

GENERAL DESCRIPTION

The SGM9131 is a 3-channel, 6th-order output reconstruction filter which can operate from 3.1V to 5.5V single power supply. It is designed to replace passive LC filters and drivers with an integrated device. Three channels are High Definition (HDi) filters.

The device allows DC- or AC-coupled output. SGM9131 can be DC-coupled or AC-coupled with input video signal to eliminate out-of-band noise, such as the output stage of DAC. Internal bias circuitry may be used for providing constant bias voltage if AC-coupled inputs are required.

The SGM9131 is available in a Green SOIC-8 package. It operates over an ambient temperature range of -40°C to +85°C.

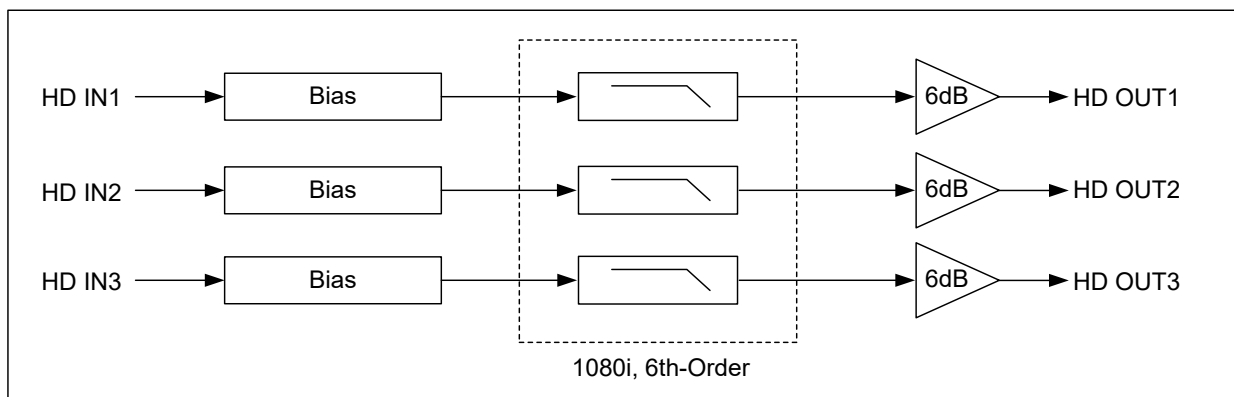
FEATURES

- **Supply Voltage Range: 3.1V to 5.5V**
- **Three 6th-Order 1080i High Definition Filters**
- **Bias Mode Active with AC-Coupled Inputs**
- **Bias Mode Inactive with DC-Coupled Inputs**
- **AC- or DC-Coupled Outputs**
- **DC-Coupled Outputs Eliminate AC-Coupled Capacitors**
- **-40°C to +85°C Operating Temperature Range**
- **Available in a Green SOIC-8 Package**

APPLICATIONS

- Video Amplifiers
- Video Recorders
- Video on Demand (VOD)
- Cable and Satellite Set-Top Boxes
- Portable and Handheld Products
- Communication Devices
- TVs

BLOCK DIAGRAM



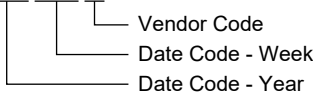
PACKAGE/ORDERING INFORMATION

MODEL	PACKAGE DESCRIPTION	SPECIFIED TEMPERATURE RANGE	ORDERING NUMBER	PACKAGE MARKING	PACKING OPTION
SGM9131	SOIC-8	-40°C to +85°C	SGM9131YS8G/TR	SGM 9131YS8 XXXXX	Tape and Reel, 2500

MARKING INFORMATION

NOTE: XXXXX = Date Code and Vendor Code.

XXXXX



Green (RoHS & HSF): SG Micro Corp defines "Green" to mean Pb-Free (RoHS compatible) and free of halogen substances. If you have additional comments or questions, please contact your SGMICRO representative directly.

