

### GENERAL DESCRIPTION

The SGM9122 is a dual video 6dB amplifier. Operating from single supplies ranging from +3.0V to +5.5V and sinking a low 5.8mA quiescent current, the SGM9122 is ideally suited for low power, battery-operated applications.

Each channel has clamp function that fixes DC level of video signal. Further more SGM9122 has SAG correction feature that significantly reduces the size of the output coupling capacitor.

SGM9122 can be DC-coupled or AC-coupled with input video signal, such as the output stage of DAC to eliminate out-of-band noise. The output in SGM9122 can be configured as DC or AC-coupled output.

The SGM9122 has lead (Pb) free TSSOP-8 and WSOP-8 packages. It operates over an ambient temperature range of -40°C to +85°C.

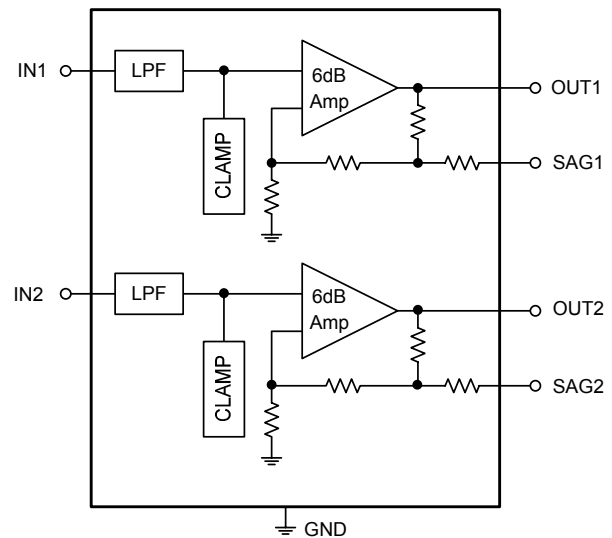
### APPLICATIONS

Video Amplifiers  
 Cable and Satellite Set Top Boxes  
 Communication Devices  
 Video on Demand  
 Portable and Handheld Products  
 Personal Video Recorders  
 DVD Players  
 SDTVs  
 VCRs

### FEATURES

- Dual Channels Video Driver
- 6dB Output Driver Gain
- Operating Voltage Range: 3.0V to 5.5V
- Wide Frequency Range: 15MHz
- Internal Clamp Function
- SAG Correction Function
- Rail-to-Rail Output
- AC or DC Coupled Inputs
- AC or DC Coupled Outputs
- Low Operating Current: 5.8mA Typical (Dual)
- Lead (Pb) Free TSSOP-8 and WSOP-8 Packages
- -40°C to +85°C Operating Temperature Range

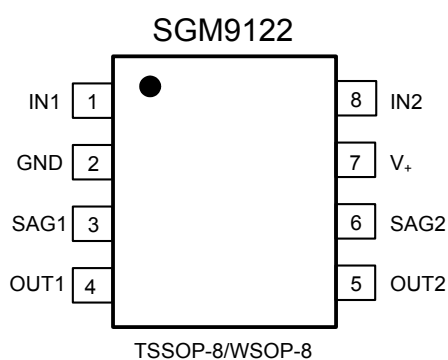
### BLOCK DIAGRAM



**PACKAGE/ORDERING INFORMATION**

ORDER NUMBER	PACKAGE DESCRIPTION	SPECIFIED TEMPERATURE RANGE	PACKAGE OPTION	MARKING INFORMATION
SGM9122YTS8/TR	TSSOP-8	-40°C to +85°C	Tape and Reel, 3000	SGM9122YTS8
SGM9122YWS8/TR	WSOP-8	-40°C to +85°C	Tape and Reel, 2000	SGM9122YWS8

**PIN CONFIGURATIONS (TOP VIEW)**



**PIN DESCRIPTION**

PIN	NAME	FUNCTION
1	IN1	Channel 1 Video Input
2	GND	Ground
3	SAG1	Channel 1 SAG Correction Output
4	OUT1	Channel 1 Output
5	OUT2	Channel 2 Output
6	SAG2	Channel 2 SAG Correction Output
7	V+	Power Supply
8	IN2	Channel 2 Video Input

