



SGM9140

26MHz, Video Driver with Y/C Mixer and Chroma Mute

GENERAL DESCRIPTION

The SGM9140 is a low voltage video amplifier with Y/C mixer which can operate from 2.8V to 5.5V power supply. It is designed for portable video system and energy saving products.

The SGM9140 has chroma mute and power-save functions.

SGM9140 provides two gain options (6.4dB or 12.4dB) for different applications.

The SGM9140 is available in a Green MSOP-8 package. It operates over an ambient temperature range of -40°C to +85°C.

FEATURES

- **Supply Voltage Range:: 2.8V to 5.5V**
- **Internal Clamp (Y-Input)/Bias (C-Input) MIX Circuit**
- **Quiescent Current: 9mA (TYP)**
- **Power-Save Mode Current: 1µA (TYP)**
- **Support 6.4dB and 12.4dB Gains**
- **Available in a Green MSOP-8 Package**
- **-40°C to +85°C Operating Temperature Range**

APPLICATIONS

Cable and Satellite Set-Top Boxes
Portable and Handheld Products
Communication Devices
Digital Cameras
DVC Players

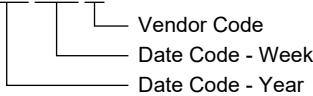
PACKAGE/ORDERING INFORMATION

MODEL	PACKAGE DESCRIPTION	SPECIFIED TEMPERATURE RANGE	ORDERING NUMBER	PACKAGE MARKING	PACKING OPTION
SGM9140A (12.4dB Gain)	MSOP-8	-40°C to +85°C	SGM9140AYMS8G/TR	SGM9140A YMS8 XXXXX	Tape and Reel, 3000
SGM9140B (6.4dB Gain)	MSOP-8	-40°C to +85°C	SGM9140BYMS8G/TR	SGM9140B YMS8 XXXXX	Tape and Reel, 3000

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.

Supply Voltage, V_{CC}..... 6V
 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..... 2.8V 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.

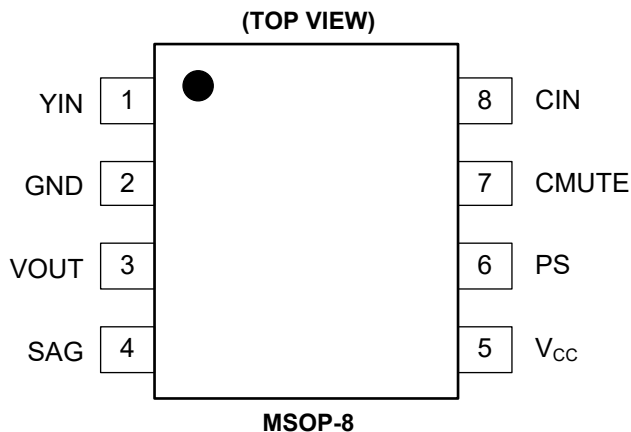
ESD SENSITIVITY CAUTION

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	YIN	S-Video Signal Y Input.
2	GND	Ground.
3	VOUT	Video Signal Output.
4	SAG	SAG Correction Input.
5	VCC	Power Supply.
6	PS	Power Save.
7	CMUTE	C-mute Input.
8	CIN	S-Video Signal C Input.

CONTROL TERMINAL EXPLANATION

PARAMETER	STATUS	NOTE
Chroma Mute	H	Chroma Mute: ON
	L	Chroma Mute: OFF
	OPEN	Chroma Mute: OFF
Power Save	H	Power Save: OFF
	L	Power Save: ON
	OPEN	Power Save: ON

ELECTRICAL CHARACTERISTICS(V_{CC} = 3V, T_A = +25°C, V_{OUT} = 2V_{PP}, R_L = 150Ω connected to GND, referenced to 400kHz, unless otherwise noted.)

