DUAL OPERATIONAL AMPLIFIERS AZ4558

General Description

The AZ4558 consists of two high performance operational amplifiers. The IC features high gain, high input resistance, excellent channel separation, wide range of operating voltage and internal frequency compensation. It is specifically suitable for applications in differential-in, differential-out as well as in potential-metric amplifiers and where gain and phase matched channels are mandatory. The AZ4558 contains ± 18Vmaximum power supply voltage.

The AZ4558 is available in DIP-8 or SOIC-8 package.

Features

- Internal frequency compensation
- Large DC voltage gain with 100 dB typical
- High input resistance with 5MΩ typical
- Low input noise voltage with 10nV/$\sqrt{HZ}$
- Maximum power supply voltages: ± 18V
- Compatible with NJM 4558

Applications

- Audio AC-3 decoded system
- Audio amplifier

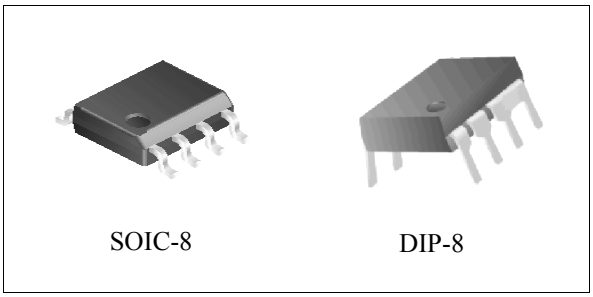


Figure 1. Package Types of AZ4558

Pin Configuration

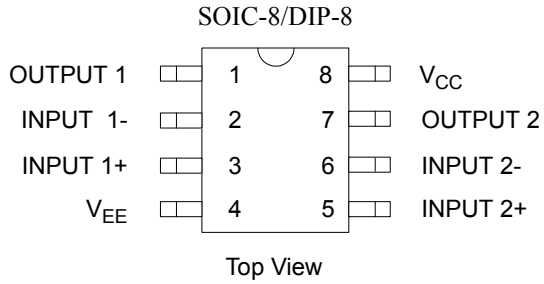


Figure 2. Pin Configuration of AZ4558

Functional Block Diagram

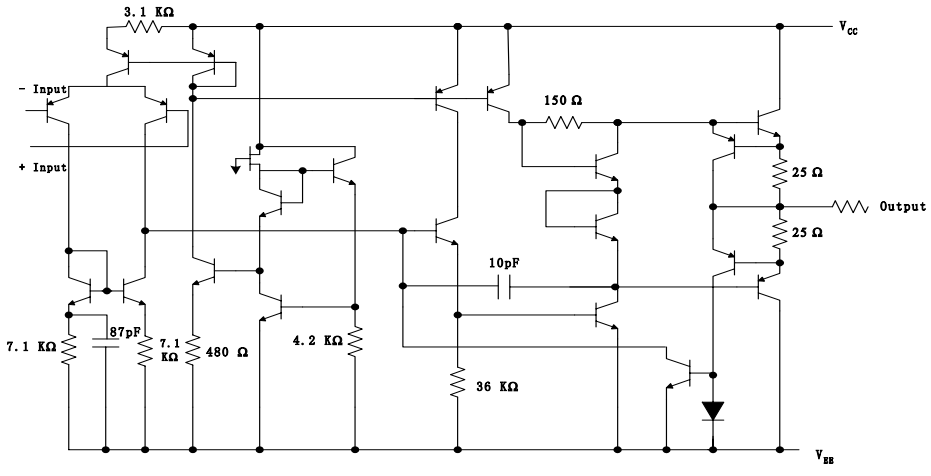


Figure 3. Representative Schematic Diagram of AZ4558 (Each amplifier)

Ordering Information

Package	Temperature Range	Part Number	Marking ID	Packing Type
SOIC-8	-40 to 85°C	AZ4558M	4558M	Tube/Tape/Reel
DIP-8		AZ4558P	AZ4558P	Tube

AZ 4558 Y

Circuit Type

Package
M: SOIC-8
P: DIP-8

Absolute Maximum Ratings (Note 1)

Parameter	Symbol	Value		Unit
Power Supply Voltage	V_{CC}	+ 18		V
	V_{EE}	- 18		
Differential Input Voltage	V_{ID}	± 30		V
Input Voltage	V_{IC}	± 15		V
Power Dissipation	P_D	DIP	500	mW
		SOIC	800	
Operating Temperature Range	T_{OP}	-40 to 85		°C
Storage Temperature Range	T_{STG}	-40 to 125		°C

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	± 4	± 18	V

Electrical Characteristics

Operating Conditions: V_{CC} = +15V, V_{EE} = - 15V, T_A= 25°C unless otherwise specified.