**ABSOLUTE MAXIMUM RATINGS**

Supply Voltage.....	6V
Input Voltage.....	-0.3V to (V <sub>+</sub> +0.3V)
Storage Temperature Range.....	-65°C to 150°C
Junction Temperature.....	160°C
Operating Temperature Range.....	-40°C to 85°C
Lead Temperature Range (Soldering 10sec)	260°C
ESD Susceptibility	
HBM.....	4000V
MM.....	400V

**NOTES**

1. Stresses above those listed under Absolute Maximum Ratings may cause permanent damage to the device. This is a stress rating only; functional operation of the device at these or any other conditions above those indicated in the operational section of this specification is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

**CAUTION**

This integrated circuit can be damaged by ESD if you don't pay attention to ESD protection. SGMICRO recommends that all integrated circuits be handled with appropriate precautions. Failure to observe proper handling and installation procedures can cause damage.

ESD damage can range from subtle performance degradation to complete device failure. Precision integrated circuits may be more susceptible to damage because very small parametric changes could cause the device not to meet its published specifications.



**ELECTRICAL CHARACTERISTICS:  $V_+ = +5.0V$** (At  $R_L = 150\Omega$  connected to GND,  $V_{IN} = 1V_{P-P}$ ,  $T_A = 25^\circ C$  and  $C_{IN} = 0.1\mu F$ , all outputs AC coupled with  $100\mu F$ , unless otherwise noted.)

