

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.

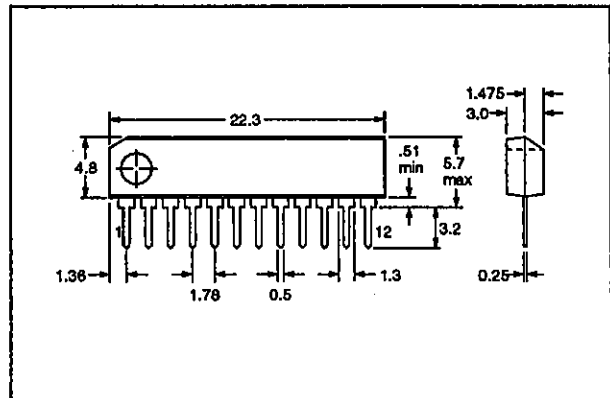
Features

- Two, separately controllable switch circuits
- 50 k Ω 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)

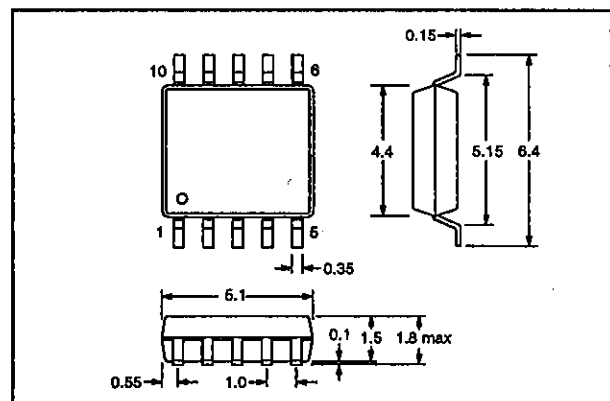
Package Dimensions

Unit: mm

3116-SIP12S (LA7151)

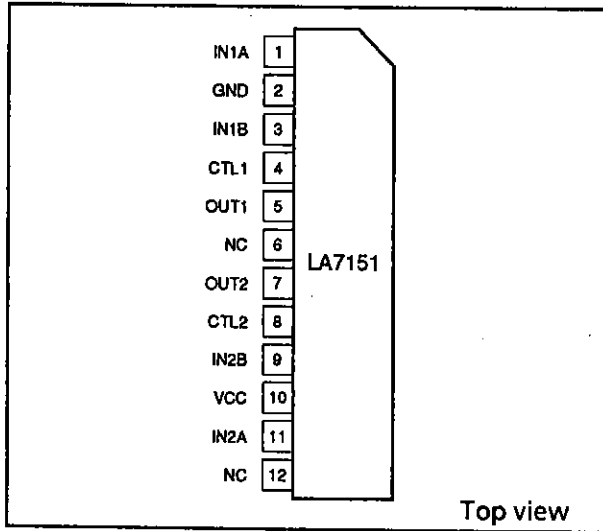


3086A-MFP10S (LA7151M)

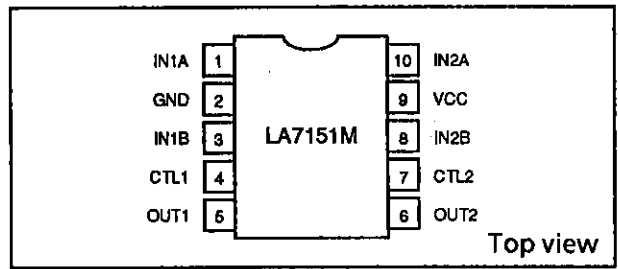


Pin Assignments

LA7151

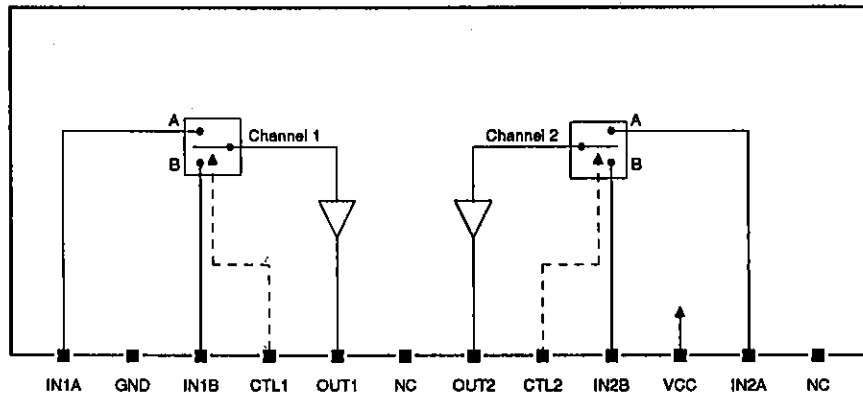


LA7151M

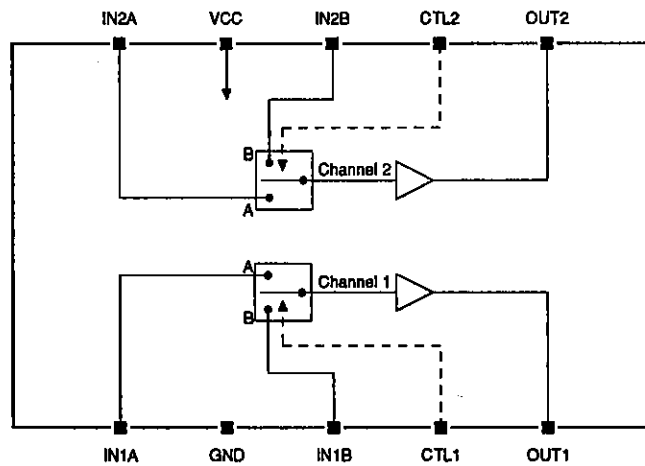


Block Diagrams

LA7151



LA7151M



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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

