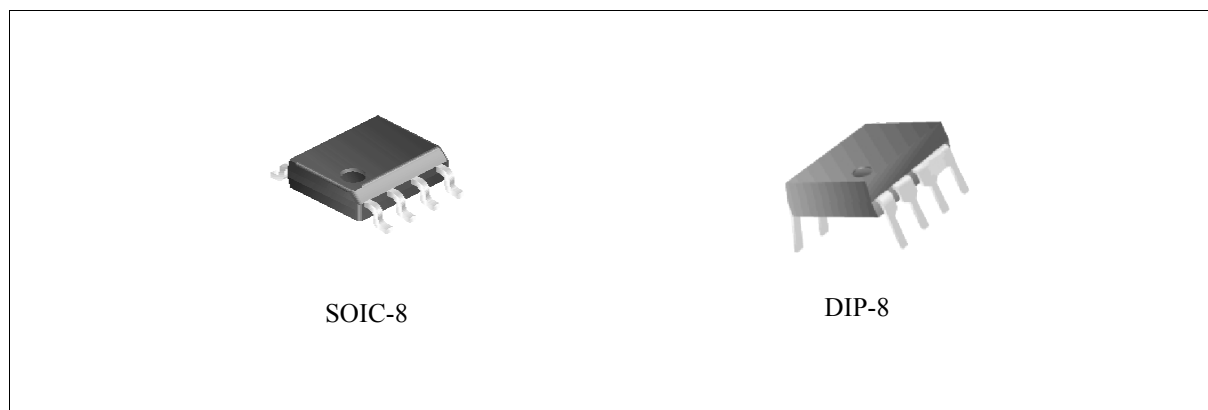


Figure 1. Package Types of AZ4558A



**DUAL LOW NOISE OPERATIONAL AMPLIFIERS**

**AZ4558A**

**Pin Configuration**

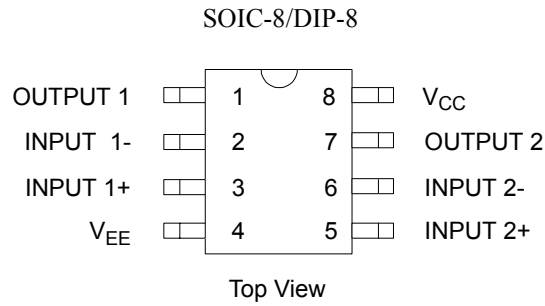


Figure 2. Pin Configuration of AZ4558A

**Functional Block Diagram**

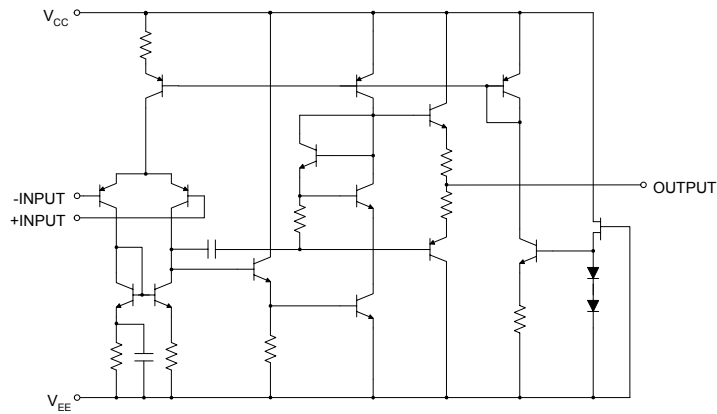


Figure 3. Representative Schematic Diagram of AZ4558A (Each Amplifier)

**DUAL LOW NOISE OPERATIONAL AMPLIFIERS****AZ4558A****Ordering Information**

Package	Temperature Range	Part Number	Marking ID	Packing Type
SOIC-8	-40°C to 85°C	AZ4558AM	4558AM	Tube/Tape/Reel
DIP-8		AZ4558AP	AZ4558AP	Tube

**AZ 4558A Y**

Circuit Type \_\_\_\_\_ Package  
M: SOIC-8  
P: DIP-8

**Absolute Maximum Ratings (Note 1)**

Parameter	Symbol	Value	Unit
Power Supply Voltage	$V_{CC}$	+ 20	V
	$V_{EE}$	- 20	
Differential Input Voltage	$V_{ID}$	± 30	V
Input Voltage	$V_{IC}$	± 15	V
Power Dissipation	$P_D$	DIP 800	mW
		SOIC 800	
Operating Temperature Range	$T_{OP}$	-40 to 85	°C
Storage Temperature Range	$T_{STG}$	-60 to 150	°C
ESD (Human Body Model)		3000	V
ESD (Machine Model)		400	V

Note 1: Stresses greater than 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 Ratings" for extended periods may affect device reliability.