Parameter		Conditions	Min	Typ	Max	Unit
Input Offset Voltage			-	0.5	6	mV
Input Bias Current		V_{CM} = 0V	-	25	250	nA
Input Offset Current		V_{CM} = 0V	-	2.5	100	nA
Input Resistance			0.3	5	-	MΩ
Supply Current		R_L = ∞, Over full temperature range	-	3.3	5.7	mA
Large Signal Voltage Gain		R_L ≥2K, V_O = 1V to 11V	85	100	-	dB
Common Mode Rejection Ratio		V_{CM} = 0V to V_{CC} - 15V	80	92	-	dB
Power Supply Rejection Ratio		V_{CC}=5V to 18V V_{EE} =– 5V to - 18V	80	95	-	dB
Output Current	Source	V+ = 1V, V- = 0V	-	50	-	mA
	Sink	V+ = 0V, V- = 1V	-	50	-	mA
Output Voltage Swing		R_L≥2KΩ	±10	±13	-	V
		R_L≥10KΩ	±12	±14	-	
Slew Rate			-	1.3	-	V / μS
Equivalent Input Noise Voltage		Rs=50Ω, f=1KHz	-	10	-	nV/(HZ)$^{0.5}$
Gain Bandwidth Product			-	3.4	-	MHz

Typical Performance Characteristics

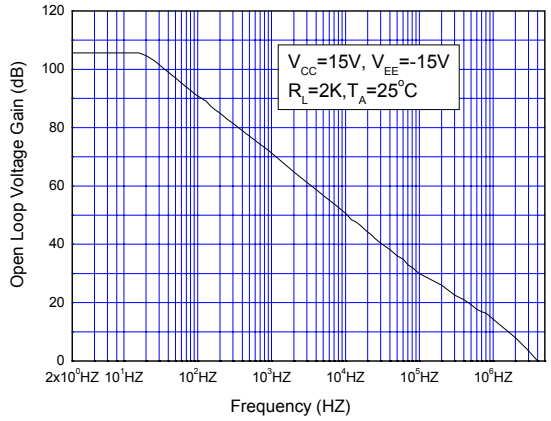


Figure 4. Open Loop Voltage Gain vs. Frequency

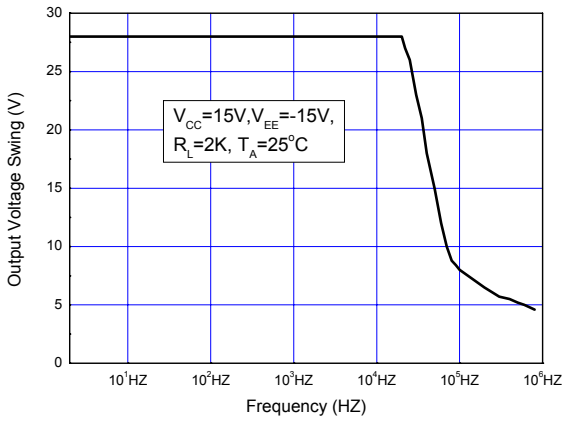


Figure 5. Maximum Output Voltage Swing vs. Frequency

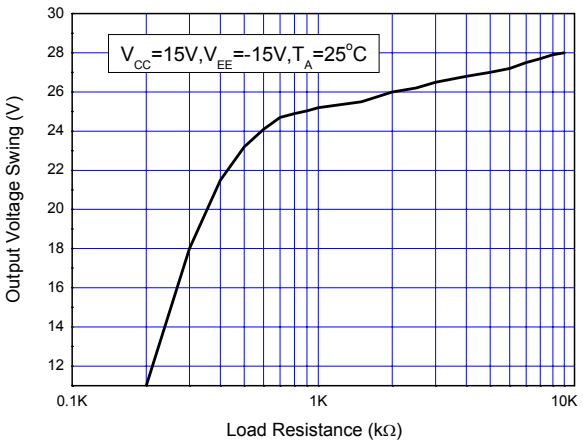


Figure 6. Maximum Output Voltage Swing vs. Load Resistance

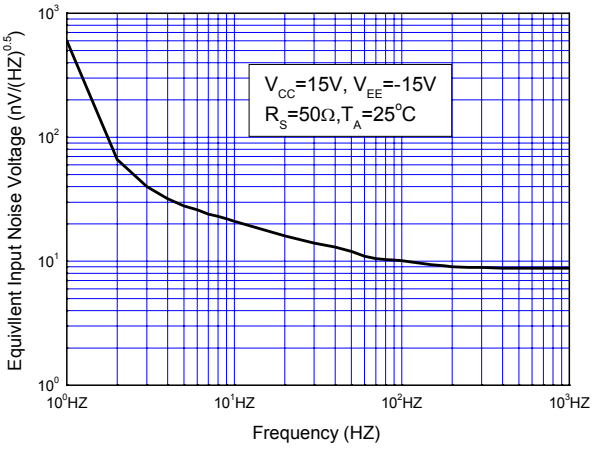


Figure 7. Equivalent Input Noise Voltage vs. Frequency

Typical Performance Characteristics (Continued)

