GP4558

DUAL OPERATIONAL AMPLIFIER

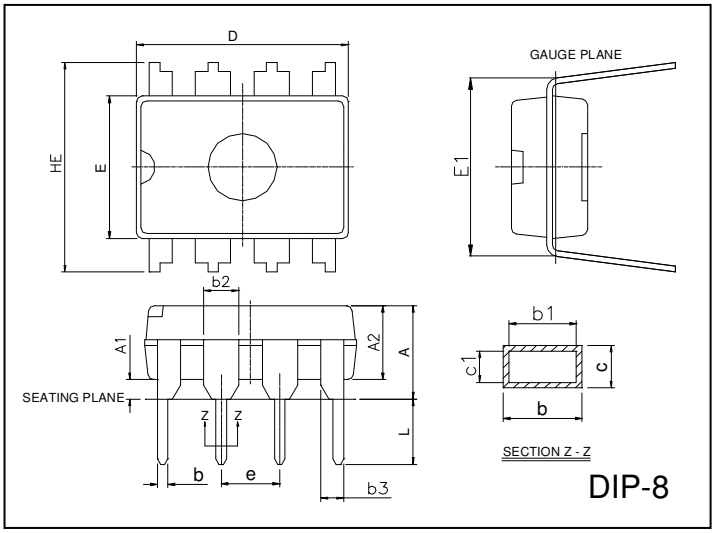
Description

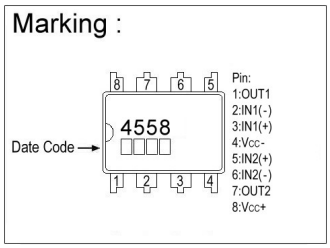
The GP4558 is a monolithic integrated circuit designed for dual operational amplifier.

Features

- No frequency compensated required
- No latch-up
- Large common mode and differential voltage range
- Parameter tracking over temperature range
- Gain and phase match between amplifiers
- Internally frequency compensated
- Low noise input transistors

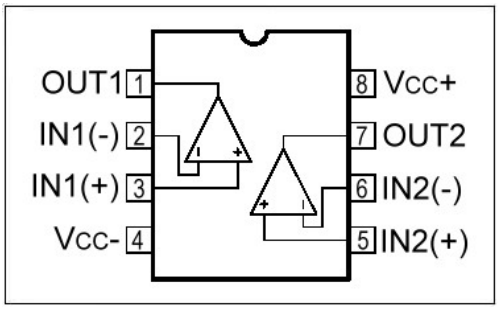
Package Dimensions



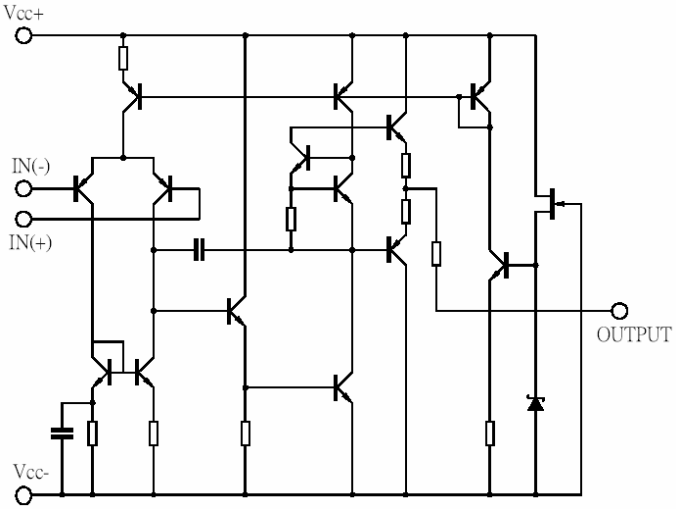


REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	-	0.5334	c1	0.203	0.279
A1	0.381	-	D	9.017	10.16
A2	2.921	4.953	E	6.096	7.112
b	0.356	0.559	E1	7.620	8.255
b1	0.356	0.508	e	2.540 BSC	
b2	1.143	1.778	HE	-	10.92
b3	0.762	1.143	L	2.921	3.810
c	0.203	0.356			

Pin Configurations



Block Diagram



Absolute Maximum Ratings at Ta = 25℃

Parameter	Symbol	VALUE	Unit
Supply Voltage	V_{CC}	±22	V
Differential Input Voltage	$V_{I(DIFF)}$	±18	V
Input Voltage	V_I	±15	V
Power Dissipation	P_D	600	mW
Operating Temperature Range	T_{OPR}	0 ~ +70	℃
Storage Temperature Range	T_{STG}	-65 ~ +150	℃

Electrical Characteristics (V_{CC}=15V Vee=-15V, T_A=25℃)

