



Description

The AMS4558 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 AMS4558 can operate under dual power supply voltage up to $\pm 18V$ or single power supply up to 36V.

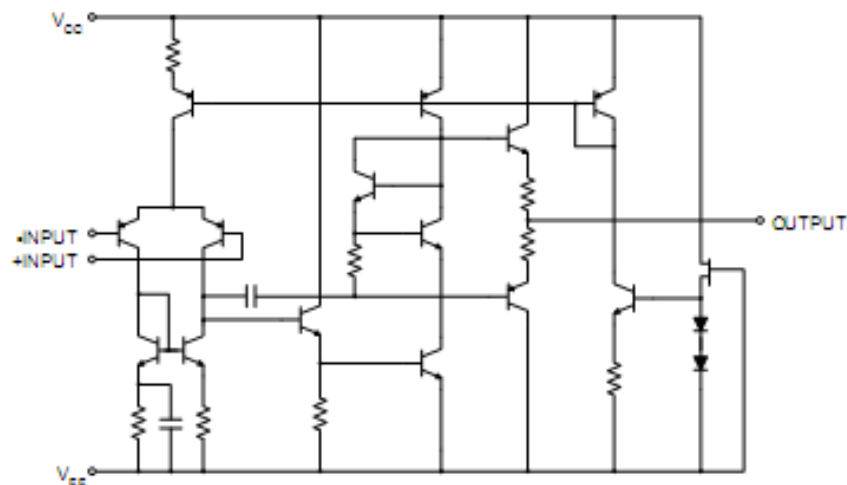
Features

- ◇ Operating voltage: $\pm 3V \sim \pm 18V$.
- ◇ Large DC voltage gain: 100 dB
- ◇ Low input noise voltage: $1\mu V_{RMS}$
- ◇ Wide gain bandwidth product: 5 MHz
- ◇ Slew rate: $2V/\mu s$
- ◇ Package outline: DIP8, SOIC8

Applications

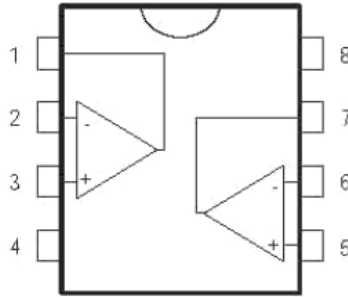
- ◇ Audio AC-3 decoded system.
- ◇ Audio amplifier

Functional Diagram





Pin Description



Symbol	Pin NO.	Description
OUT1	1	Output 1
IN1-	2	Inverting input1
IN1+	3	Non- Inverting input1
V-	4	VEE
IN2+	5	Non- Inverting input2
IN2-	6	Inverting input2
OUT2	7	Output 2
V+	8	VCC

Absolute Maximum Ratings

Parameter	Symbol	Value	Unit	
Power Supply Voltage	VCC	+18	V	
	VEE	-18		
Differential Input Voltage	V_{ID}	± 30	V	
Input Voltage	V_{IC}	± 15	V	
Power Dissipation	P_D	DIP	500	mW
		SOIC	250	
Operating Temperature Range	T_{OP}	- 40 to 85	$^{\circ}C$	
Storage Temperature Range	T_{STG}	- 60 to 150	$^{\circ}C$	

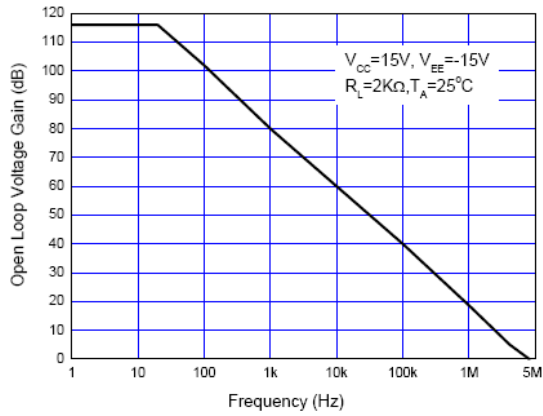


Electrical Characteristics ($V_{CC}=+15V, V_{EE}=-15V, T_A=25^{\circ}C$ unless otherwise specified)

