



# 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 12.5V supply and are available in 12-pin SIPs and 10-pin MFPs, respectively.

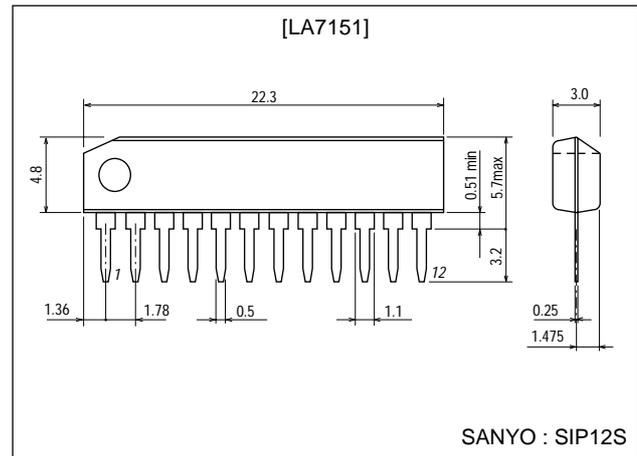
### Features

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

### Package Dimensions

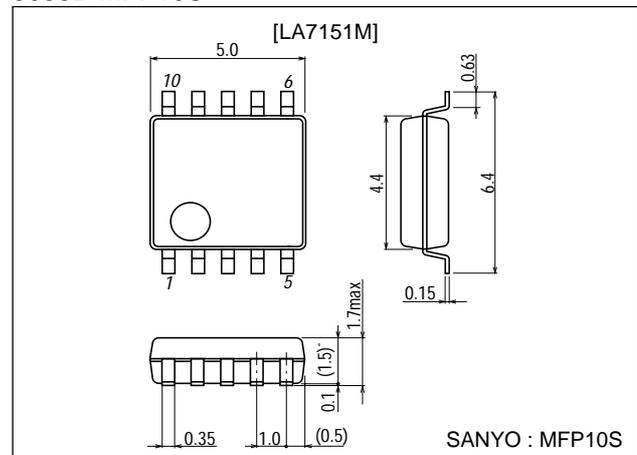
unit:mm

3116-SIP12S



unit:mm

3086B-MFP10S



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# LA7151, 7151M

## Specifications

### Maximum Ratings at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	$V_{CC\text{ max}}$		15	V
Allowable power dissipation	$P_d\text{ max}$	$T_a \leq 80^\circ\text{C}$	150	mW
Operating temperature	$T_{opr}$		-20 to +80	$^\circ\text{C}$
Storage temperature	$T_{stg}$		-55 to +150	$^\circ\text{C}$

### Recommended Operating Conditions at $T_a = 25^\circ\text{C}$

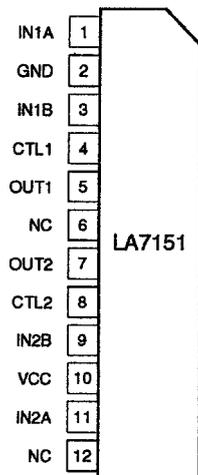
Parameter	Symbol	Conditions	Ratings	Unit
Supply voltage	$V_{CC}$		5, 9, 12	V
Supply voltage range	$V_{CC\text{ op}}$		4.5 to 12.5	V

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

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Current drain	$I_{CC}$	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	mA
		No input, $V_{CC}=12\text{V}$	6.5	8.0	9.5	mA
Total harmonic distortion	THD	$V_{IN}=1\text{Vp-p}$ , $f=1\text{kHz}$		0.006	0.1	%
Maximum output voltage	$V_{OM}$	$f=1\text{kHz}$ , $\text{THD}=1\%$	2.2	2.5		Vp-p
Output noise voltage	$V_{ON}$	$R_g=600\Omega$ , DIN AUDIO filter		-110	-100	dB
Crosstalk between switches	$CT_S$	$R_g=50\Omega$ , $V_{IN}=2\text{Vp-p}$ , $f=4.43\text{MHz}$ , measured between switches A and B		-60	-55	dB
Crosstalk between channels	$CT_C$	$R_g=50\Omega$ , $V_{IN}=2\text{Vp-p}$ , $f=4.43\text{MHz}$ , measured between channels 1 and 2		-65	-60	dB
Second-harmonic distortion	H2	$V_{IN}=2\text{Vp-p}$ , $f=4.43\text{MHz}$		-50	-40	dB
Third-harmonic distortion	H3	$V_{IN}=2\text{Vp-p}$ , $f=4.43\text{MHz}$		-55	-45	dB
Frequency characteristic	Gf	$V_{IN}=2\text{Vp-p}$ , $f=100\text{kHz}/10\text{MHz}$	-1	0	+1	dB
Voltage gain	VG	$V_{IN}=2\text{Vp-p}$ , $f=4.43\text{MHz}$	-0.3	0	+0.3	dB
Output DC offset	$V_{of}$	Output voltage difference when switching between switches A and B	-30	0	+30	mV
Switch A input retention voltage	$V_{CA}$	DC : CTL1, CTL2	3.5		5.0	V
Switch B input retention voltage	$V_{CB}$	DC : CTL1, CTL2	0		1.5	V
Input impedance	$Z_{IN}$			50		$k\Omega$
Output impedance	$Z_{OUT}$			10		$\Omega$