$V_{CC} = 5\text{ V}$, $T_a = 25\text{ }^\circ\text{C}$

Parameter	Symbol	Condition	Rating			Unit
			min	typ	max	
Supply current	I_{CC}	No input, $V_{CC} = 5\text{ V}$	5.5	7.0	8.5	mA
		No input, $V_{CC} = 9\text{ V}$	6.0	7.5	9.0	
		No input, $V_{CC} = 12\text{ V}$	6.5	8.0	9.5	
Total harmonic distortion	THD	$V_{IN} = 1\text{ V}_{pp}$, $f = 1\text{ kHz}$	-	0.006	0.1	%
Second-harmonic distortion	H_2	$V_{IN} = 2\text{ V}_{pp}$, $f = 4.43\text{ MHz}$	-	-50	-40	dB
Third-harmonic distortion	H_3	$V_{IN} = 2\text{ V}_{pp}$, $f = 4.43\text{ MHz}$	-	-55	-45	dB
Maximum output voltage	V_{OM}	$f = 1\text{ kHz}$, THD = 1%	2.2	2.5	-	V_{pp}
Output noise voltage	V_{ON}	$R_g = 600\ \Omega$, DIN AUDIO filter	-	-110	-100	dB
Crosstalk between switches	CT_S	$R_g = 50\ \Omega$, $V_{IN} = 2\text{ V}_{pp}$, $f = 4.43\text{ MHz}$, measured between switches A and B	-	-60	-55	dB
Crosstalk between channels	CT_C	$R_g = 50\ \Omega$, $V_{IN} = 2\text{ V}_{pp}$, $f = 4.43\text{ MHz}$, measured between channels 1 and 2	-	-65	-60	dB
Frequency characteristic	G_f	$V_{IN} = 2\text{ V}_{pp}$, $f = 100\text{ kHz}/10\text{ MHz}$	-1	0	1	dB
Voltage gain	VG	$V_{IN} = 2\text{ V}_{pp}$, $f = 4.43\text{ MHz}$	-0.3	0	0.3	dB
Output differential between A and B channels	V_{OS}		-30	0	30	mV
CTL1 and CTL2 LOW-level input voltage	V_{CL}	Measured at CTL1 and CTL2	0	-	1.5	V
CTL1 and CTL2 HIGH-level input voltage	V_{CH}	Measured at CTL1 and CTL2	3.5	-	5.0	V
Input impedance	Z_{IN}		-	50	-	k Ω
Output impedance	Z_{OUT}		-	10	-	Ω

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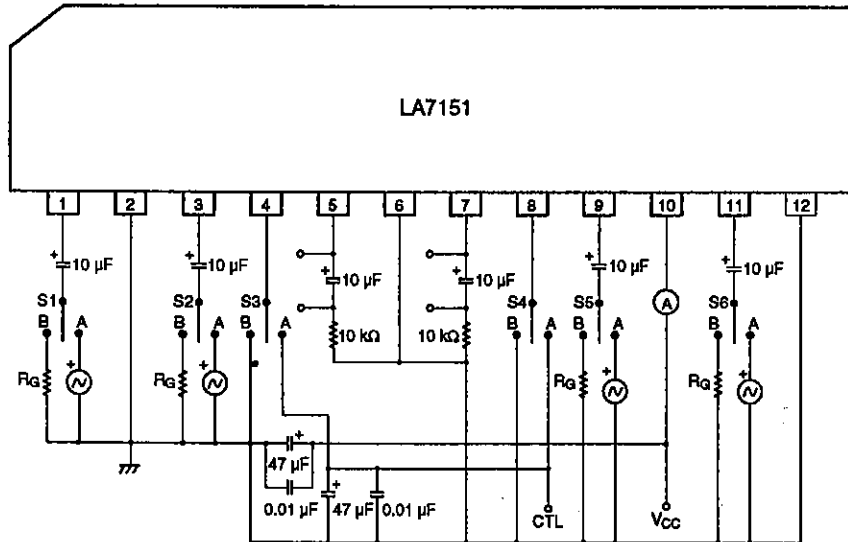
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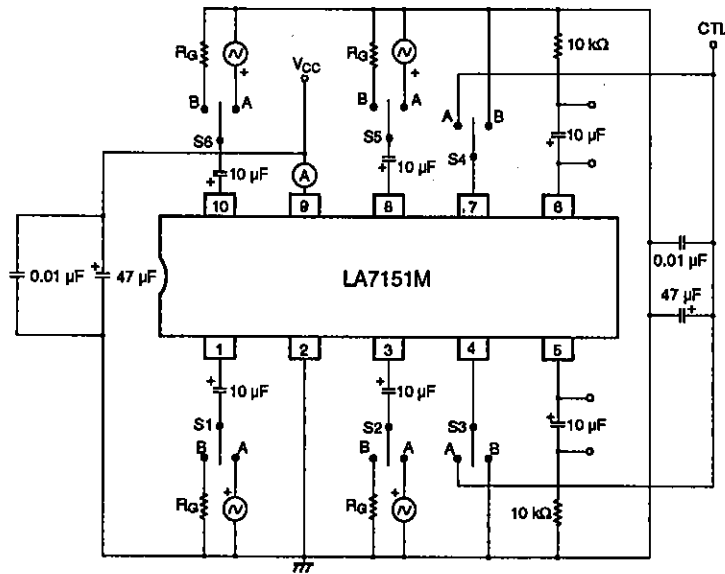
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Test Circuit

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