

Features

Large Signal Voltage Gain: 110dB Typical

● Low Input Noise Voltage: 0.7µVRMS (RIAA) Typical

• Wide Gain Bandwidth Product: 15MHz at 10KHz Typical

Low Distortion: 0.0005% TypicalSlew Rate: 7V/µs Typical

General Description

The GS4580 is a monolithic dual low noise operational amplifier. It is specifically designed for audio systems to improve tone control; it can also be used in preamplifier,industrial measurement tools and applicationswhere gain and phase matched channels are mandatory. The IC features internal frequency compensation, lownoise, low distortion, high gain and high bandwidth. The GS4580 can operate under dual power supply voltage up to ± 18 V or single power supply up to 36V. The GS4580 is available in DIP-8, SOIC-8 and TSSOP-8 packages.

Applications

- Audio AC-3 Decoder System
- Audio Amplifier

Pin Configuration

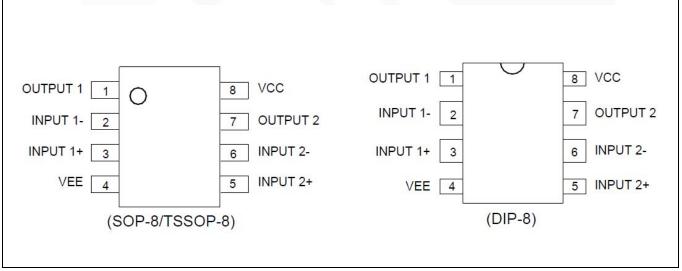


Figure 1. Pin Configuration of GS4580







Functional Block Diagram

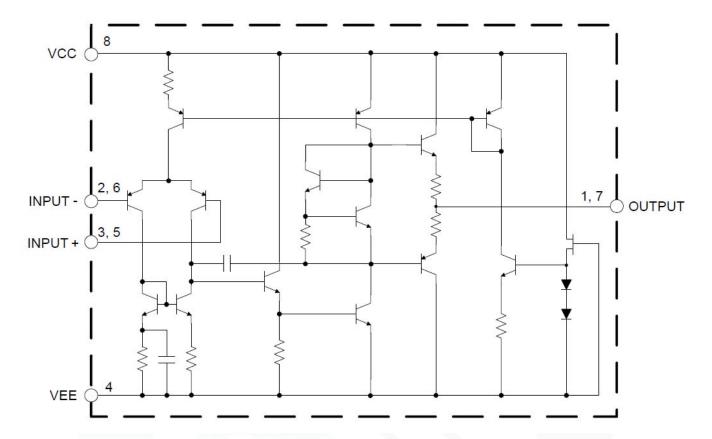


Figure 2. Representative Schematic Diagram of GS4580 (Each Amplifier)

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Absolute Maximum Ratings (Note 1)

Parameter	Smbol	Val	Unit		
Power Supply Voltage	V_{CC}	+ 20		V	
Tower Suppry Voltage	V_{EE}	- 20			
Input Voltage	V_{I}	土	15	V	
Differential Input Voltage	$V_{ m ID}$	± 30		V	
Operating Junction Temperature	T_{J}	150		°C	
Storage Temperature Range	T _{STG}	-65 to 150		°C	
Lead Temperature (Soldering 10s)	$T_{\rm L}$	260		°C	
		TSSOP-8	400		
Power Dissipation (T _A =25°C)	P_{D}	SOIC-8	500	mW	
		DIP-8	800	7	

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 Parameter	Min	Max	Unit
Supply Voltage	± 2	± 18	V
Operating Temperature Range	-40	85	°C

Package/Ordering Information

MODEL	CHANNEL	ORDER NUMBER	PACKAGE DESCRIPTION		
		GS4580-SR	SOP-8	Tape and Reel,4000	GS4580
GS4580	dual	GS4580-TR	TSSOP8	Tape and Reel,3000	GS4580
		GS4580-DR	DIP8	20Tube(1000pcs)	GS4580







