

RoHS Compliant Product  
A suffix of "-C" specifies halogen or lead -free

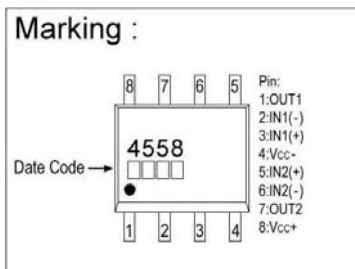
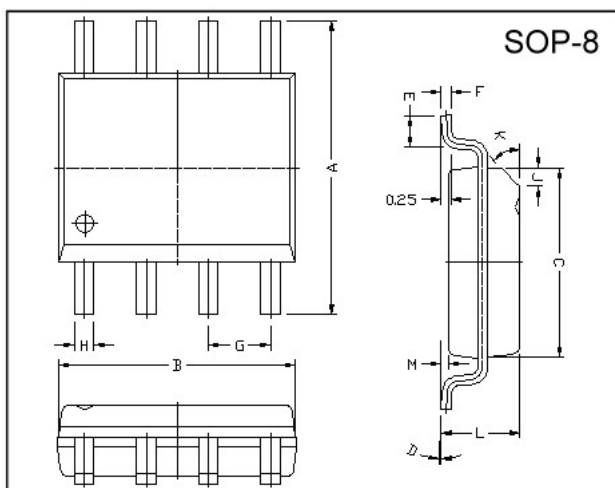
## DESCRIPTION

The SGSC4558 is a monolithic integrated circuit designed for dual operational amplifier.

## FEATURES

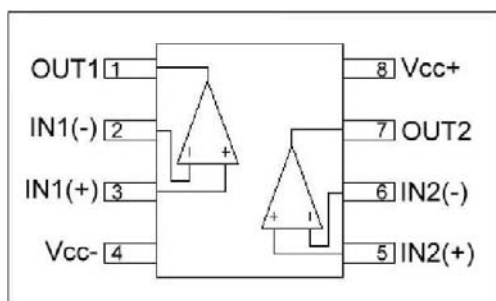
- No frequency compensated required
- No latch-up
- Large common mode and differential voltage range
- Parameter tracking over temperature range
- Gain and phase match between amplifiers
- Internally frequency compensated
- Low noise input transistors

## PACKAGE DIMENSIONS

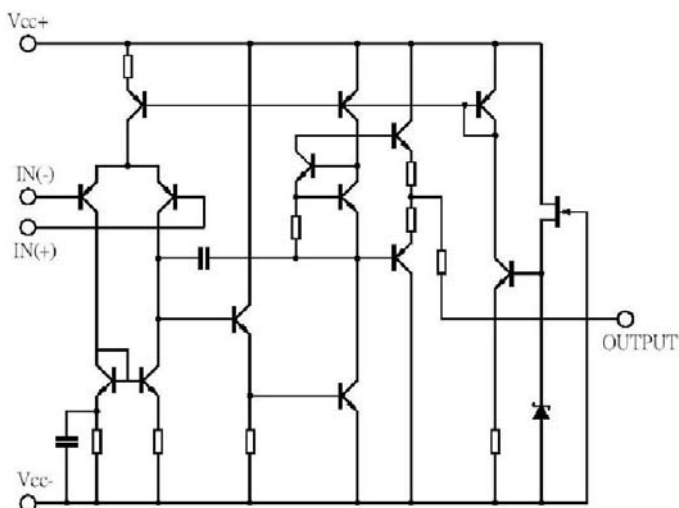


REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	5.80	6.20	M	0.10	0.25
B	4.80	5.00	H	0.35	0.49
C	3.80	4.00	L	1.35	1.75
D	0°	8°	J	0.375 REF.	
E	0.40	0.90	K	45°	
F	0.19	0.25	G	1.27 TYP.	