Parameter	SYMBOL	Test Conditions	Min	Typ.	Max	Unit
Supply Current, all Amp, no load	I_{CC}		-	2.3	4.5	mA
Input Offset Voltage	V_{IO}	R_S<10kΩ	-	2	6	mV
Input Offset Current	I_{IO}		-	5	200	nA
Input Bias Current	I_{BIAS}		-	30	500	nA
Common Mode Input Voltage	$V_{I(R)}$		±12	±13		V
Large Signal Voltage Gain	G_V	$V_{O(P-P)}$=±10V, R_L≧2kΩ	20	200	-	V/mV
Output Voltage Swing	$V_{O(P-P)}$	R_L≧10kΩ	-	±12	±14	V
Common Mode Rejection Ratio	CMRR	R_S≦10kΩ	70	90	-	dB
Supply Voltage Rejection Ratio	PSRR	R_S≦10kΩ	76	90	-	dB
Power Consumption	P_C		-	70	170	mV
Slew Rate	SR	Vi=±10V, R_L≧2kΩ, C_L≦100pF	1.2	2.2	-	V/μs
Rise Time	T_{RIS}	Vi=±20mV, R_L≧2kΩ, C_L≦100pF	-	0.3	-	μs
Overshoot	OS	Vi=±20mV, R_L≧2kΩ, C_L≦100pF	-	15	-	%
Input Resistance	R_i		0.3	2	-	MΩ
Output Resistance	R_O		-	75	-	Ω
Total Harmonic Distortion	THD	f=1kHz, A_V=20dB, R_L=2kΩ, V_O= $2V_{PP}$, C_L=100pF	-	0.008	-	%
Channel Separation	V_{O1}/V_{O2}		-	120	-	dB

Frequency Characteristics (V_{CC}=15V Vee=-15V, T_A=25℃)

Parameter	SYMBOL	Test Conditions	Min	Typ.	Max	Unit
Unity Gain Bandwidth	BW		2.0	2.8	-	MHz