Electrical Characteristics

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

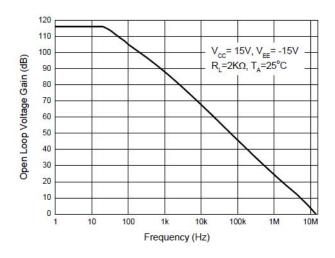
Parameter	Conditions	Min	Тур	Max	Unit
Supply Current	no load		4	7	mA
Input Offset Voltage	$R_S \le 10 K\Omega$		0.5	3	mV
Input Offset Current	V _{CM} =0V		5	100	nA
Input Bias Current	V _{CM} =0V		150	500	nA
Input Common Mode Voltage Range		±12	±13.5		V
Common Mode Rejection Ratio	V_{CM} =0V to V_{CC} -1.5V, R_{S} \leq 10K Ω	80	110		dB
Large Signal Voltage Gain	R_L =2K Ω , V_O =±10V	90	110		dB
Power Supply Rejection Ratio	$R_S \le 10 K\Omega$	80	110		dB
Output Sink Current	V-=1V, V+=0V, V _O =2V		80		mA
Output Source Current	V+=1V, V-=0V, V _O =2V		45		mA
Slew Rate	$R_L \ge 2K\Omega$		7		V/µS
Gain Bandwidth Product	R_L =2K Ω , f=10KHz		15		MHz
Total Harmonic Distortion	A_V =20dB, V_O =5V R_L =2K Ω , f=1KHz		0.0005		%
Equivalent Input Noise Voltage	RIAA R _S =50Ω, 30KHz LPF		0.7		μV_{RMS}
Thermal Resistance (Junction to Case)	DIP-8		43		°C/W
(Junction to Case)	SOIC-8		63		C/ W







Typical Performance characteristics



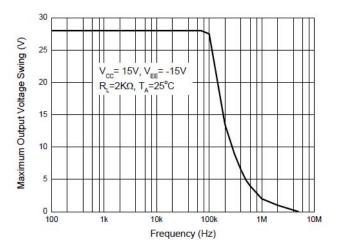
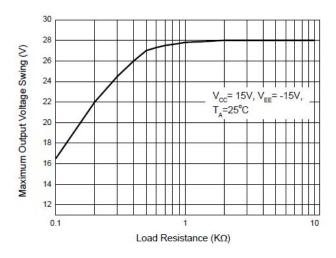


Figure 3. Open Loop Voltage Gain vs. Frequency

Figure 4. Maximum Output Voltage Swing vs. Frequency



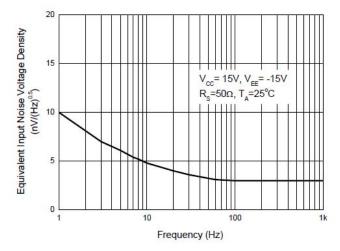
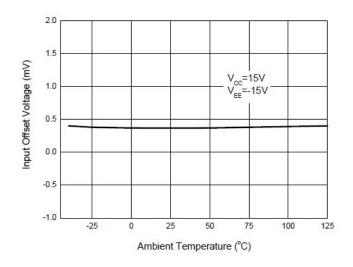


Figure 5. Maximum Output Voltage Swing vs. Load Resistance

Figure 6. Equivalent Input Noise Voltage Density vs. Frequency



Typical Performance Characteristics (Continued)



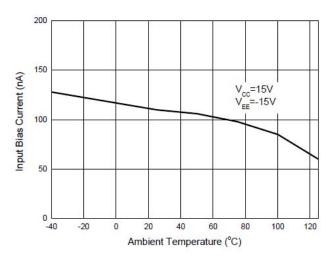


Figure 7. Input Offset Voltage vs.Temperature

Figure 8. Input Bias Current vs.Temperature

Typical Applications

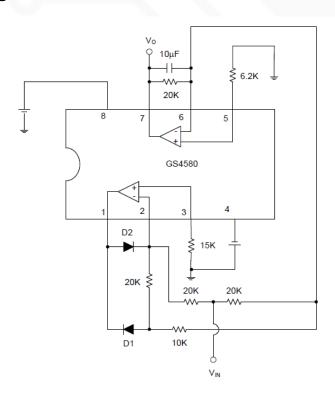


Figure 9. Application of GS4580 in an AC/DC Converter







Typical Applications(Continued)