Input Voltage..... GND - 0.3V to V_{CC} + 0.3V
 Supply Voltage, V_{CC}..... 6.0V
 Junction Temperature 150°C
 Storage Temperature Range..... -65°C to +150°C
 Lead Temperature (Soldering, 10s) 260°C
 ESD Susceptibility
 HBM..... 8000V
 MM..... 400V

RECOMMENDED OPERATING CONDITIONS

Operating Voltage Range..... 3.1V to 5.5V
 Operating Temperature Range -40°C to +85°C

OVERSTRESS CAUTION

Stresses beyond those listed in Absolute Maximum Ratings may cause permanent damage to the device. Exposure to absolute maximum rating conditions for extended periods may affect reliability. Functional operation of the device at any conditions beyond those indicated in the Recommended Operating Conditions section is not implied.

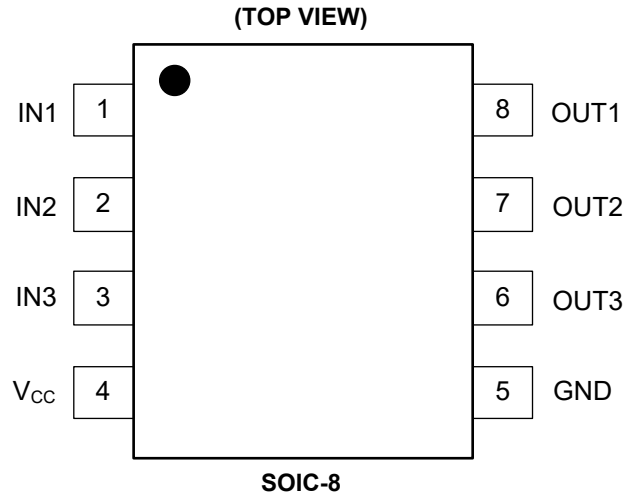
ESD SENSITIVITY CAUTION

This integrated circuit can be damaged if ESD protections are not considered carefully. 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 even small parametric changes could cause the device not to meet the published specifications.

DISCLAIMER

SG Micro Corp reserves the right to make any change in circuit design, or specifications without prior notice.

PIN CONFIGURATION



PIN DESCRIPTION

PIN	NAME	FUNCTION
1	IN1	Video Input for Channel 1.
2	IN2	Video Input for Channel 2.
3	IN3	Video Input for Channel 3.
4	V _{CC}	Power Supply.
5	GND	Ground.
6	OUT3	Video Output for Channel 3.
7	OUT2	Video Output for Channel 2.
8	OUT1	Video Output for Channel 1.