Typical Performance Characteristics

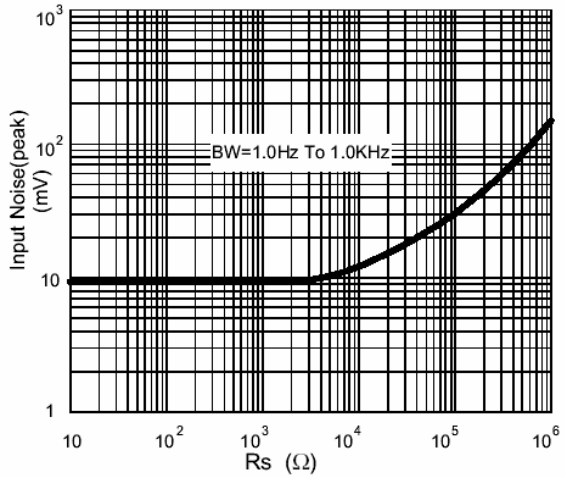


Fig 1. Burst Noise vs. Rs

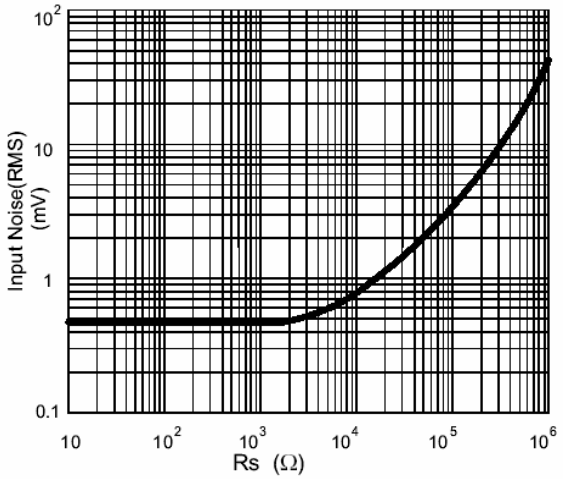


Fig 2. RMS Noise vs. Rs

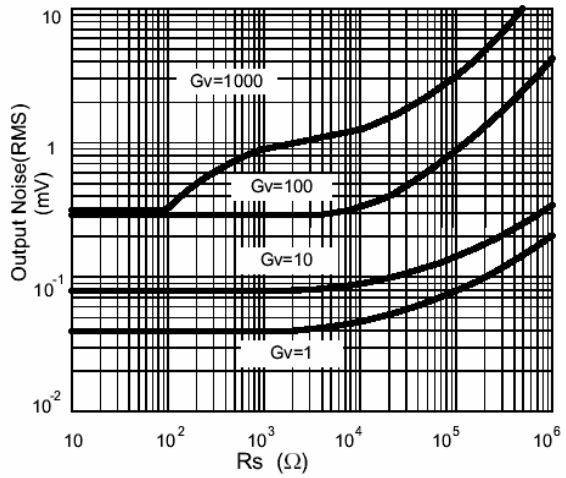


Fig 3. Output Noise vs. Rs

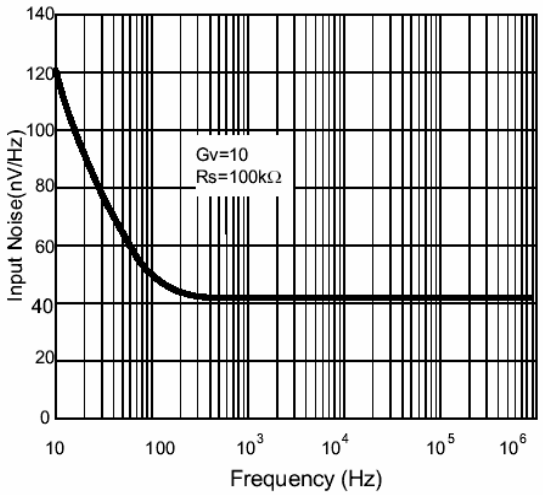


Fig 4. Spectral Noise vs. Density

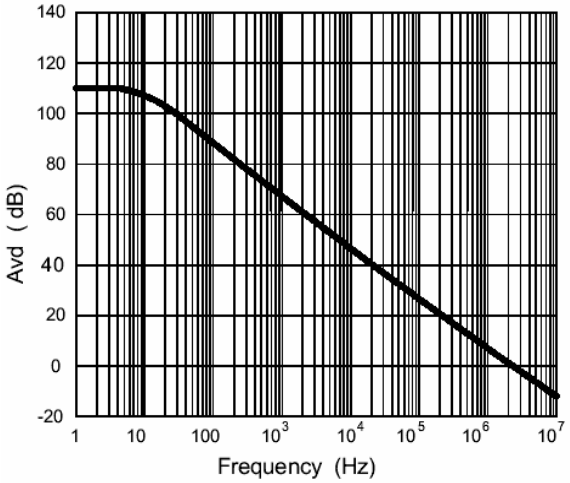


Fig 5. Open Loop Frequency Response

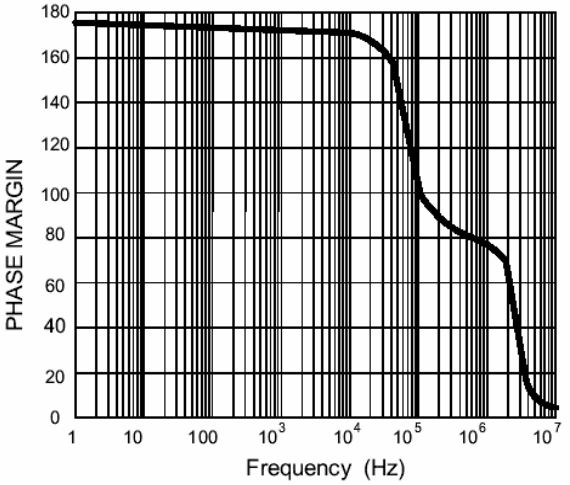


Fig 6. Phase Margin vs. Frequency

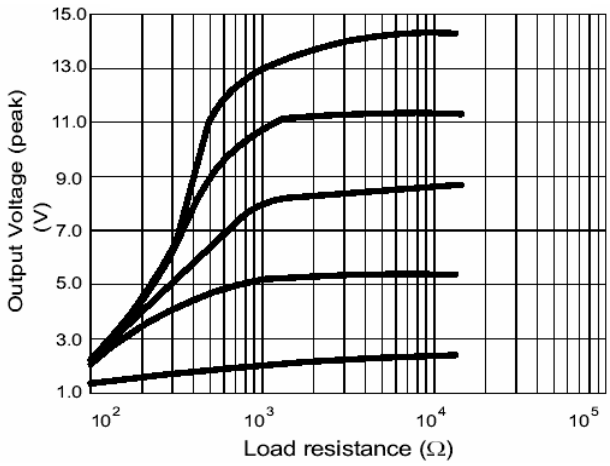


Fig 7. Positive Output Voltage Swing vs. Load Resistance

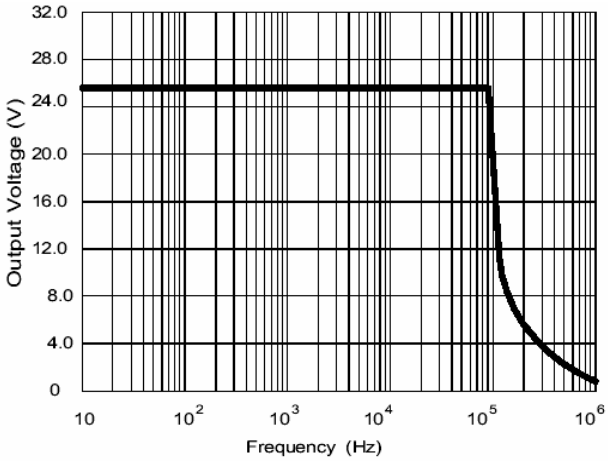


Fig 8. Power Bandwidth (Large Signal)

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