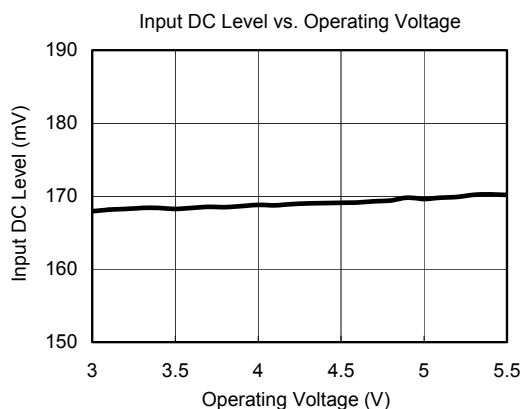
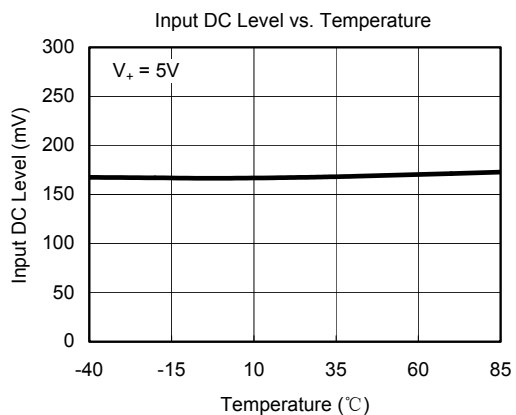
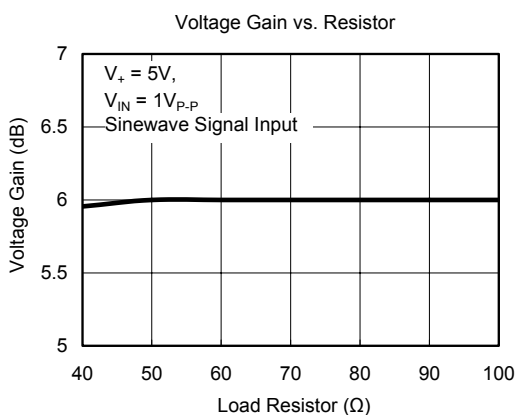
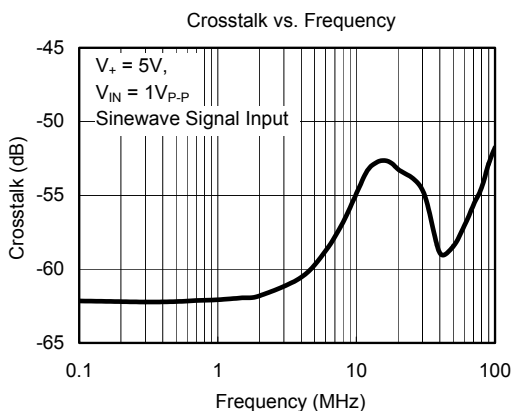
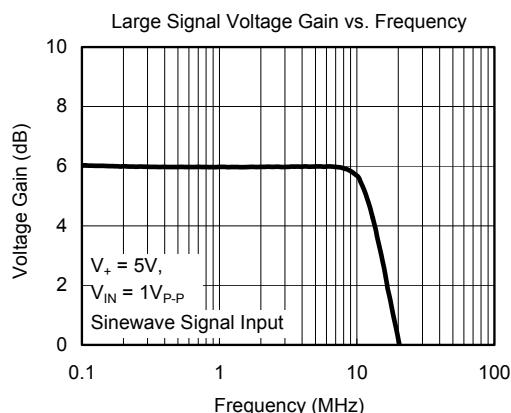
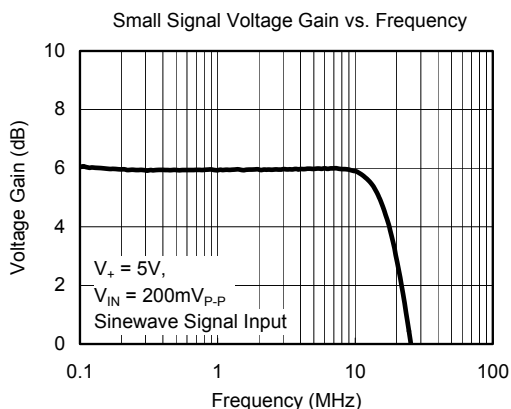
PARAMETER	CONDITIONS	SGM9122					
		TYP	MIN/MAX OVER TEMPERATURE			UNITS	MIN/MAX
		+25°C	+25°C	-40°C to +85°C			
<b>INPUT CHARACTERISTICS</b>							
Input Voltage Clamp ( $V_{CLAMP}$ )		170	210	220	mV	MAX	
Clamp Charge Current	$V_{IN} = V_{CLAMP} - 100mV$	-5.6	-7.4	-9.2	mA	MIN	
<b>OUTPUT CHARACTERISTICS</b>							
Output Voltage High Swing	$R_L = 150\Omega$	4.83	4.4	4.3	V	MIN	
Output Voltage Low Swing	$R_L = 150\Omega$	0.26	0.31	0.39	V	MAX	
<b>POWER SUPPLY</b>							
Operating Voltage Range			3.0		V	MIN	
			5.5		V	MAX	
Power Supply Rejection Ratio (PSRR)	$V_+ = 3.0V$ to $5.5V$	63	52	46	dB	MIN	
Quiescent Current ( $I_Q$ )	$V_{IN} = 500mV$ , No Load	5.8	7.9	8.9	mA	MAX	
<b>DYNAMIC PERFORMANCE</b>							
Voltage Gain ( $G_V$ )	$V_{IN} = 1MHz$ , $1V_{P-P}$ Sinewave	6.0			dB	TYP	
-0.1dB Bandwidth		8.9			MHz	TYP	
-3dB Bandwidth		15			MHz	TYP	
Gain Offset ( $G_{CH}$ )	$V_{IN} = 1MHz$ , $1V_{P-P}$ , $G_{CH} = G_{V1} - G_{V2}$	$\pm 0.1$			dB	TYP	
Differential Gain (DG)	NTSC & PAL AC coupled	0.2			%	TYP	
	NTSC & PAL DC coupled	0.2			%	TYP	
Differential Phase (DP)	NTSC & PAL AC coupled	0.4			°	TYP	
	NTSC & PAL DC coupled	0.6			°	TYP	
Crosstalk	$V_{IN} = 4.43MHz$ , $1V_{P-P}$ Sinewave	-60			dB	TYP	
Fall Time	$1V_{STEP}$ , 80% to 20%	20			ns	TYP	
Rise Time	$1V_{STEP}$ , 80% to 20%	24			ns	TYP	

## Notes:

1. SGM9122 can be DC-coupled input when the signal voltage (DC) is higher than the clamp voltage.
2. Specifications subject to change without notice.

