

PRODUCT DESCRIPTION

The SGM9141 is a 3-input video switch for video signal. It has bias input and so is applied to fixed DC level of video signal.

Its operating supply voltage range is 4.5V to 13.2V and bandwidth is 25MHz. Crosstalk is -73dB at 4.43MHz.

The SGM9141 is available in Green SOIC-8 and TSSOP-8 packages. It operates over an ambient temperature range of -40°C to +85°C.

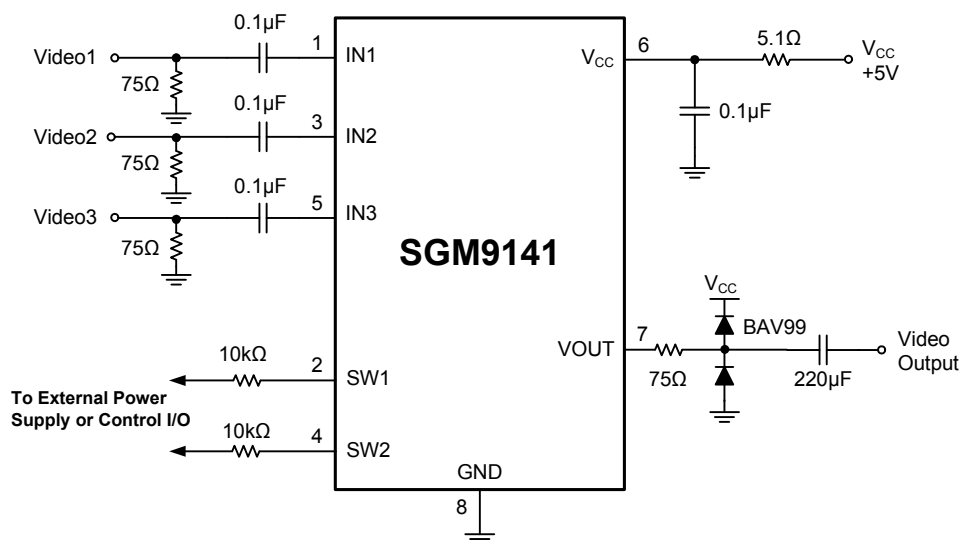
FEATURES

- **Wide Operating Supply Voltage Range:**
4.5V to 13.2V
- **3-Input/1-Output Switch**
- **Bias Input**
- **Crosstalk: -73dB at 4.43MHz**
- **Single Video Load Drive**
(2V_{PP}, 150Ω, A_V = 6dB)
- **Wide Frequency Range: 25MHz**
- **Available in Green SOIC-8 and TSSOP-8 Packages**
- **-40°C to +85°C Operating Temperature Range**

APPLICATIONS

VCR Video Camera
AV-TV
Video Disc Player

TYPICAL APPLICATION CIRCUIT



NOTE: In order to protect logic I/O, a 10kΩ resistor is recommended to be used on SW1 or SW2 pin.

PACKAGE/ORDERING INFORMATION

MODEL	PACKAGE DESCRIPTION	SPECIFIED TEMPERATURE RANGE	ORDER NUMBER	PACKAGE MARKING	PACKAGE OPTION
SGM9141	SOIC-8	-40°C to +85°C	SGM9141BYS8G/TR	SGM 9141BYS8 XXXXX	Tape and Reel, 2500
	TSSOP-8	-40°C to +85°C	SGM9141BYTS8G/TR	SGM9141B YTS8 XXXXX	Tape and Reel, 4000

NOTE: XXXXX = Date Code and Vendor Code.

ABSOLUTE MAXIMUM RATINGS

Supply Voltage, GND to V_{CC} 15V
 I/O Voltage (IN1, IN2, SW1, SW2, VOUT)
 GND - 0.3V to V_{CC} + 0.3V
 Storage Temperature Range -65°C to +150°C
 Junction Temperature 150°C
 Operating Temperature Range -40°C to +85°C
 Lead Temperature (Soldering, 10s) 260°C
 ESD Susceptibility
 HBM 3000V
 MM 200V

NOTE:

Stresses beyond those listed under “Absolute Maximum Ratings” may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

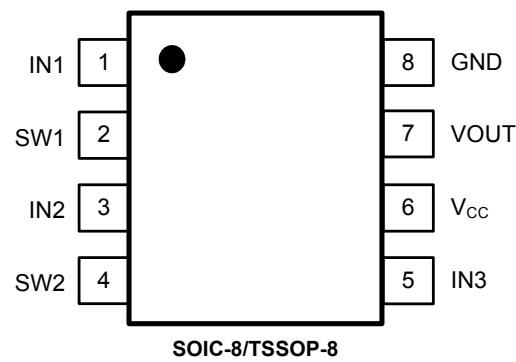
CAUTION

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.