**Recommended Operating Conditions**

Parameter	Min	Max	Unit
Supply Voltage	± 2	± 18	V

**DUAL LOW NOISE OPERATIONAL AMPLIFIERS****AZ4558A****Electrical Characteristics**Operating Conditions:  $V_{CC} = +15V$ ,  $V_{EE} = -15V$ ,  $T_A = 25^\circ C$  unless otherwise specified.

Parameter	Conditions	Min	Typ	Max	Unit
Input Offset Voltage	$R_S \leq 10K\Omega$	-	0.5	3	mV
Input Bias Current		-	65	250	nA
Input Offset Current		-	5	50	nA
Supply Current		-	2.5	4	mA
Large Signal Voltage Gain	$R_L \geq 2K\Omega$ , $V_O = \pm 10V$	85	110	-	dB
Common Mode Rejection Ratio	$R_S \leq 10K\Omega$	80	100	-	dB
Power Supply Rejection Ratio	$R_S \leq 10K\Omega$	80	100	-	dB
Output Voltage Swing	$R_L \geq 2K\Omega$	$\pm 10$	$\pm 13$	-	V
	$R_L \geq 10K\Omega$	$\pm 12$	$\pm 14$	-	
Output Sink Current	$V_- = 1V$ , $V_+ = 0V$ , $V_O = 2V$		70		mA
Output Source Current	$V_+ = 1V$ , $V_- = 0V$ , $V_O = 2V$		45		mA
Slew Rate		-	3	-	V / $\mu S$
Equivalent Input Noise Voltage	RIAA, $R_s = 1K\Omega$ , 30KHz LPF	-	1	-	$\mu V_{RMS}$
Gain Bandwidth Product	$f = 10KHz$	-	7	-	MHz