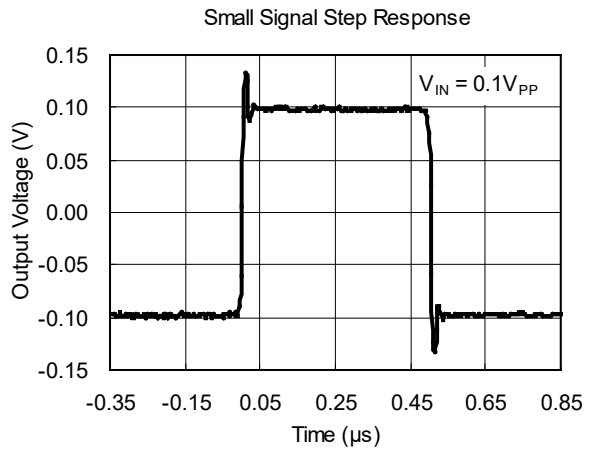
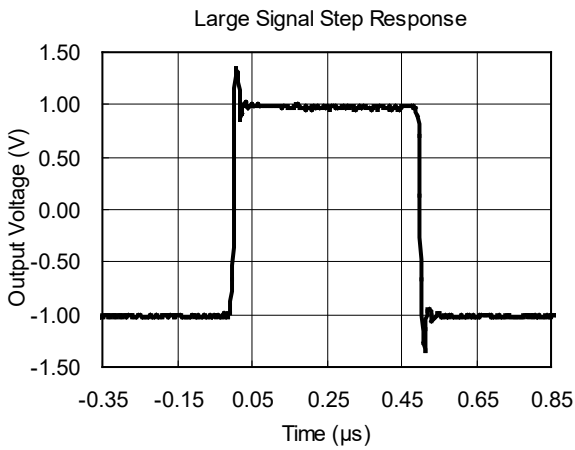
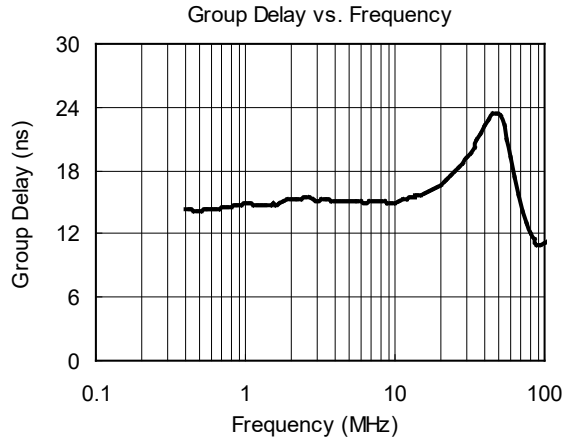
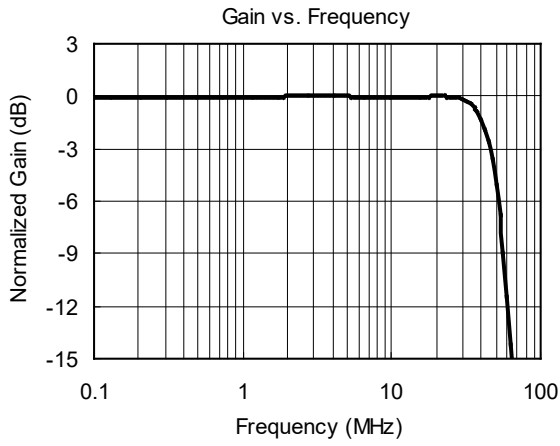
ELECTRICAL CHARACTERISTICS

($T_A = +25^\circ\text{C}$, $V_{IN} = 1V_{PP}$, $V_{CC} = 5V$, $R_{SOURCE} = 37.5\Omega$; all inputs are AC-coupled with $0.1\mu\text{F}$; all outputs are AC-coupled with $220\mu\text{F}$ into 150Ω , referenced to 400kHz ; unless otherwise noted.)

PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
DC Electrical Characteristics					
Operating Voltage Range (V_{CC})		3.1	5	5.5	V
Quiescent Current (I_Q)	$V_{CC} = 5V$, No load		55	72	mA
Output Level Shift Voltage (V_{OLS})	$V_{IN} = 0V$, No load		500	680	mV
Voltage Gain (A_V)	$R_L = 150\Omega$	5.8	6.1	6.35	dB
Output Voltage High Swing	$V_{IN} = 3V$, $R_L = 150\Omega$ to GND		4.8		V
Video Input Voltage Range	Referenced to GND if DC-coupled		1.4		V_{PP}
Power Supply Rejection Ratio (PSRR)	DC (All channels)		50		dB
1080i High Definition Mode Electrical Characteristics					
-0.1dB Bandwidth	$R_L = 150\Omega$		32		MHz
-1dB Bandwidth	$R_L = 150\Omega$		39		MHz
-3dB Bandwidth	$R_L = 150\Omega$		46		MHz
Filter Response (Normalized Gain)	$f_{IN} = 400\text{kHz}$ to 74.25MHz		25		dB
Slew Rate	2V Output step, 80% to 20%		190		V/ μs
Group Delay Variation (D/DT)	Difference between 400kHz and 26MHz		3.5		ns
Crosstalk (channel-to-channel)	$V_{OUT} = 1.4V_{PP}$, $f = 1\text{MHz}$		-60		dB
Fall Time	2V Output step, 80% to 20%		6.2		ns
Rise Time	2V Output step, 80% to 20%		6.2		ns