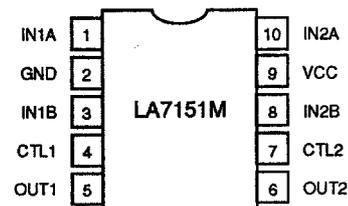
## Pin Assignments

### LA7151



Top view

### LA7151M

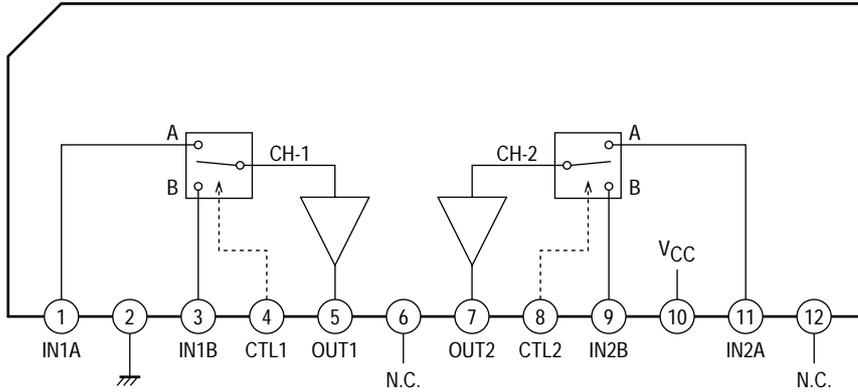


Top view

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## Block Diagram

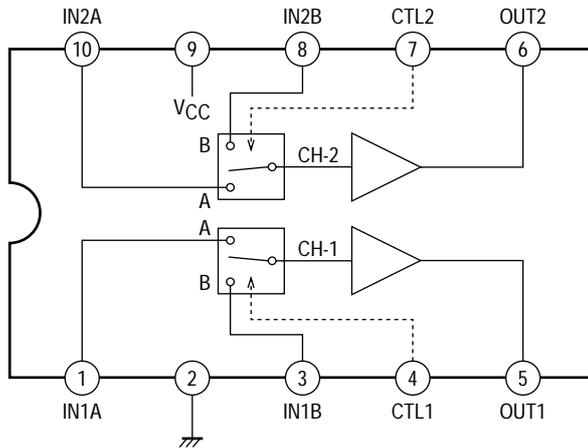
### LA7151



CTL \	CH1	CH2
H	A	A
L	B	B

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### LA7151M

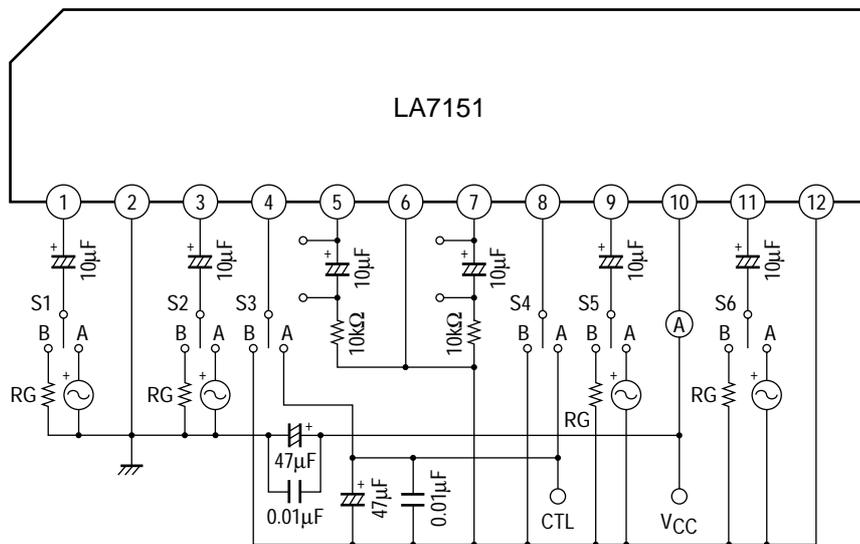


CTL \	CH1	CH2
H	A	A
L	B	B

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## Test Circuit

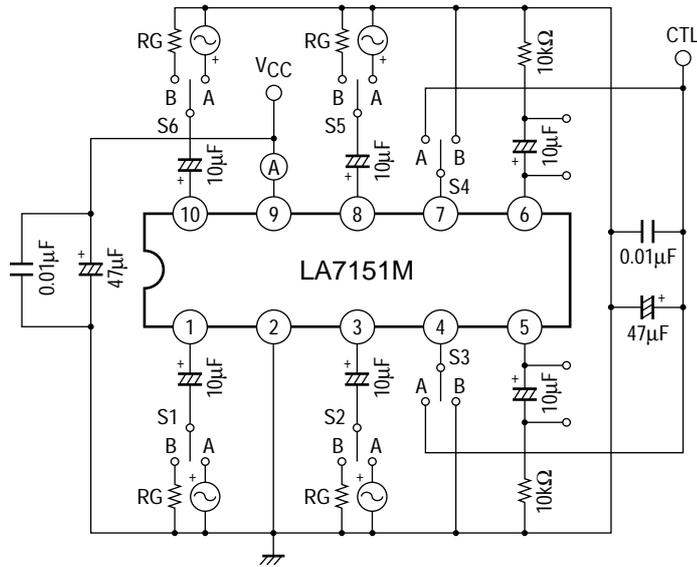
### LA7151



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# LA7151, 7151M

## LA7151M



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## Pin Functions

Pin No.		Pin Name	Equivalent circuit	DC voltage (VCC 5V)	Description
SIP	MFP				
1	1	IN 1A		3.10V	VCC 9V : 5.78V VCC12V : 7.79V
3	3	IN 1B			
9	8	IN 2B			
11	10	IN 2A			
2	2	GND		0V	
4	4	CTL 1			
8	7	CTL 2			
5	5	OUT 1		2.38V	VCC 9V : 5.06V VCC12V : 7.07V
7	6	OUT 2			
6	-	N. C.			OPEN or GND
12	-	N. C.			OPEN or GND
10	9	VCC		5.0V	

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