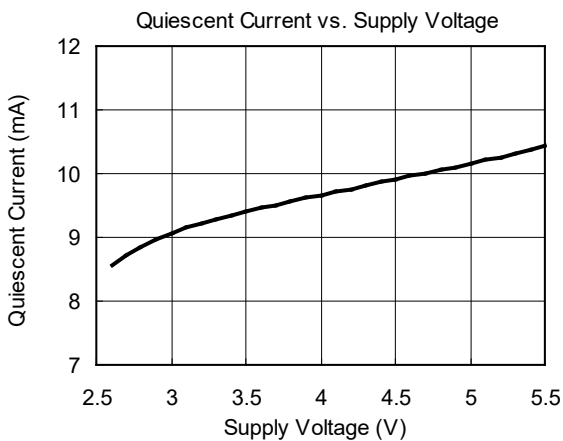
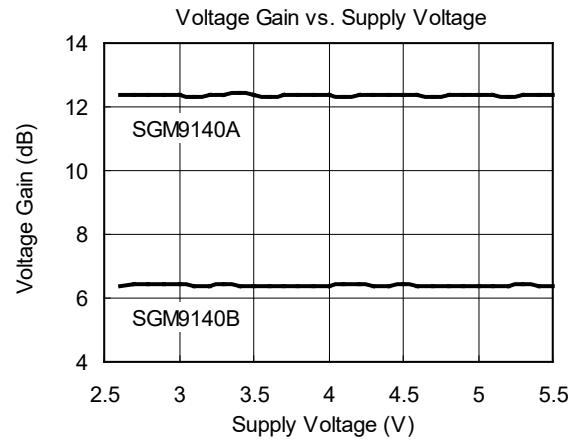
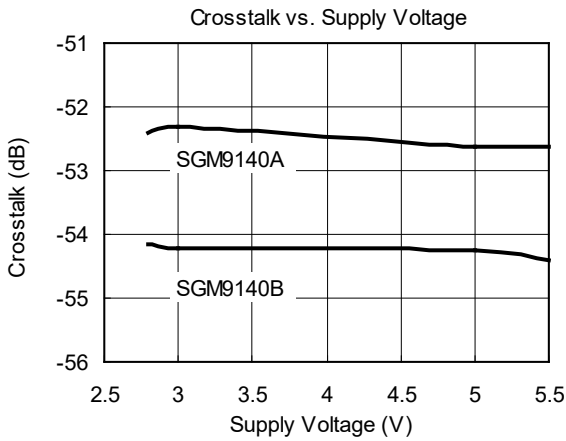
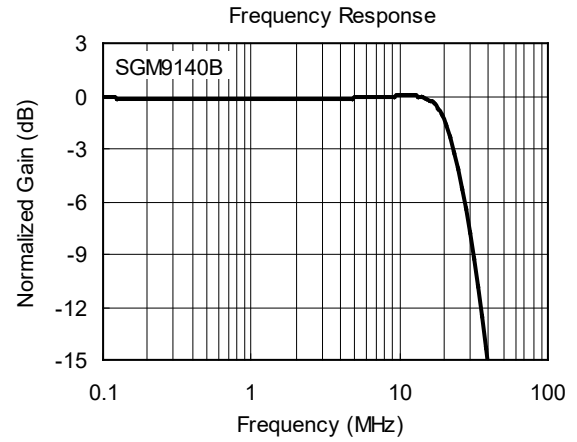
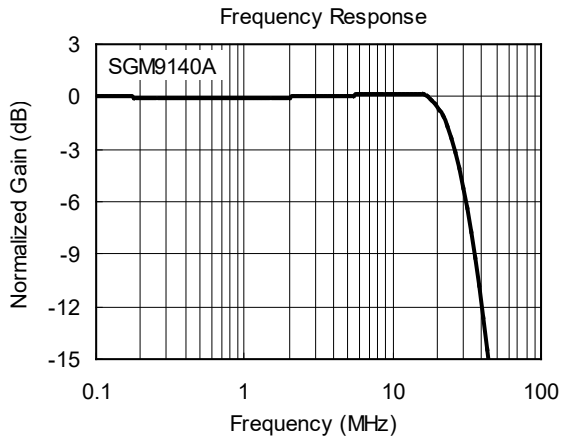
PARAMETER	CONDITIONS		MIN	TYP	MAX	UNITS
Operating Voltage Range (V _{CC})			2.8		5.5	V
Quiescent Current (I _Q)	No Signal			9.0	11.6	mA
Power Save Mode Current (I _S)	Power Save Mode			1.0	2.0	μA
Maximum Output Voltage (V _{OM})	f = 1kHz, THD = 1%			2.4		V _{PP}
Voltage Gain (G _V)	SGM9140A		11.9	12.4	12.9	dB
	SGM9140B		5.9	6.4	6.9	
-0.1dB Bandwidth	SGM9140A			18		MHz
	SGM9140B			16		
-1dB Bandwidth	SGM9140A			22		MHz
	SGM9140B			20		
-3dB Bandwidth	SGM9140A			26		MHz
	SGM9140B			23		
Frequency Characteristics (G _f)	Y _{IN} = 10MHz/100kHz	SGM9140A		0.3		dB
		SGM9140B		0.1		
Differential Gain (DG)	V _{CC} = 3V, 4.43MHz			0.4		%
Differential Phase (DP)	V _{CC} = 3V, 4.43MHz			0.2		deg
Chroma Mute Crosstalk (CT)	C _{IN} = 4.43MHz, 0.1V _{PP}			-52		dB
Signal-to-Noise Ratio (SNR) ⁽¹⁾	100kHz to 5MHz			65		dB
Second Order Distortion (H _v)	V _{OUT} = 1.4V _{PP} , 3.58MHz, C _{IN} = AC to GND and R _L = 75Ω	SGM9140A		-39		dB
		SGM9140B		-41.5		
Input Resistance	Chroma Input			21		kΩ
Mute Switch Change Voltage	V _{thMH}		1.4			V
	V _{thML}				0.4	
Power Save Switch Change Voltage	V _{thPH}		1.4			V
	V _{thPL}				0.4	