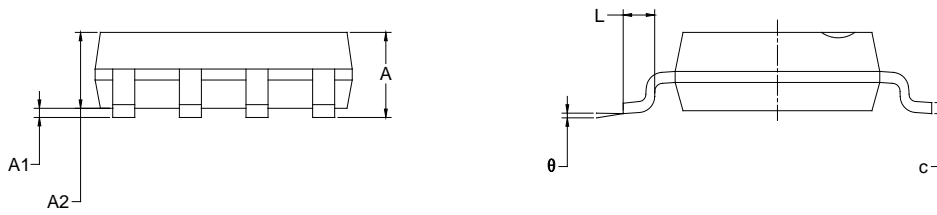
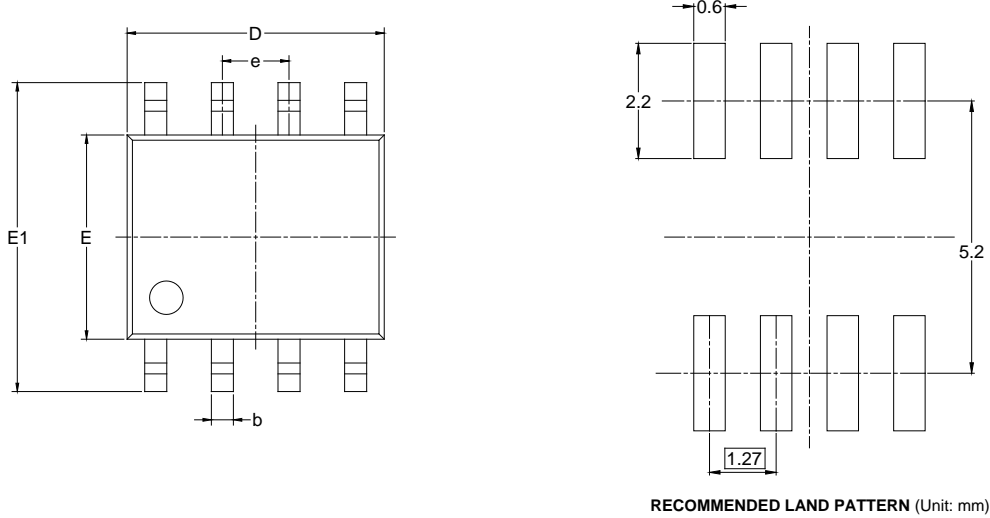
TYPICAL PERFORMANCE CHARACTERISTICS

$T_A = +25^\circ\text{C}$, $V_{IN} = 1V_{PP}$, $V_{CC} = 5V$, $R_{SOURCE} = 37.5\Omega$; all inputs are AC-coupled with $0.1\mu\text{F}$; all outputs are AC-coupled with $220\mu\text{F}$ into 150Ω , referenced to 400kHz ; unless otherwise noted.



PACKAGE OUTLINE DIMENSIONS

SOIC-8



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MIN	MAX	MIN	MAX
A	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
c	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°

NOTES:
 1. Body dimensions do not include mode flash or protrusion.
 2. This drawing is subject to change without notice.

TAPE AND REEL INFORMATION

REEL DIMENSIONS



TAPE DIMENSIONS



NOTE: The picture is only for reference. Please make the object as the standard.

KEY PARAMETER LIST OF TAPE AND REEL

Package Type	Reel Diameter	Reel Width W1 (mm)	A0 (mm)	B0 (mm)	K0 (mm)	P0 (mm)	P1 (mm)	P2 (mm)	W (mm)	Pin1 Quadrant
SOIC-8	13"	12.4	6.40	5.40	2.10	4.0	8.0	2.0	12.0	Q1

DD0001

PACKAGE INFORMATION

CARTON BOX DIMENSIONS



NOTE: The picture is only for reference. Please make the object as the standard.

KEY PARAMETER LIST OF CARTON BOX

Reel Type	Length (mm)	Width (mm)	Height (mm)	Pizza/Carton
13"	386	280	370	5

DD0002