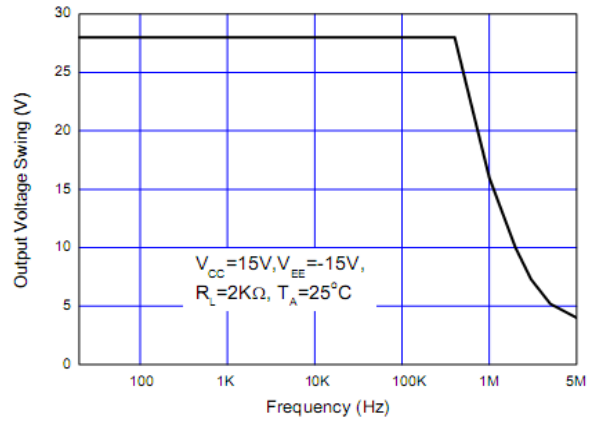
Parameter	Conditions	Min	Typ	Max	Unit
Input Offset Voltage	$R_s \leq 10K\Omega$	-	2	6	mV
Input bias Current		-	60	500	nA
Input Offset Current		-	5	200	nA
Supply Current		-	3.5	5.8	mA
Large Signal Voltage Gain	$R_L \geq 2K\Omega, V_o = \pm 10V$	85	100	-	dB
Common Mode Rejection Ratio	$R_s \leq 10K\Omega$	70	90	-	dB
Power Supply Rejection Ratio	$R_s \leq 10K\Omega$	70	90	-	dB
Output Voltage Swing	$R_L \geq 2K\Omega$	± 10	± 13	-	V
	$R_L \geq 10K\Omega$	± 12	± 14	-	
Output Sink Current	$V_- = 1V, V_+ = 0V, V_o = 2V$		40		mA
Output Source Current	$V_- = 1V, V_+ = 0V, V_o = 2V$		40		mA
Slew Rate		-	2	-	V/ μ S
Equivalent Input Noise Voltage	RIAA, $R_s = 1K\Omega$, 30kHz LPF	-	1	-	μ V _{RMS}
Gain Bandwidth Product	$f = 10KHz$	-	5	-	MHz



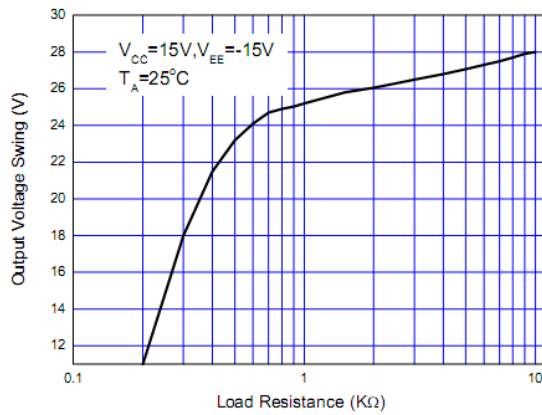
Typical Performance Characteristics



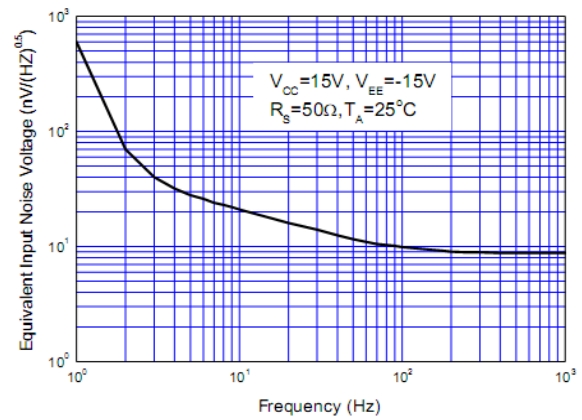
Open Loop Voltage Gain vs. Frequency



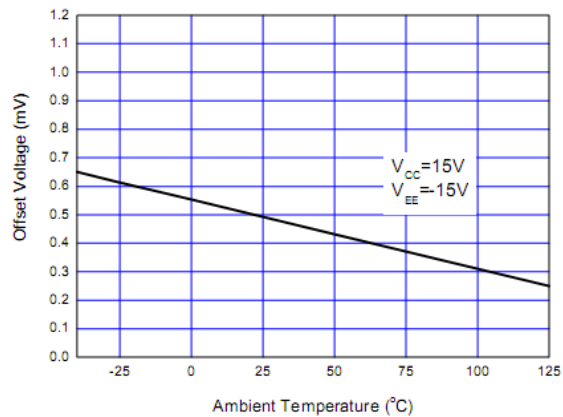
Maximum Output Voltage Swing vs. Frequency



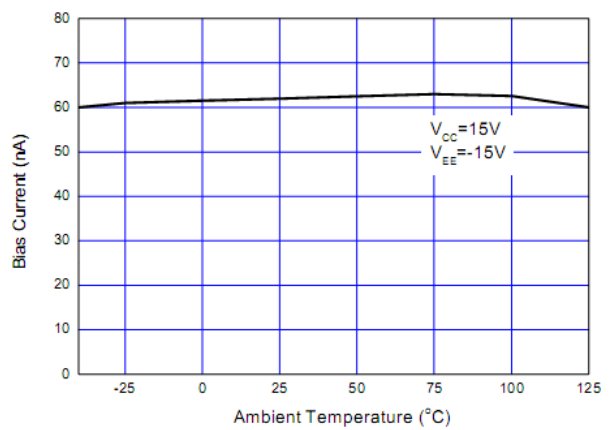
Maximum Output Voltage Swing vs. Load Resistance