## PIN CONFIGURATIONS



## BLOCK DIAGRAMS



## ABSOLUTE MAXIMUM RATINGS

Parameter	Value	Units
Supply Voltage ( $V_{CC}$ )	$\pm 22$	V
Differential Input Voltage ( $V_{I(DIFF)}$ )	$\pm 18$	V
Input Voltage ( $V_I$ )	$\pm 15$	V
Power Dissipation ( $P_D$ )	400	mW
Operating & Junction Temperature ( $T_{OPR}$ , $T_{STG}$ )	0~+70, -65~+150	°C

## ELECTRICAL CHARACTERISTICS

( $V_{CC}=15V$ ,  $V_{EE}=-15V$ ,  $T_A=25^\circ C$ )

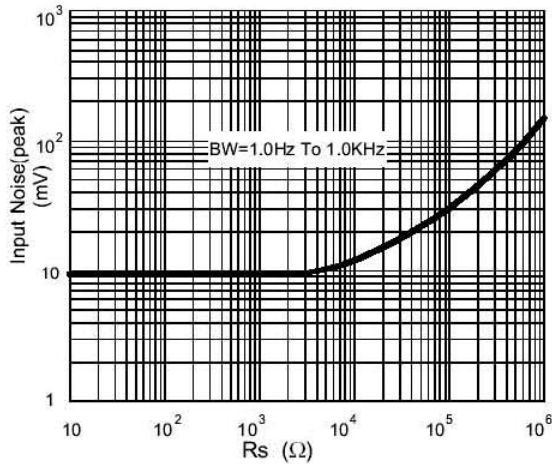
Characteristics	Symbol	Min.	Typ.	Max.	Units	Test Conditions
Supply Current, all Amp, no load	$I_{CC}$	-	2.3	4.5	mA	
Input Offset Current	$I_{IO}$	-	5	200	nA	
Input Bias Current	$I_{BIAS}$	-	30	500	nA	
Input Offset Voltage	$V_{IO}$	-	2	6	mV	$R_S < 10k\Omega$
Output Voltage Swing	$V_{O(P-P)}$	-	12	14	V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

## FREQUENCY CHARACTERISTICS

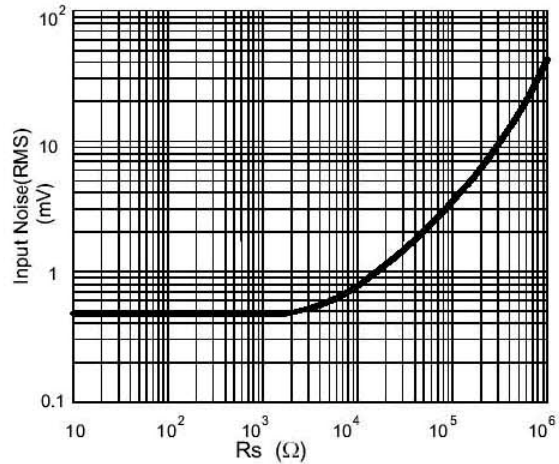
( $V_{CC}=15V$ ,  $V_{EE}=-15V$ ,  $T_A=25^\circ C$ )