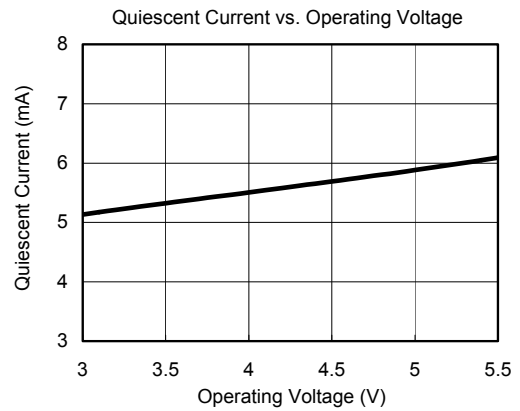
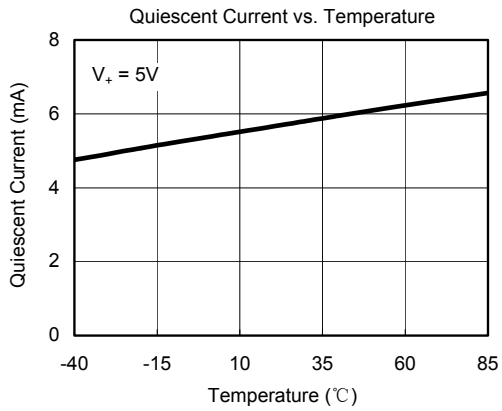
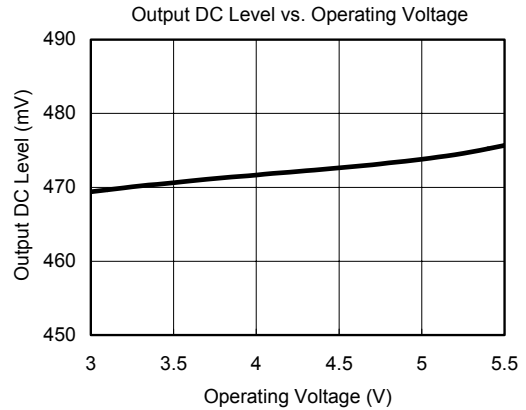
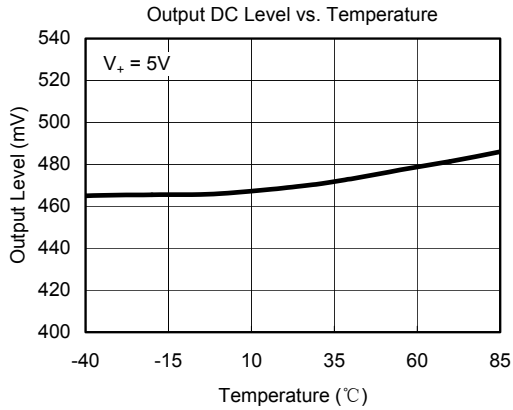
TYPICAL PERFORMANCE CHARACTERISTICS

At  $V_+ = +5.0V$ ,  $T_A = +25^\circ C$ ,  $R_L = 150\Omega$ , all outputs AC coupled with  $100\mu F$ , unless otherwise noted.