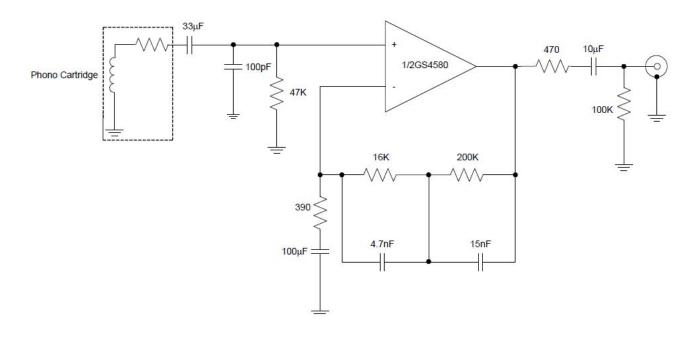


Figure 10. Application of GS4580 in a RIAA Preamp

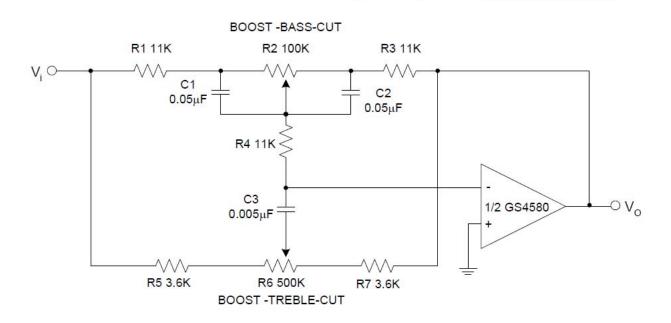


Figure 11. Application of GS4580 in Tone Control

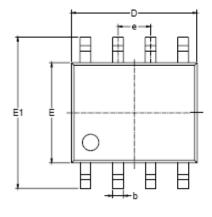


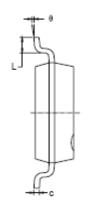


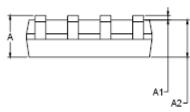


Package Information

SOP-8





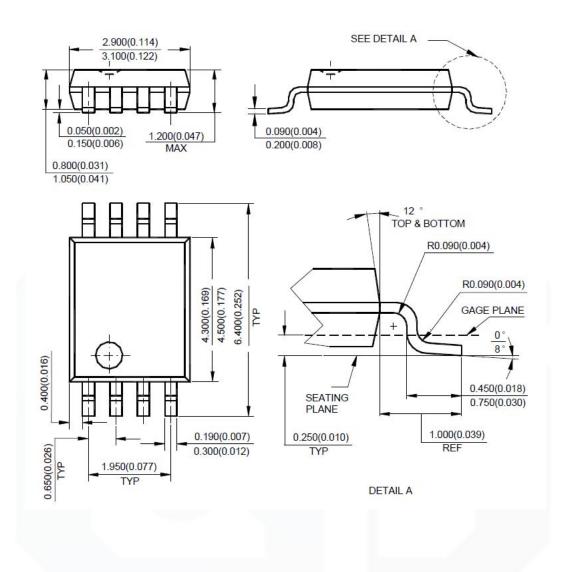


Symbol	Dimensions In Millimeters		Dimensions In Inches		
,	MIN	MAX	MIN	MAX	
Α	1.350	1.750	0.053	0.069	
A1	0.100	0.250	0.004	0.010	
A2	1.350	1.550	0.053	0.061	
b	0.330	0.510	0.013	0.020	
С	0.170	0.250	0.006	0.010	
D	4.700	5.100	0.185	0.200	
E	3.800	4.000	0.150	0.157	
E1	5.800	6.200	0.228	0.244	
e	1.27 BSC		0.050 BSC		
L	0.400	1.270	0.016	0.050	
θ	0°	8°	0°	8°	

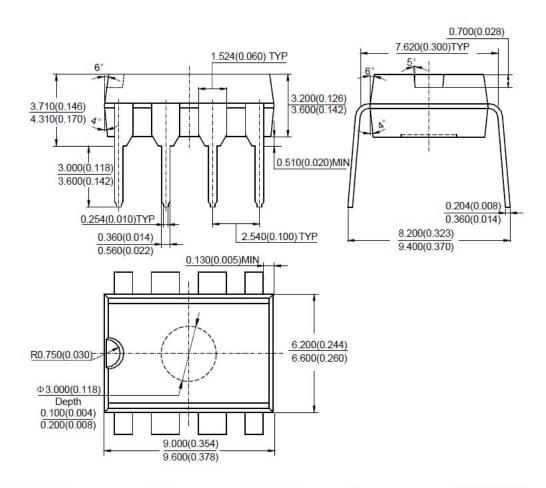
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TSSOP-8



DIP-8





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