Equivalent Input Noise Voltage vs. Frequency



Input Offset Voltage vs. Temperature

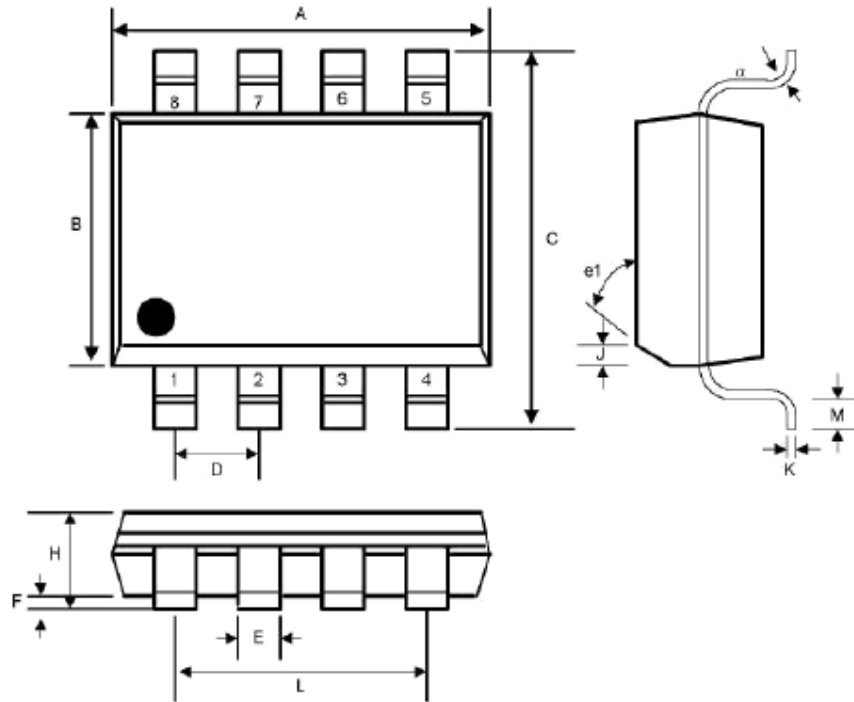


Input Bias Current vs. Temperature



PACKAGE DESCRIPTION

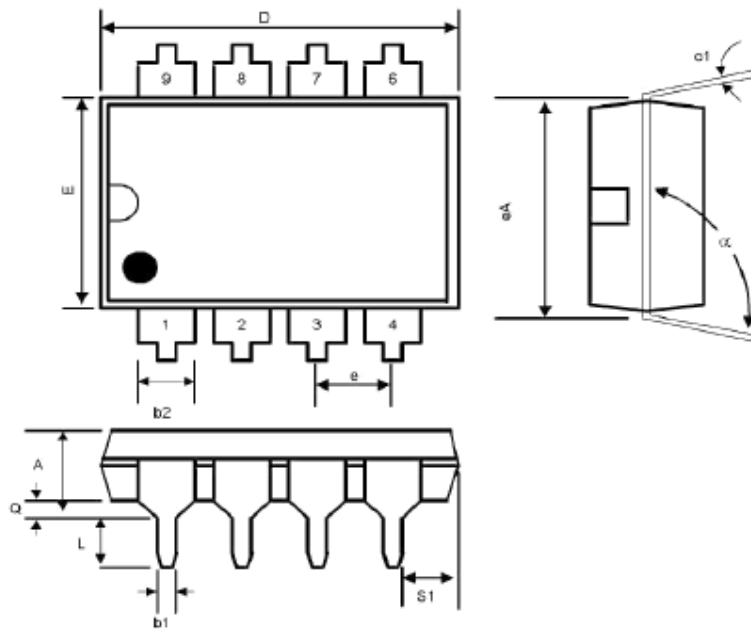
SOP8 PACKAGE OUTLINE DIMENSIONS



SYMBOL	INCHES		MILLIMETERS		NOTES
	MIN	MAX	MIN	MAX	
A	0.188	0.197	4.80	5.00	-
B	0.149	0.158	3.80	4.00	-
C	0.228	0.244	5.80	6.20	-
D	0.050	BSC	1.27	BSC	-
E	0.013	0.020	0.33	0.51	-
F	0.004	0.010	0.10	0.25	-
H	0.053	0.069	1.35	1.75	-
J	0.011	0.019	0.28	0.48	-
K	0.007	0.010	0.19	0.25	-
M	0.016	0.050	0.40	1.27	-
L	0.150	REF	3.81	REF	-
e1	45°		45°		-
α	0°	8°	0°	8°	-



DIP8 PACKAGE OUTLINE DIMENSIONS



SYMBOL	INCHES		MILLIMETERS		NOTES
	MIN	MAX	MIN	MAX	
A	-	0.200	-	5.08	-
b1	0.014	0.023	0.36	0.58	-
b2	0.045	0.065	1.14	1.65	-
c1	0.008	0.015	0.20	0.38	-
D	0.355	0.400	9.02	10.16	-
E	0.220	0.310	5.59	7.87	-
e	0.100 BSC		2.54 BSC		-
eA	0.300 BSC		7.62 BSC		-
L	0.125	0.200	3.18	5.08	-
Q	0.015	0.060	0.38	1.52	-
s1	0.005	-	0.13	-	-
α	90 ⁰	105 ⁰	90 ⁰	105 ⁰	-



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