

**SANYO**

No.4020A

**LA7151, 7151M****Audio / Video Switch  
for VCR Video Camera Use**

## Overview

The LA7151 and LA7151M are high-performance, dual-channel audio/video switches designed for video camera applications.

The LA7151 and LA7151M have a wide bandwidth, low supply current and a large dynamic range, making them ideal for low-power or battery operated equipment.

The LA7151 and LA7151M operate from a 4.5 to 12.5 V supply and are available in 12-pin SIPs and 10-pin MFPs, respectively.

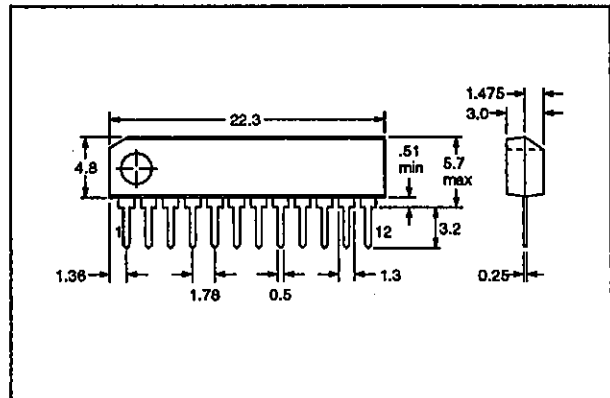
## Features

- Two, separately controllable switch circuits
- 50 k $\Omega$  input impedance
- Low supply current
- Large dynamic range
- Wide bandwidth
- 4.5 to 12.5 V supply voltage
- 12-pin SIP (LA7151) and 10-pin MFP (LA7151M)