NOTES:

1. SNR = 20 × log (714mV/rms noise);
2. Sine Video Signal.

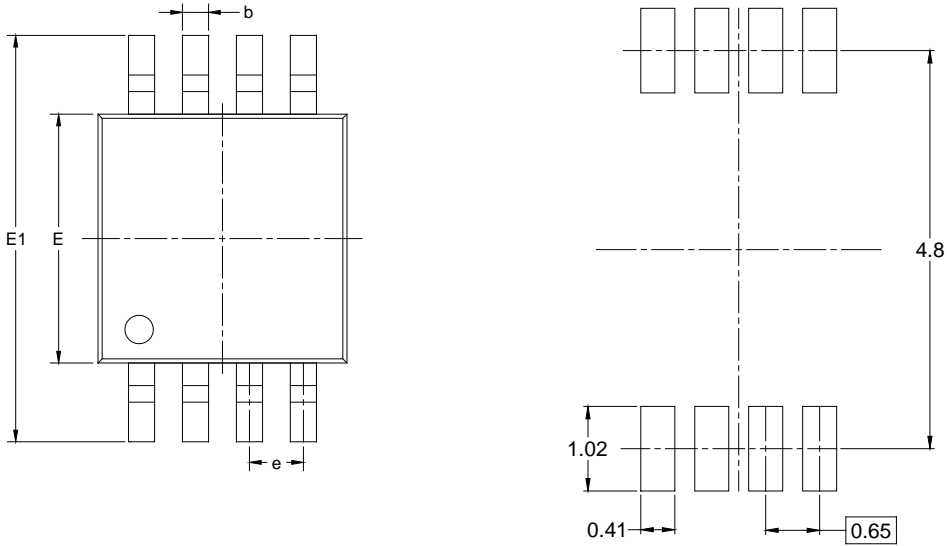
TYPICAL PERFORMANCE CHARACTERISTICS

At $V_{CC} = 5V$, $T_A = +25^\circ C$, $R_L = 150\Omega$, all outputs AC-coupled with $220\mu F$, unless otherwise noted.

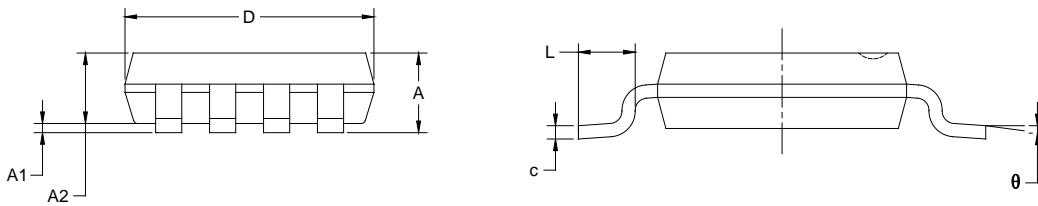


PACKAGE OUTLINE DIMENSIONS

MSOP-8



RECOMMENDED LAND PATTERN (Unit: mm)



