

GTM

CORPORATION

ISSUED DATE :2005/06/24
REVISED DATE :2005/10/05B

GSC4558

DUAL OPERATIONAL AMPLIFIER

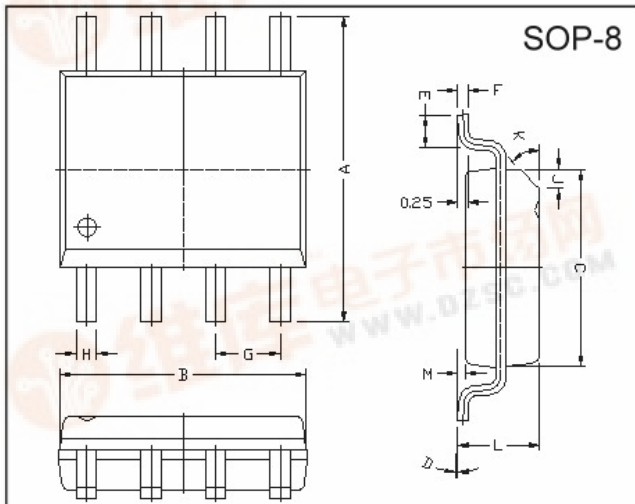
Description

The GSC4558 is a monolithic integrated circuit designed for dual operational amplifier.

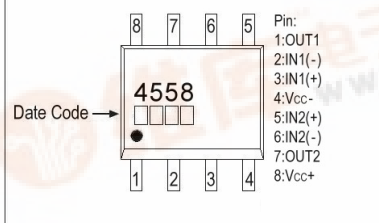
Features

- 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

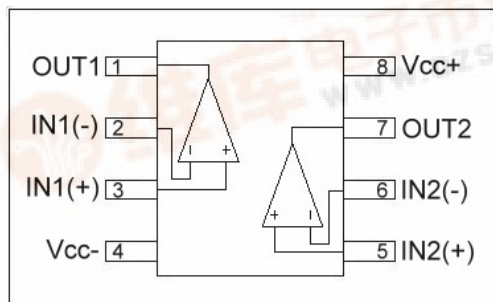


Marking :

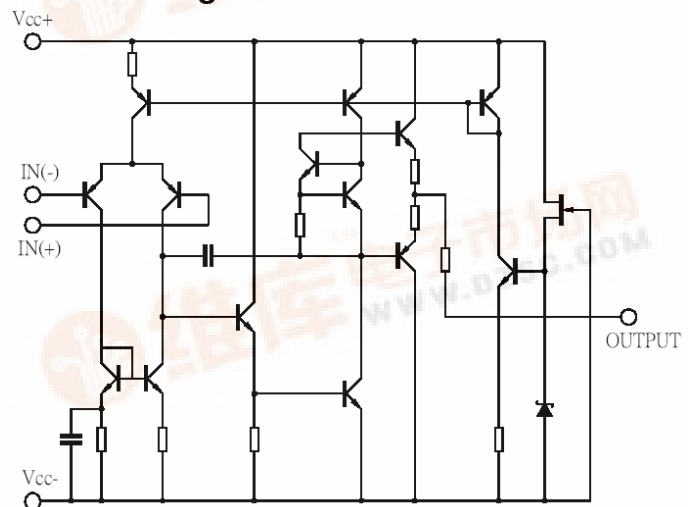


REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	5.80	6.20	M	0.10	0.25
B	4.80	5.00	H	0.35	0.49
C	3.80	4.00	L	1.35	1.75
D	0°	8°	J	0.375 REF.	
E	0.40	0.90	K	45°	
F	0.19	0.25	G	1.27 TYP.	

Pin Configurations



Block Diagram



Absolute Maximum Ratings at Ta = 25°C

Parameter	Symbol	Value	Unit
Supply Voltage	VCC	±22	V
Differential Input Voltage	VI(DIFF)	±18	V
Input Voltage	VI	±15	V
Power Dissipation	PD	400	mW
Operating Temperature Range	TOPR	0 ~ +70	°C
Storage Temperature Range	TSTG	-65 ~ +150	°C