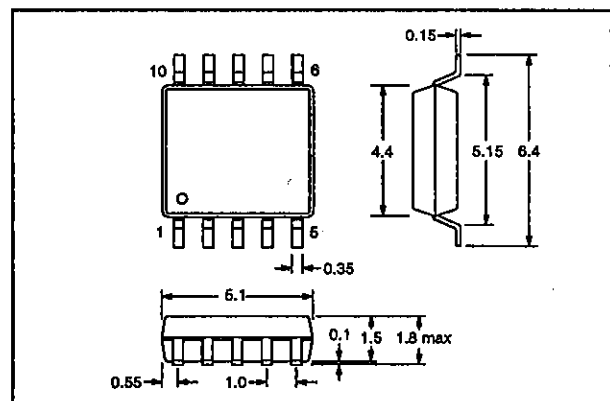
## Package Dimensions

Unit: mm

### 3116-SIP12S (LA7151)

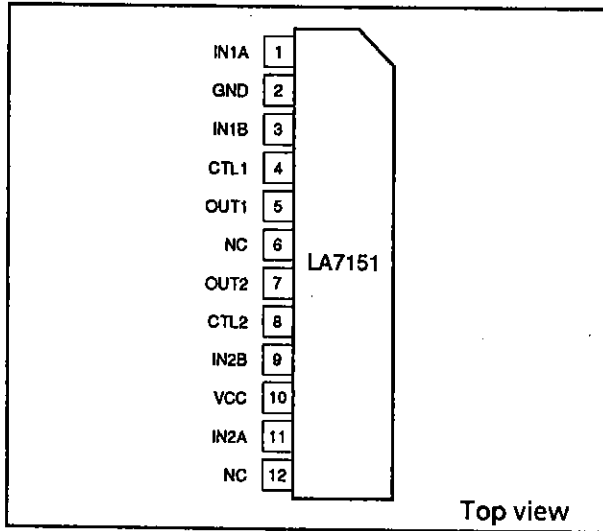


### 3086A-MFP10S (LA7151M)

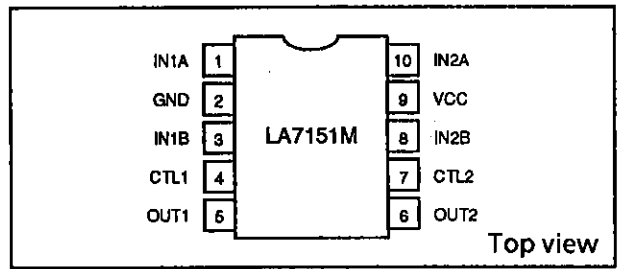


Pin Assignments

LA7151

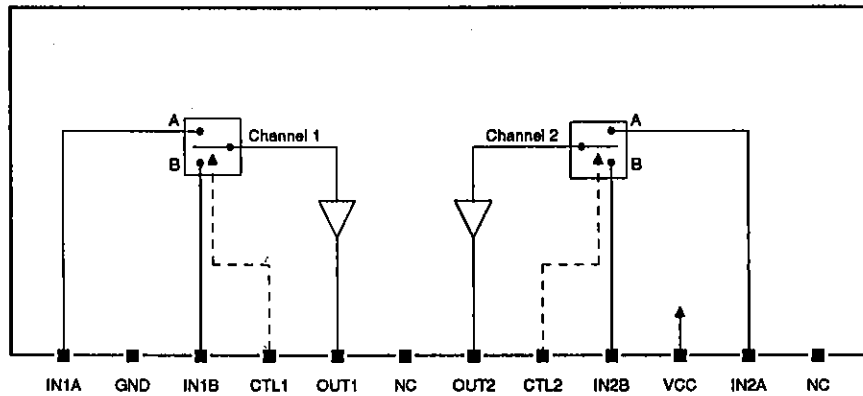


LA7151M

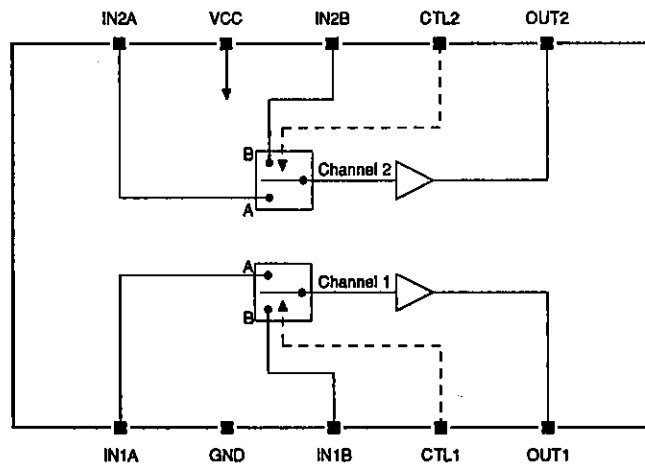


Block Diagrams

LA7151



LA7151M



LA7151, LA7151M

Pin Functions

Number		Name	Equivalent circuit	Description
SIP12	DIP10			
1	1	IN1A		Channel 1 input A
2	2	GND		Ground
3	3	IN1B		Channel 1 input B
4	4	CTL1		Channel 1 control input
5	5	OUT1		Channel 1 output
6	-	NC		No connection
7	6	OUT2		Channel 2 output

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Number		Name	Equivalent circuit	Description
SIP12	DIP10			
8	7	CTL2		Channel 2 control input
9	8	IN2B		Channel 2 input B
10	9	VCC		Voltage supply
11	10	IN2A		Channel 2 input A
12	-	NC		No connection

### Specifications

#### Absolute Maximum Ratings

Parameter	Symbol	Rating	Unit
Supply voltage	$V_{CC}$	15	V
Power dissipation	$P_D$	150	mW
Operating temperature range	$T_{opr}$	-20 to +80	°C
Storage temperature range	$T_{stg}$	-55 to +150	°C

#### Recommended Operating Conditions

$T_a = 25\text{ °C}$

Parameter	Symbol	Rating	Unit
Supply voltage	$V_{CC}$	5	V
Supply voltage range	$V_{CC}$	4.5 to 12.5	V