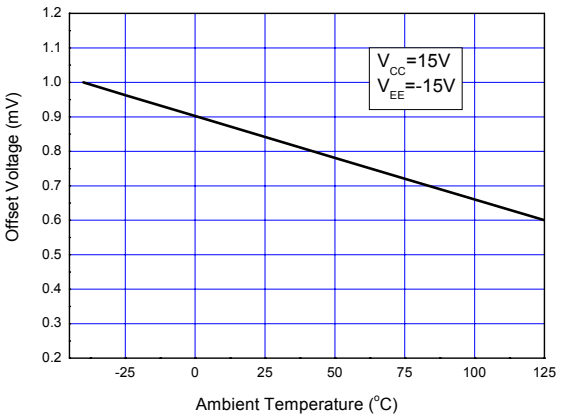


Figure 8. Input Offset Voltage vs. Temperature

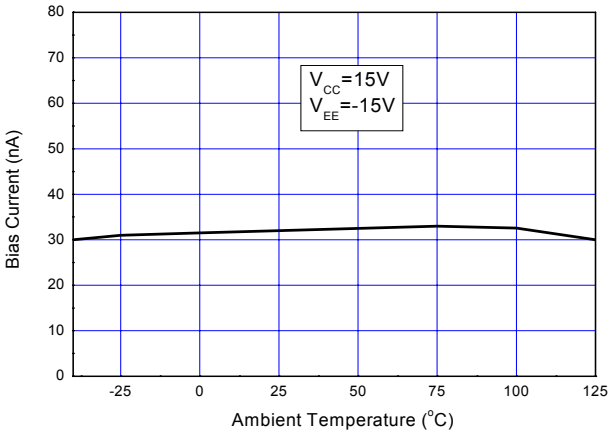


Figure 9. Input Bias Current vs. Temperature

Typical Application

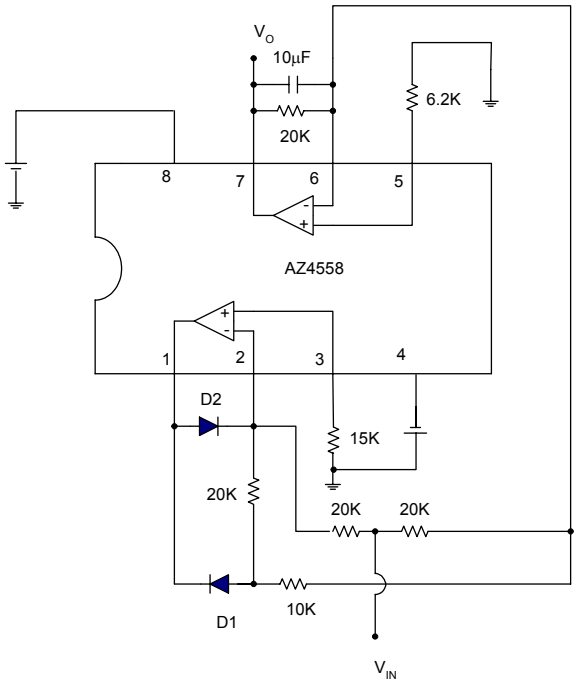
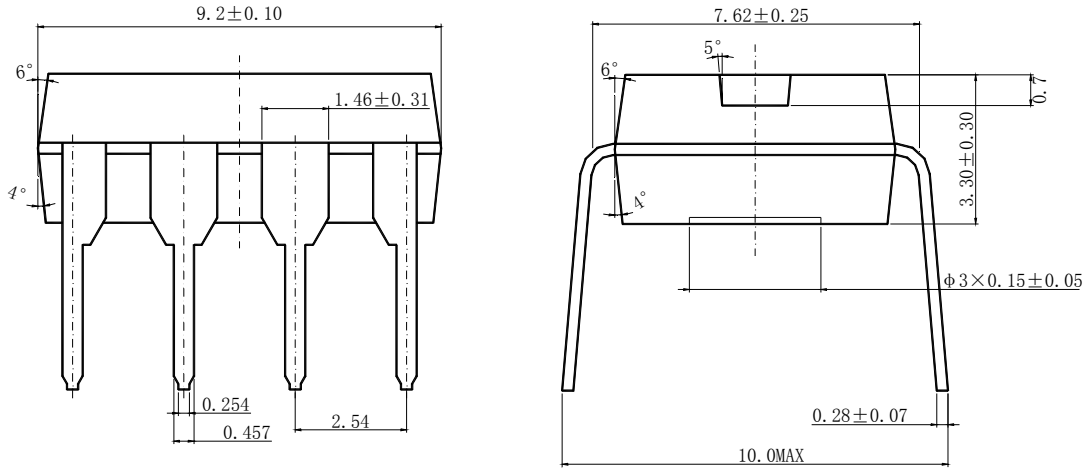
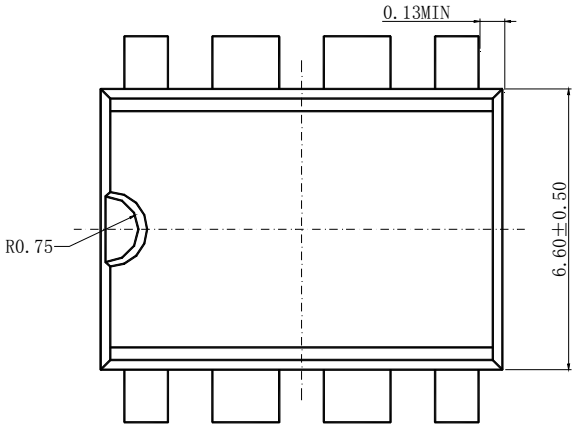