Electrical Characteristics (VCC=15V Vee=-15V, TA=25°C)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Supply Current, all Amp, no load	ICC		-	2.3	4.5	mA
Input Offset Voltage	VIO	RS<10kΩ	-	2	6	mV
Input Offset Current	IIO		-	5	200	nA
Input Bias Current	IBIAS		-	30	500	nA
Common Mode Input Voltage	VI(R)		±12	±13		V
Large Signal Voltage Gain	GV	VO(P-P)=±10V, RL≤2kΩ	20	200	-	V/mV
Output Voltage Swing	VO(P-P)	RL≥10kΩ	-	±12	±14	V
Common Mode Rejection Ratio	CMRR	RS≤10kΩ	70	90	-	dB
Supply Voltage Rejection Ratio	PSRR	RS≤10kΩ	76	90	-	dB
Power Consumption	Pc		-	70	170	mV
Slew Rate	SR	Vi=±10V, RL≥2kΩ, CL≤100pF	1.2	2.2	-	V/μs
Rise Time	TRIS	Vi=±20mV, RL≥2kΩ, CL≤100pF	-	0.3	-	μs
Overshoot	OS	Vi=±20mV, RL≥2kΩ, CL≤100pF	-	15	-	%
Input Resistance	Ri		0.3	2	-	MΩ
Output Resistance	Ro		-	75	-	Ω
Total Harmonic Distortion	THD	f=1kHz, Av=20dB, RL=2kΩ, VO= 2VPP, CL=100pF	-	0.008	-	%
Channel Separation	Vo1/Vo2		-	120	-	dB

Frequency Characteristics (VCC=15V Vee=-15V, TA=25°C)