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

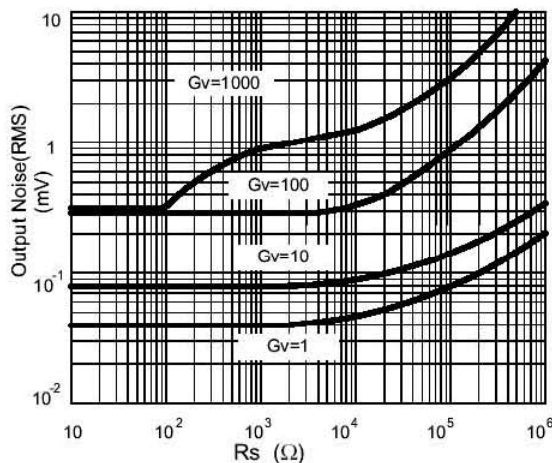
**CHARACTERISTIC CURVE**



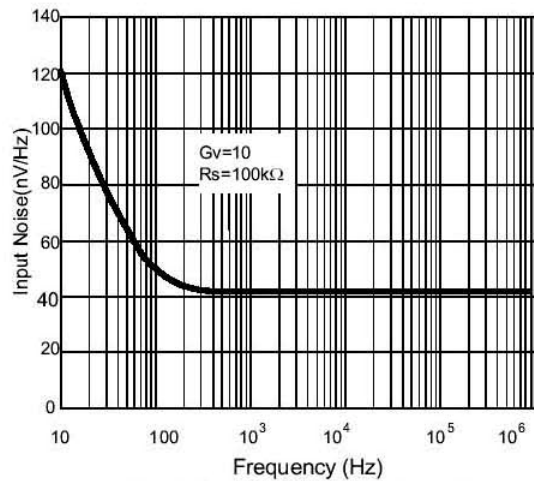
**Fig 1. Burst Noise vs. Rs**



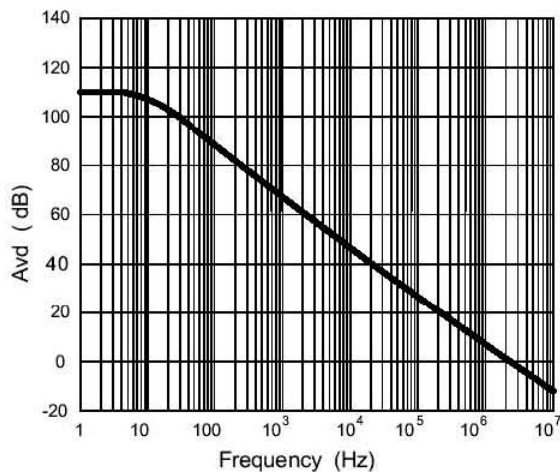
**Fig 2. RMS Noise vs. Rs**



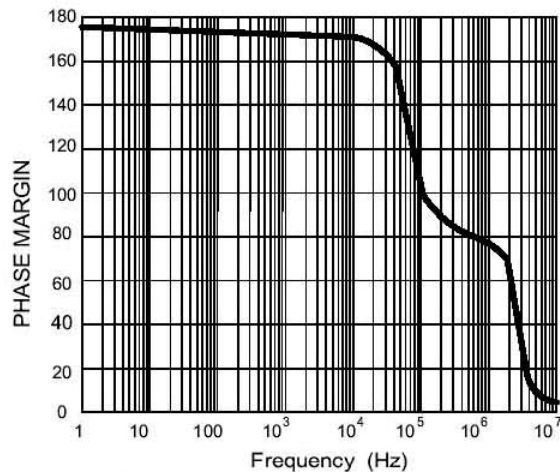
**Fig 3. Output Noise vs. Rs**



**Fig 4. Spectral Noise vs. Density**

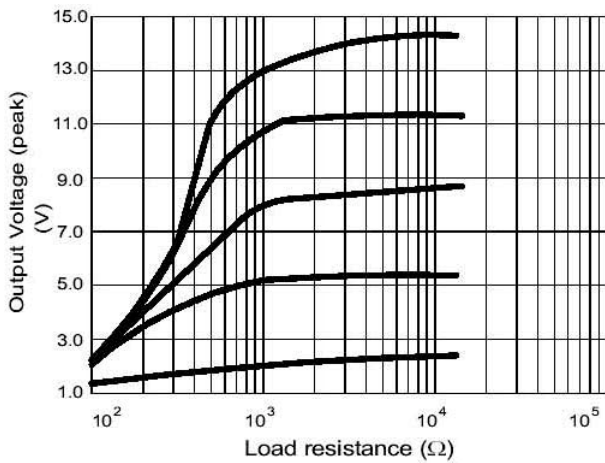


**Fig 5. Open Loop Frequency Response**

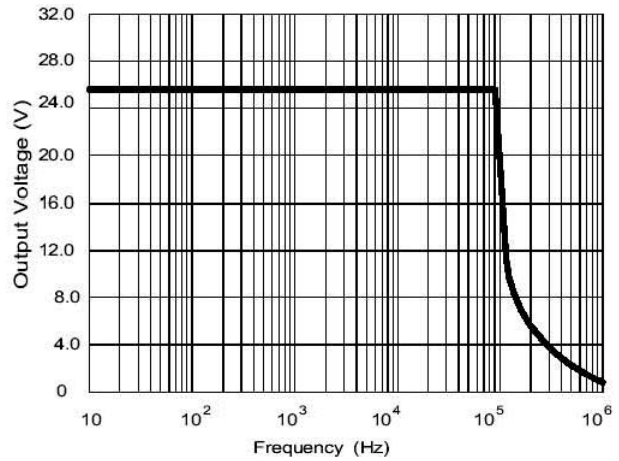


**Fig 6. Phase Margin vs. Frequency**

**CHARACTERISTIC CURVE** (cont'd)



**Fig 7. Positive Output Voltage Swing vs. Load Resistance**



**Fig 8. Power Bandwidth (Large Signal)**