Figure 10. Typical Application of AZ4558

Mechanical Dimensions

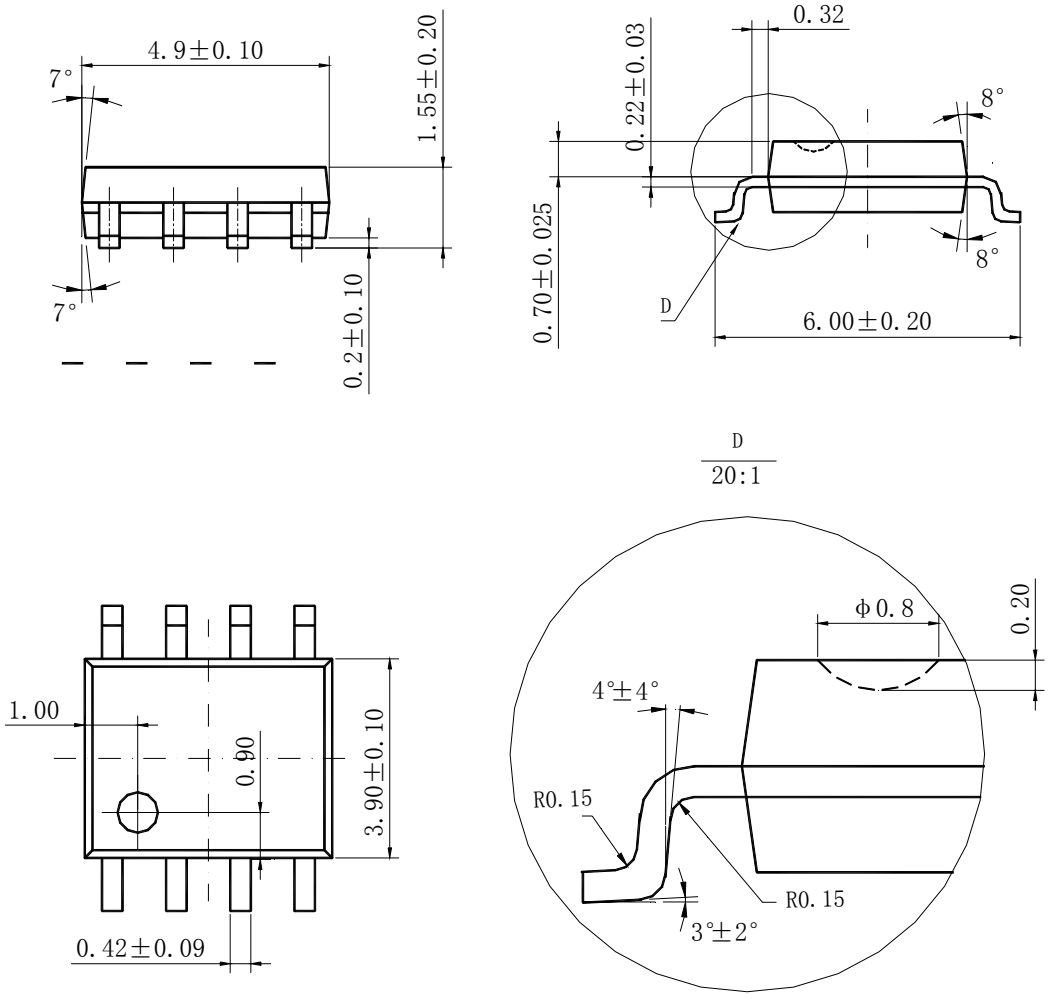
DIP - 8 **Unit: mm**





Mechanical Dimensions (Continued)

SOIC - 8 **Unit: mm**



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