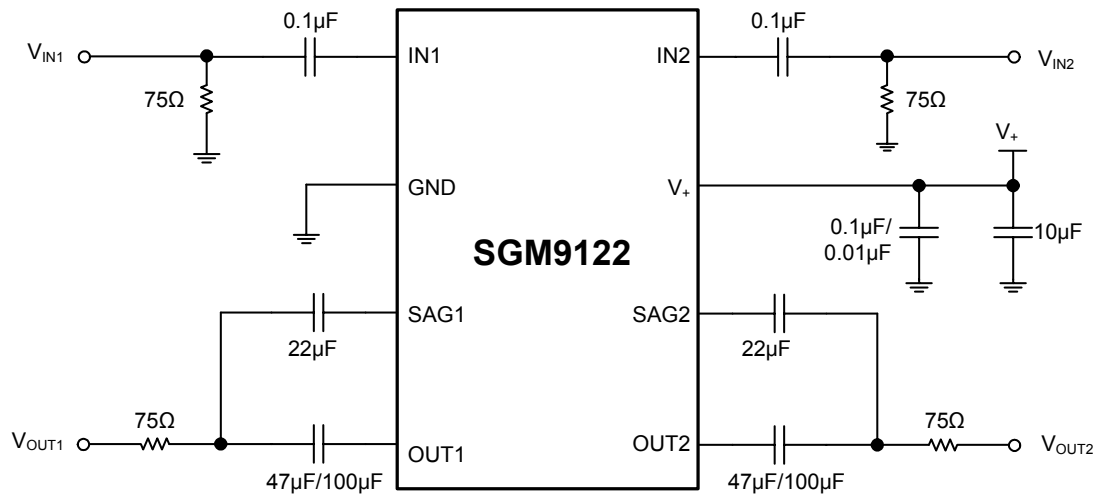


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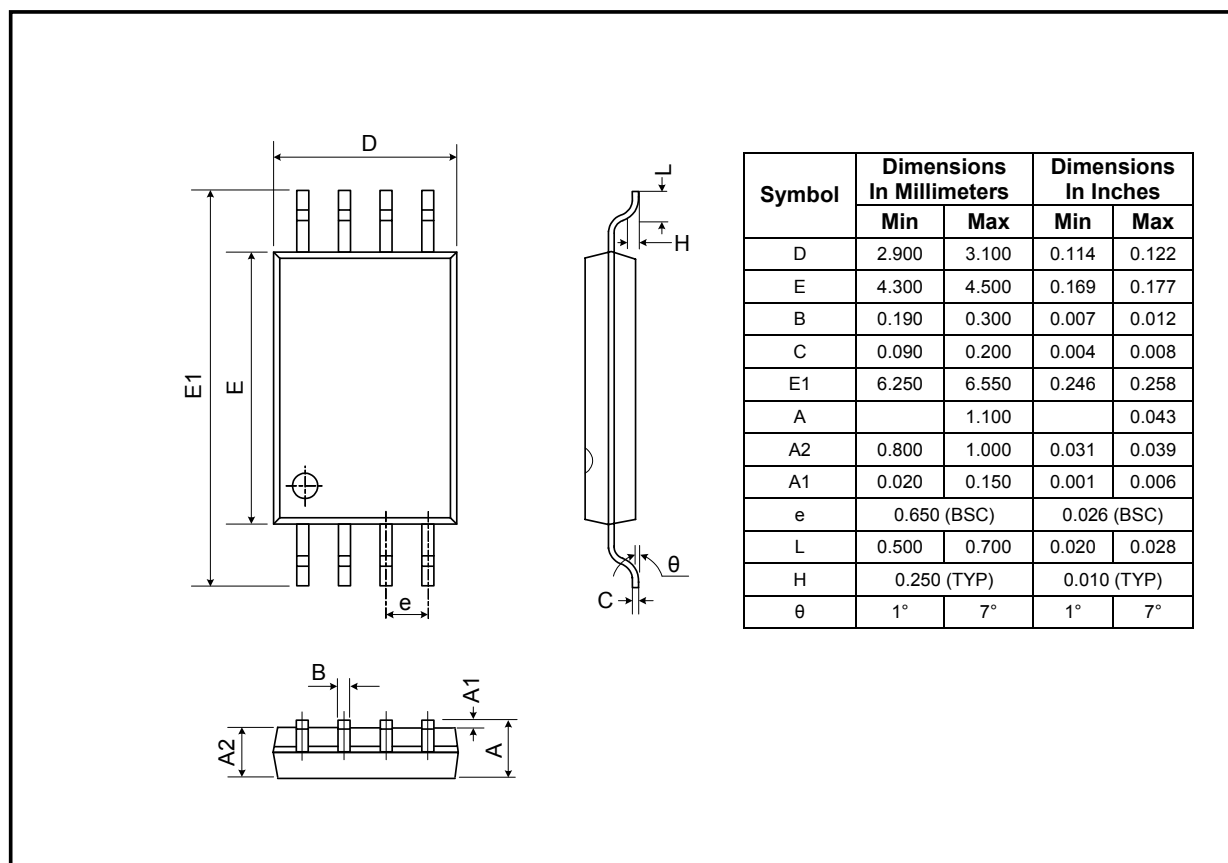