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Electrical Characteristics

V<sub>CC</sub> = 5 V, T<sub>a</sub> = 25 °C

Parameter	Symbol	Condition	Rating			Unit
			min	typ	max	
Supply current	I <sub>CC</sub>	No input, V <sub>CC</sub> = 5 V	5.5	7.0	8.5	mA
		No input, V <sub>CC</sub> = 9 V	6.0	7.5	9.0	
		No input, V <sub>CC</sub> = 12 V	6.5	8.0	9.5	
Total harmonic distortion	THD	V <sub>IN</sub> = 1 V <sub>pp</sub> , f = 1 kHz	-	0.006	0.1	%
Second-harmonic distortion	H <sub>2</sub>	V <sub>IN</sub> = 2 V <sub>pp</sub> , f = 4.43 MHz	-	-50	-40	dB
Third-harmonic distortion	H <sub>3</sub>	V <sub>IN</sub> = 2 V <sub>pp</sub> , f = 4.43 MHz	-	-55	-45	dB
Maximum output voltage	V <sub>OM</sub>	f = 1 kHz, THD = 1%	2.2	2.5	-	V <sub>pp</sub>
Output noise voltage	V <sub>ON</sub>	R <sub>g</sub> = 600 Ω, DIN AUDIO filter	-	-110	-100	dB
Crosstalk between switches	CT <sub>S</sub>	R <sub>g</sub> = 50 Ω, V <sub>IN</sub> = 2 V <sub>pp</sub> , f = 4.43 MHz, measured between switches A and B	-	-60	-55	dB
Crosstalk between channels	CT <sub>C</sub>	R <sub>g</sub> = 50 Ω, V <sub>IN</sub> = 2 V <sub>pp</sub> , f = 4.43 MHz, measured between channels 1 and 2	-	-65	-60	dB
Frequency characteristic	G <sub>f</sub>	V <sub>IN</sub> = 2 V <sub>pp</sub> , f = 100 kHz/10 MHz	-1	0	1	dB
Voltage gain	V <sub>G</sub>	V <sub>IN</sub> = 2 V <sub>pp</sub> , f = 4.43 MHz	-0.3	0	0.3	dB
Output differential between A and B channels	V <sub>OS</sub>		-30	0	30	mV
CTL1 and CTL2 LOW-level input voltage	V <sub>CL</sub>	Measured at CTL1 and CTL2	0	-	1.5	V
CTL1 and CTL2 HIGH-level input voltage	V <sub>CH</sub>	Measured at CTL1 and CTL2	3.5	-	5.0	V
Input impedance	Z <sub>IN</sub>		-	50	-	kΩ
Output impedance	Z <sub>OUT</sub>		-	10	-	Ω

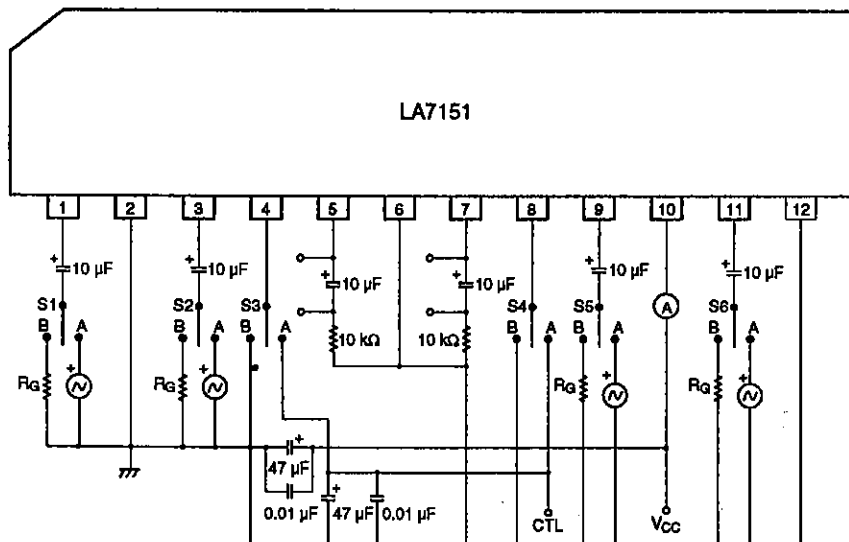
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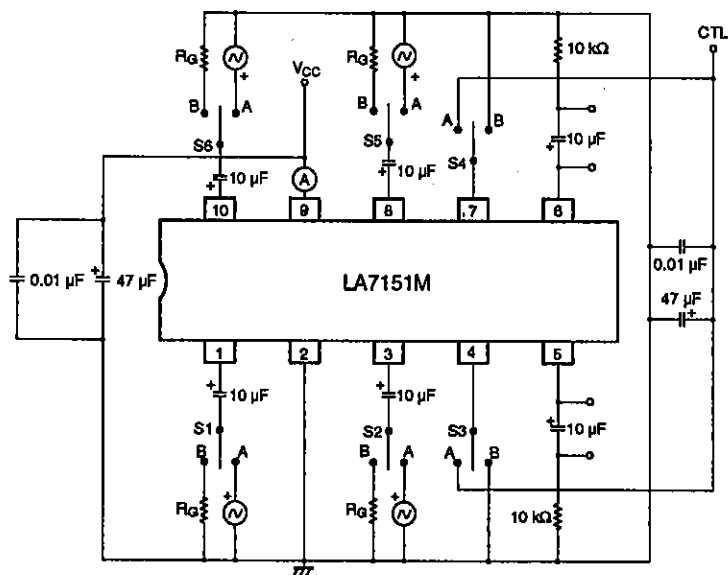
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## Test Circuit

### LA7151



### LA7151M



## Channel Selection

CTL1	CTL2	Selected Input	
		CH1	CH2
LOW	LOW	B	B
LOW	HIGH	B	A
HIGH	LOW	A	B
HIGH	HIGH	A	A