Typical Performance Characteristics

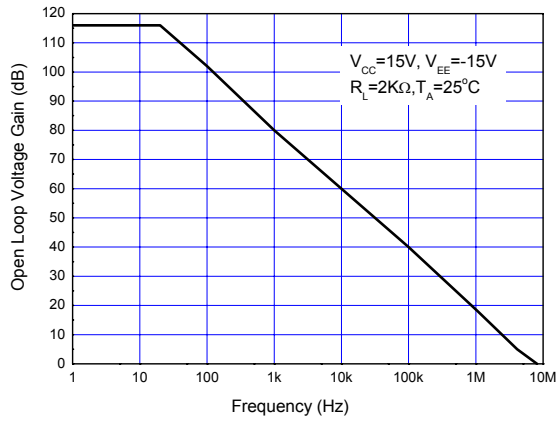


Figure 4. Open Loop Voltage Gain vs. Frequency

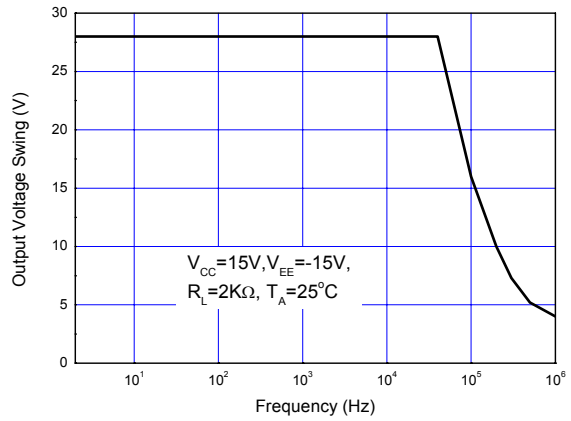


Figure 5. Maximum Output Voltage Swing vs. Frequency

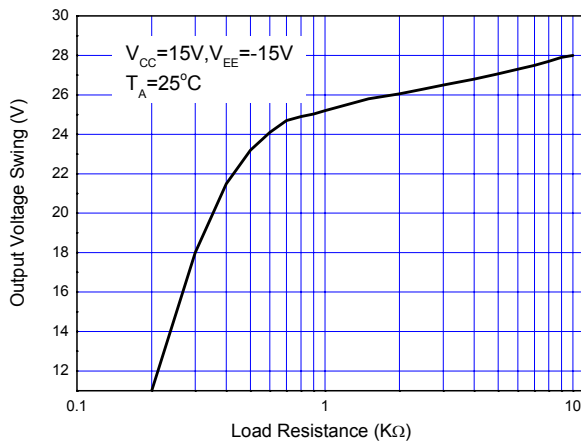


Figure 6. Maximum Output Voltage Swing vs. Load Resistance

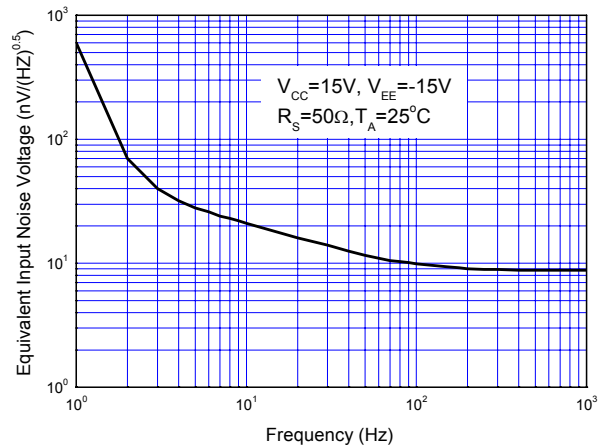


Figure 7. Equivalent Input Noise Voltage vs. Frequency



Typical Performance Characteristics (Continued)