TYPICAL APPLICATION CIRCUIT



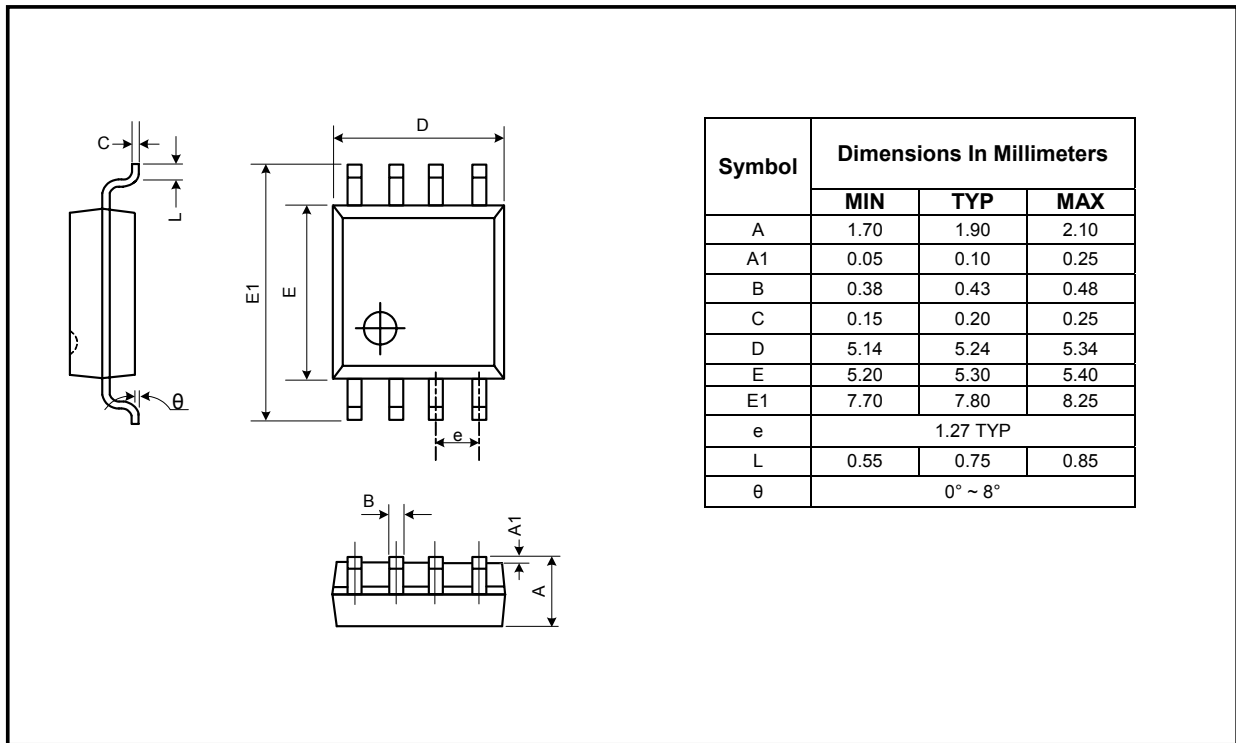
PACKAGE OUTLINE DIMENSIONS

TSSOP-8



PACKAGE OUTLINE DIMENSIONS

WSOP-8



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