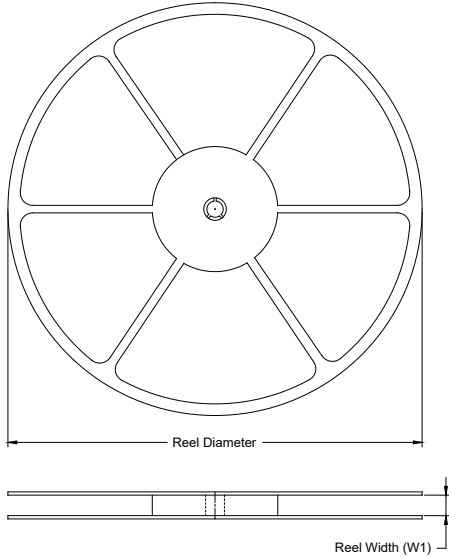
Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MIN	MAX	MIN	MAX
A	0.820	1.100	0.032	0.043
A1	0.020	0.150	0.001	0.006
A2	0.750	0.950	0.030	0.037
b	0.250	0.380	0.010	0.015
c	0.090	0.230	0.004	0.009
D	2.900	3.100	0.114	0.122
E	2.900	3.100	0.114	0.122
E1	4.750	5.050	0.187	0.199
e	0.650 BSC		0.026 BSC	
L	0.400	0.800	0.016	0.031
θ	0°	6°	0°	6°

NOTES:

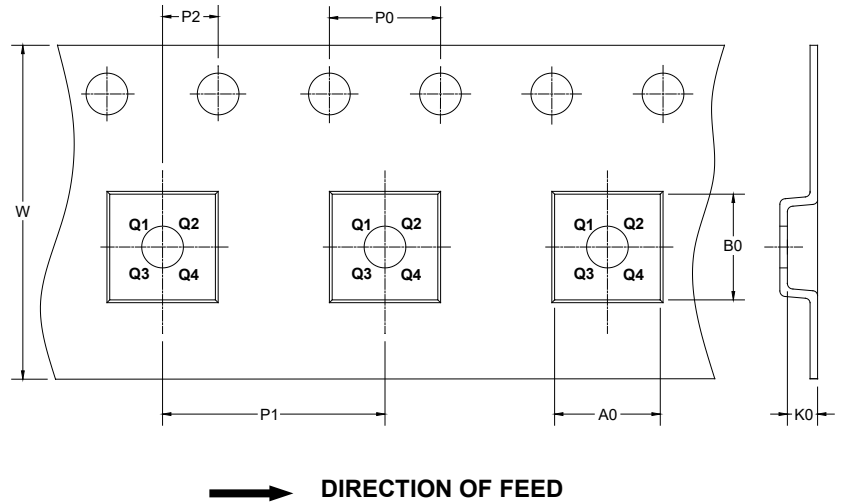
1. Body dimensions do not include mode flash or protrusion.
2. This drawing is subject to change without notice.

TAPE AND REEL INFORMATION

REEL DIMENSIONS



TAPE DIMENSIONS



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

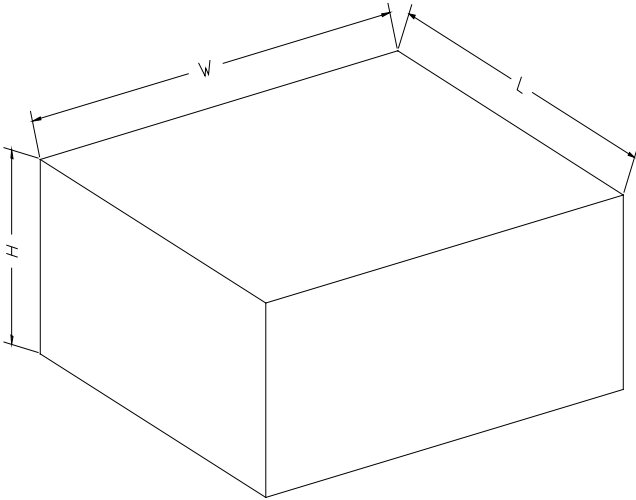
KEY PARAMETER LIST OF TAPE AND REEL

Package Type	Reel Diameter	Reel Width W1 (mm)	A0 (mm)	B0 (mm)	K0 (mm)	P0 (mm)	P1 (mm)	P2 (mm)	W (mm)	Pin1 Quadrant
MSOP-8	13"	12.4	5.20	3.30	1.50	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