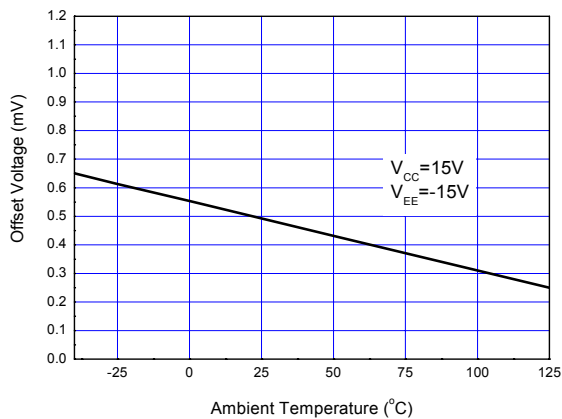


Figure 8. Input Offset Voltage vs. Temperature

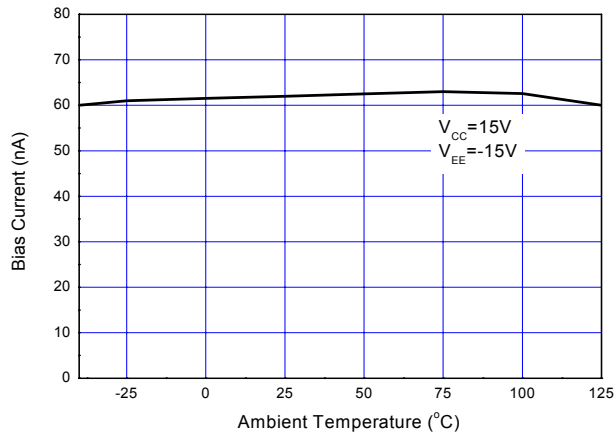


Figure 9. Input Bias Current vs. Temperature

Typical Applications

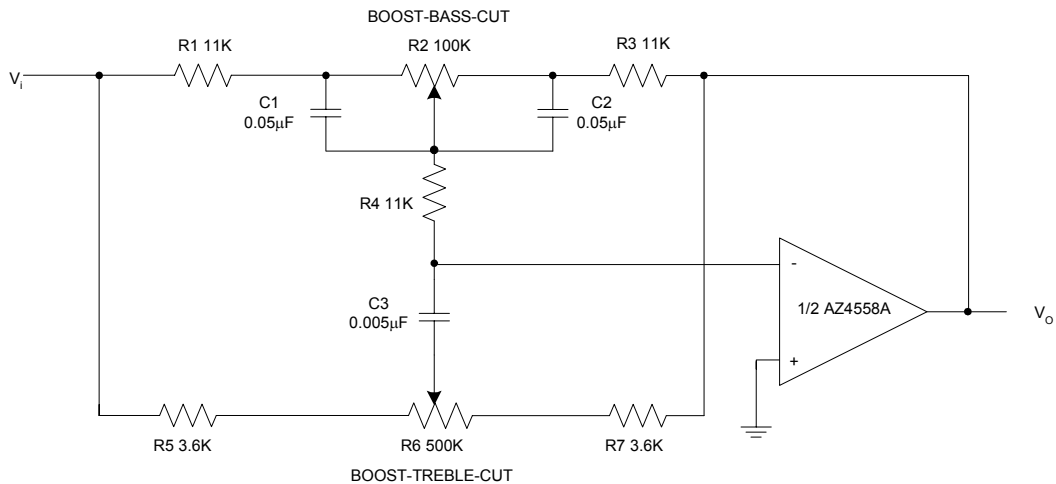


Figure 10. Tone Control



Typical Applications (Continued)

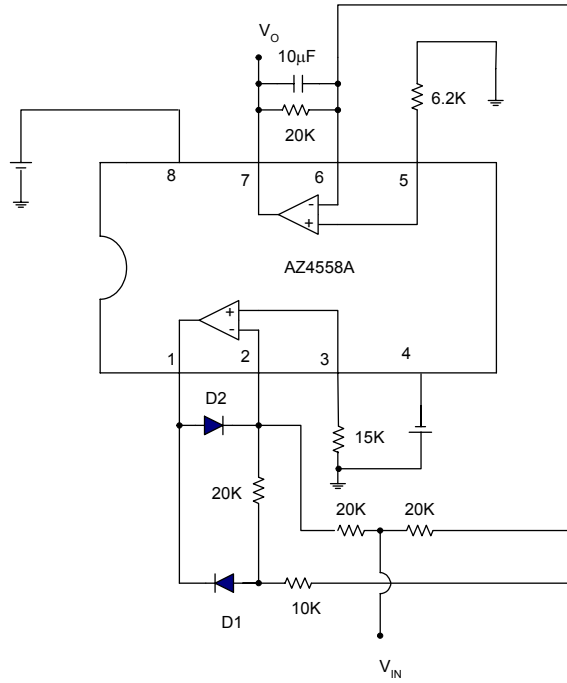


Figure 11. AC/DC Converter



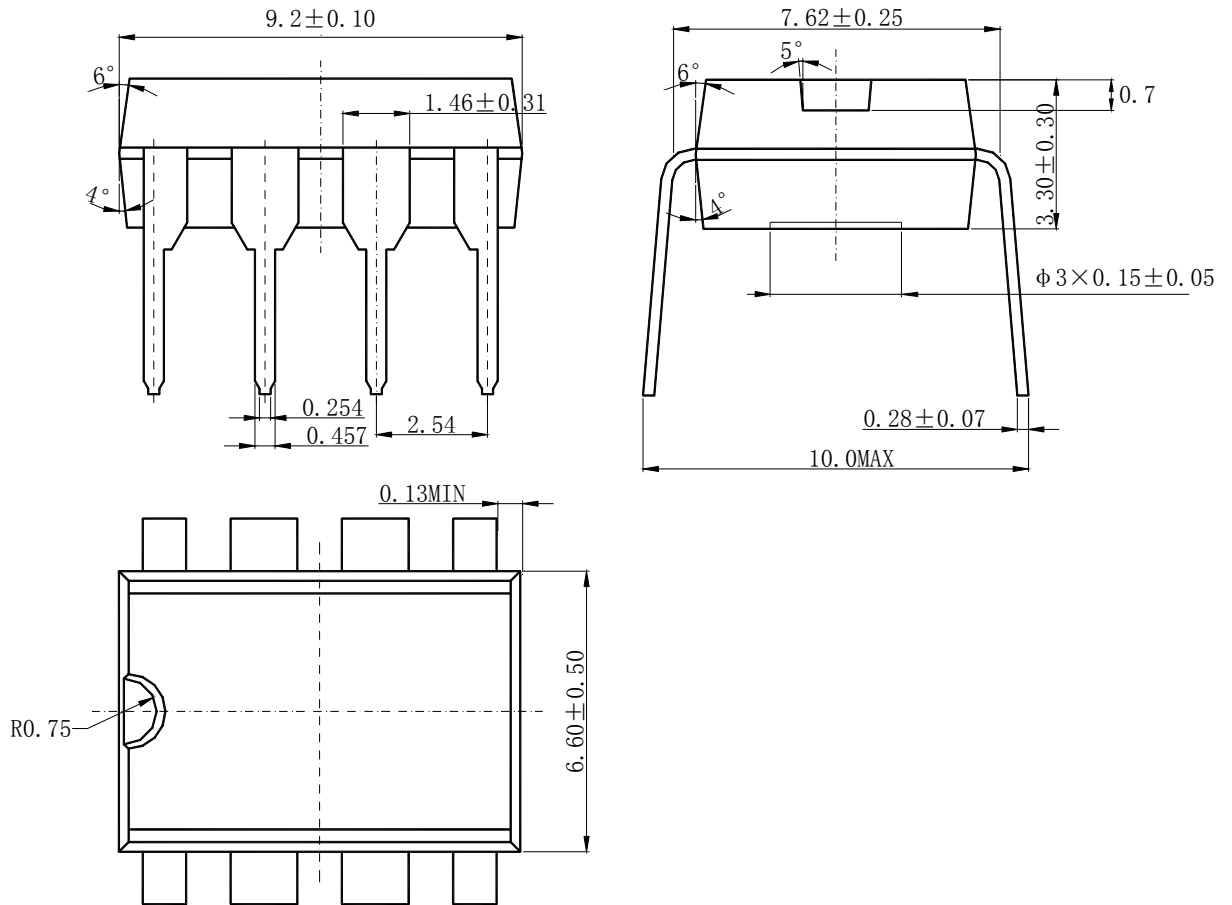
**DUAL LOW NOISE OPERATIONAL AMPLIFIERS**