SGMICRO reserves the right to make any change in circuit design, specification or other related things if necessary without notice at any time. Please contact SGMICRO sales office to get the latest datasheet.



PIN CONFIGURATIONS (TOP VIEW)



PIN DESCRIPTION

PIN	NAME	FUNCTION
1	IN1	Channel 1 Input.
2	SW1	Channel Switching Control.
3	IN2	Channel 2 Input.
4	SW2	Channel Switching Control.
5	IN3	Channel 3 Input.
6	V _{CC}	Power Supply.
7	VOUT	Output.
8	GND	Ground.

BLOCK DIAGRAM

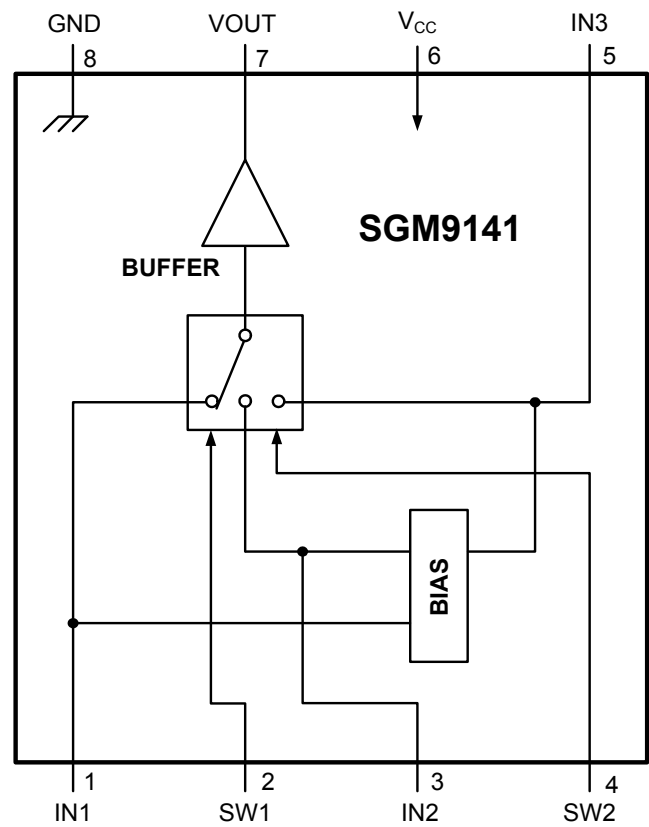


Table 1. Input Control Signal-Output Signal

SW1	SW2	NOTE
L	L	VIN1
H	L	VIN2
L/H	H	VIN3

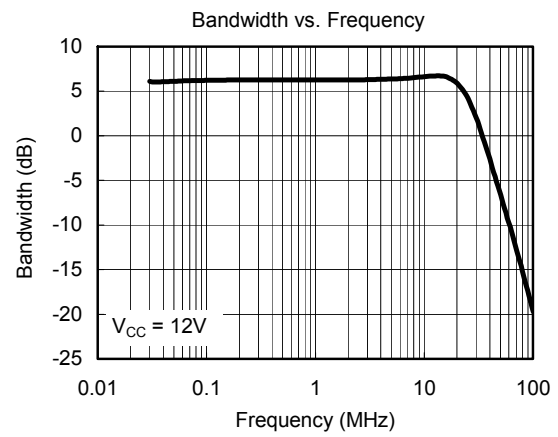
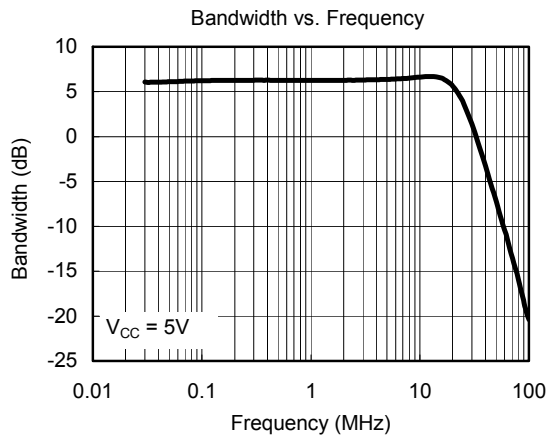
ELECTRICAL CHARACTERISTICS

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

PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
Operating Voltage Range (V_{CC})		4.5		13.2	V
Operating Current (I_{CC})			9	11.5	mA
Voltage Gain (G_V)		5.6	6	6.4	dB
Differential Gain (DG)	4.43MHz AC to AC		0.1		%
Differential Phase (DP)	4.43MHz AC to AC		0.4		Deg
Output Distortion (THD)	$V_{OUT} = 1.4V_{PP}$, 4.43MHz		0.6		%
Crosstalk (CT)	$V_{OUT} = 2V_{PP}$, 4.43MHz		-73		dB
Switch Change Voltage (V_{IH})	All Inside SW: ON	1.5			V
Switch Change Voltage (V_{IL})	All Inside SW: OFF			0.75	V
-0.1dB Bandwidth	Referenced to 400kHz		17		MHz
-1dB Bandwidth	Referenced to 400kHz		21		MHz
-3dB Bandwidth	Referenced to 400kHz		25		MHz