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

Typical Performance Characteristics

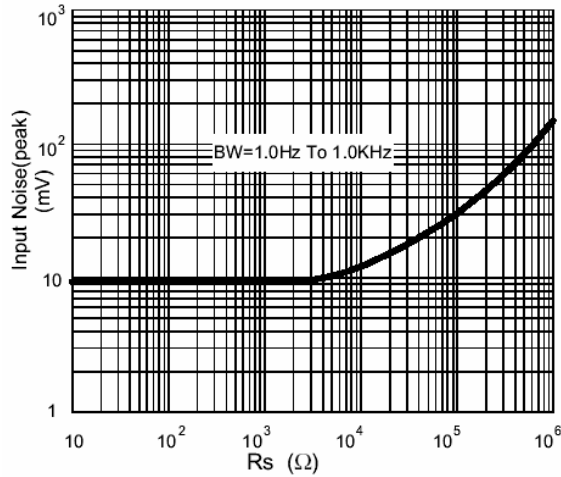


Fig 1. Burst Noise vs. R_s

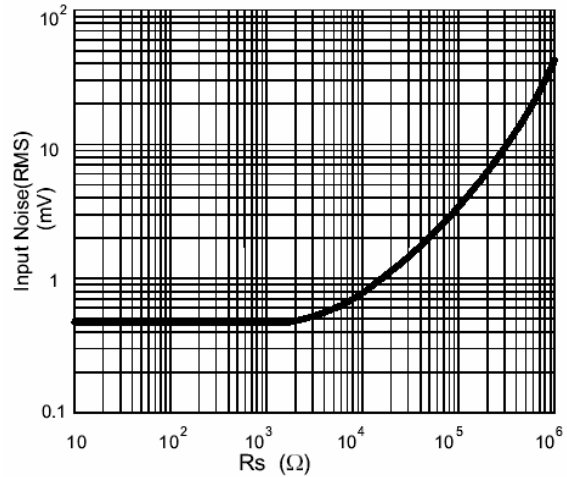


Fig 2. RMS Noise vs. R_s

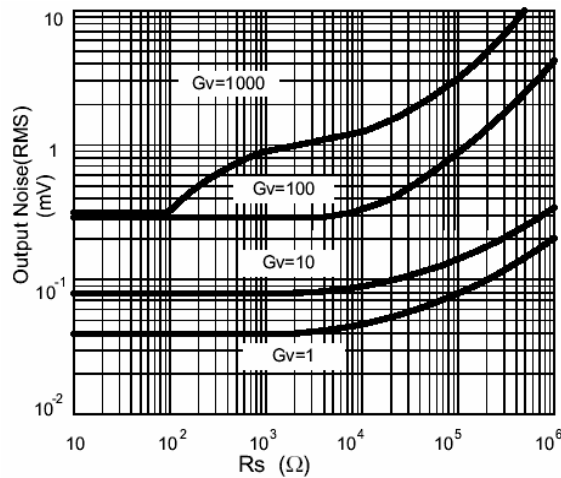


Fig 3. Output Noise vs. R_s

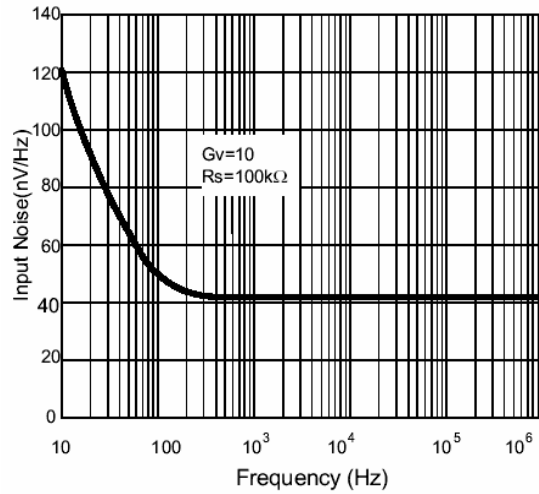


Fig 4. Spectral Noise vs. Density

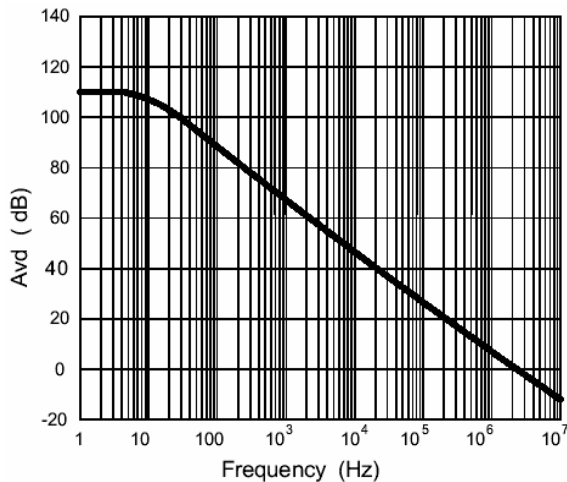


Fig 5. Open Loop Frequency Response

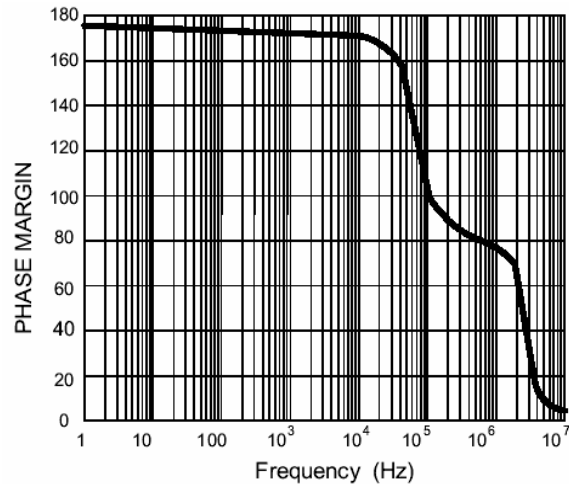


Fig 6. Phase Margin vs. Frequency

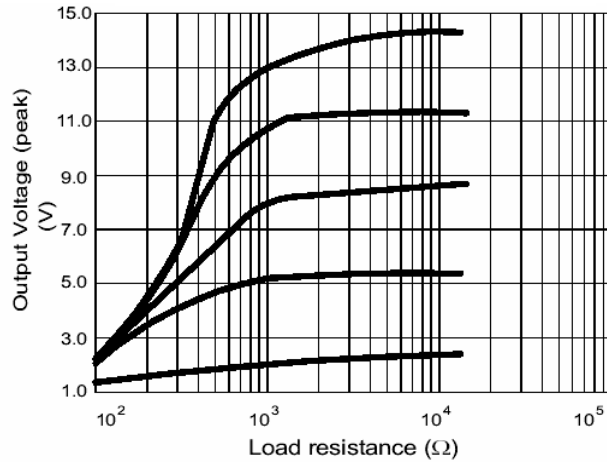


Fig 7. Positive Output Voltage Swing vs. Load Resistance

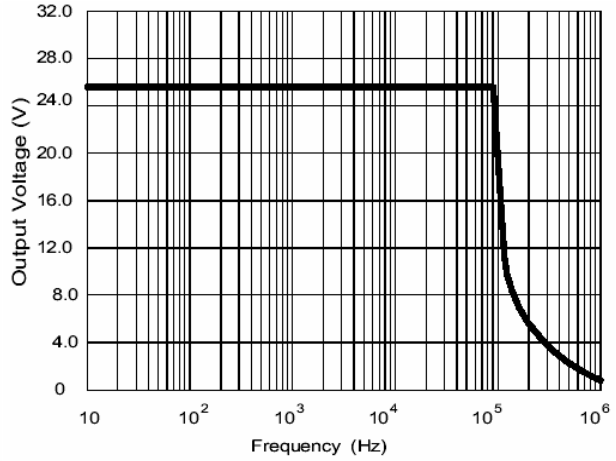


Fig 8. Power Bandwidth (Large Signal)

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