**AZ4558A**

**Mechanical Dimensions**

**DIP - 8**

**Unit:mm**







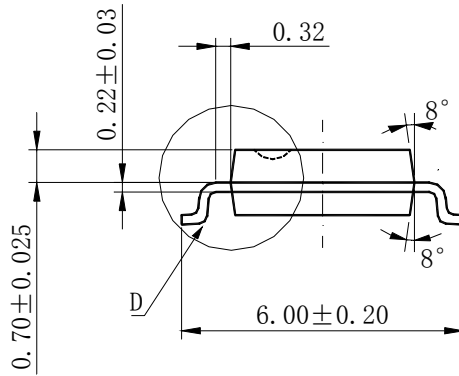
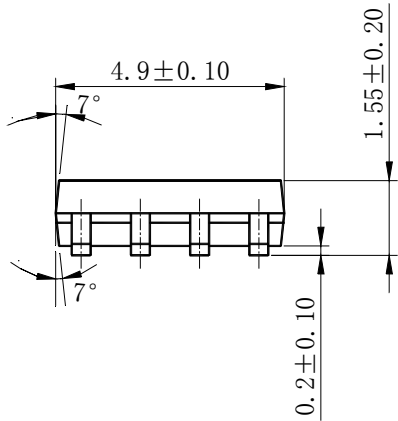
DUAL LOW NOISE OPERATIONAL AMPLIFIERS

AZ4558A

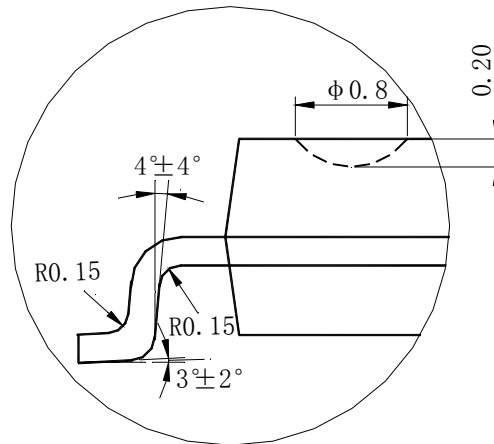
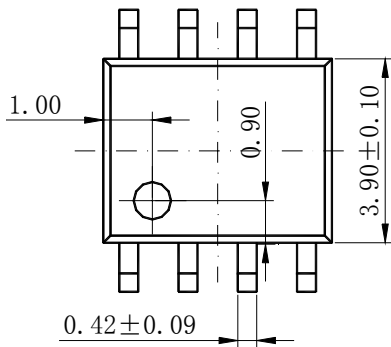
Mechanical Dimensions (Continued)

SOIC - 8

Unit:mm



D  
20:1





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