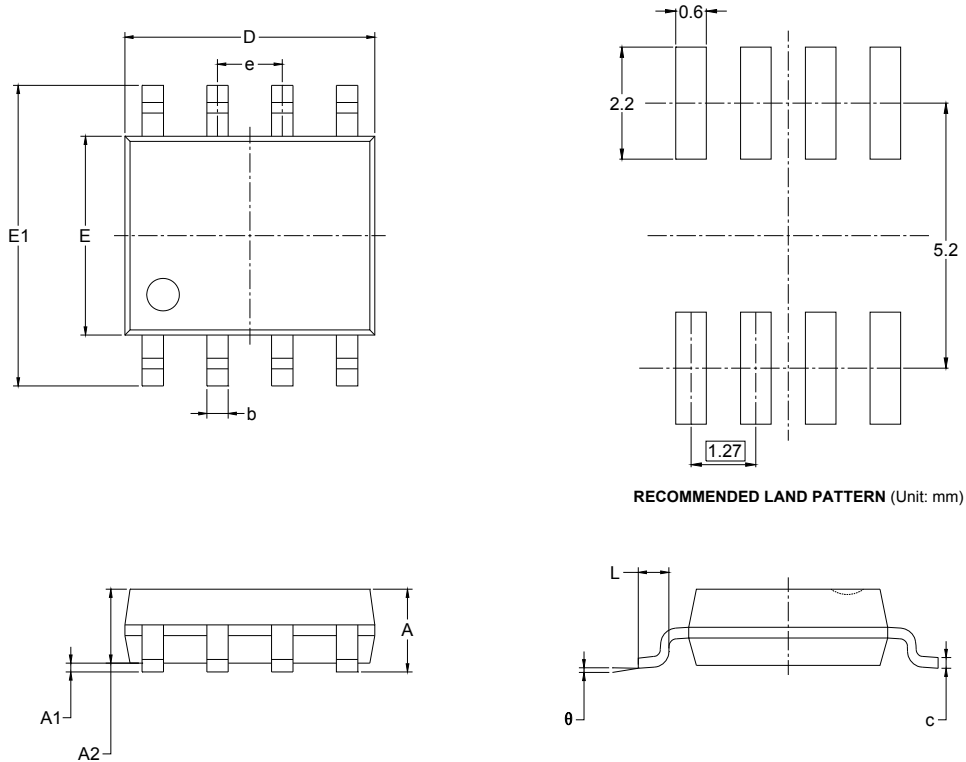
TYPICAL PERFORMANCE CHARACTERISTICS

$T_A = +25^\circ\text{C}$, $V_{IN} = 1V_{PP}$, all inputs are AC-coupled with $0.1\mu\text{F}$; all outputs are AC-coupled with $220\mu\text{F}$ into 150Ω , unless otherwise noted.



PACKAGE OUTLINE DIMENSIONS

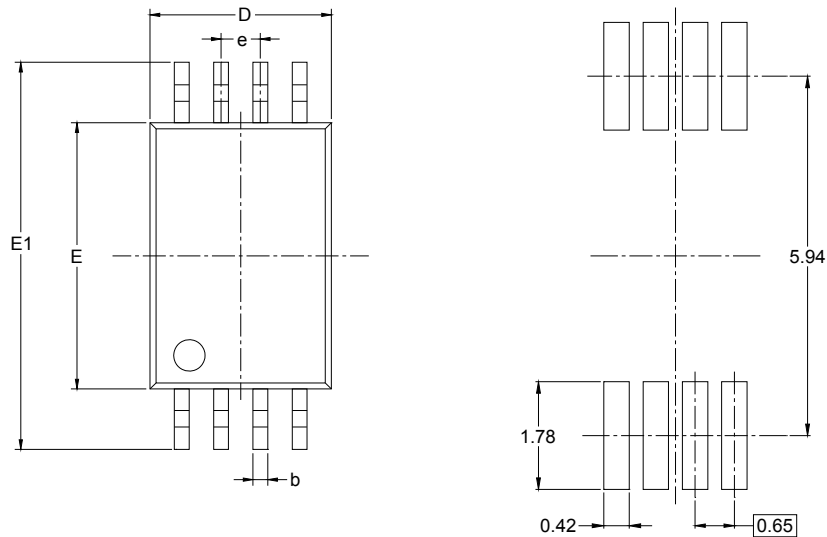
SOIC-8



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°

PACKAGE OUTLINE DIMENSIONS

TSSOP-8

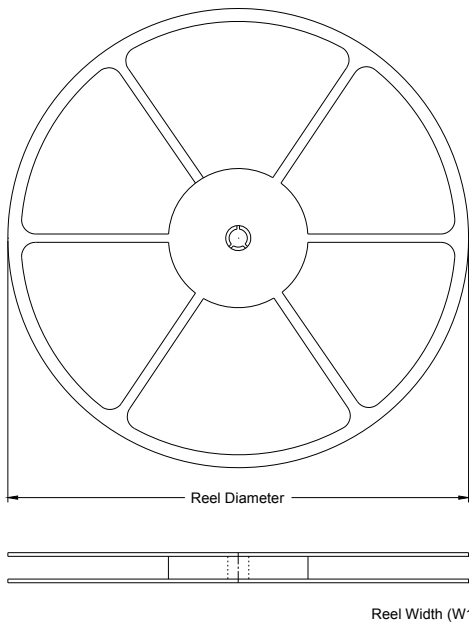


RECOMMENDED LAND PATTERN (Unit: mm)

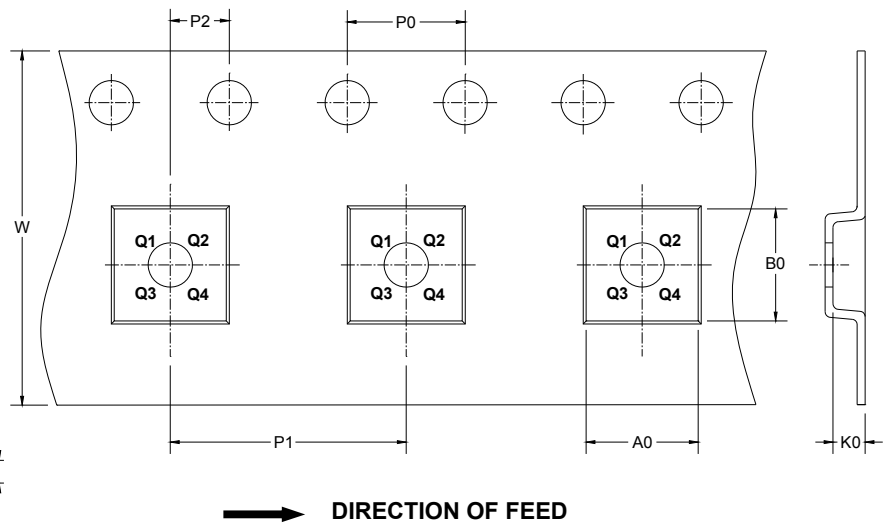
Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MIN	MAX	MIN	MAX
A		1.100		0.043
A1	0.050	0.150	0.002	0.006
A2	0.800	1.000	0.031	0.039
b	0.190	0.300	0.007	0.012
c	0.090	0.200	0.004	0.008
D	2.900	3.100	0.114	0.122
E	4.300	4.500	0.169	0.177
E1	6.250	6.550	0.246	0.258
e	0.650 BSC		0.026 BSC	
L	0.500	0.700	0.02	0.028
H	0.25 TYP		0.01 TYP	
θ	1°	7°	1°	7°

TAPE AND REEL INFORMATION

REEL DIMENSIONS



TAPE DIMENSIONS

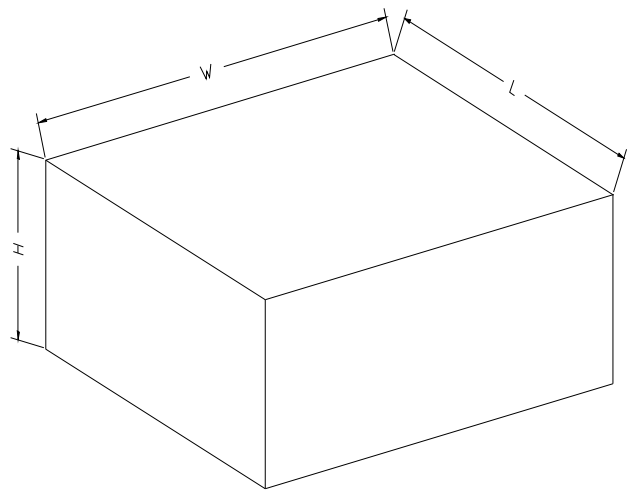


NOTE: The picture is only for reference. Please make the object as the standard.

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	6.4	5.4	2.1	4.0	8.0	2.0	12.0	Q1
TSSOP-8	13"	12.4	6.76	3.3	1.8	4.0	8.0	2.0	12.0	Q1

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