



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.

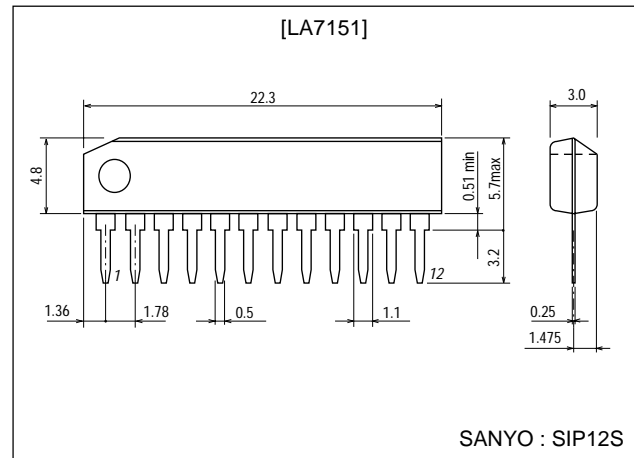
Features

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

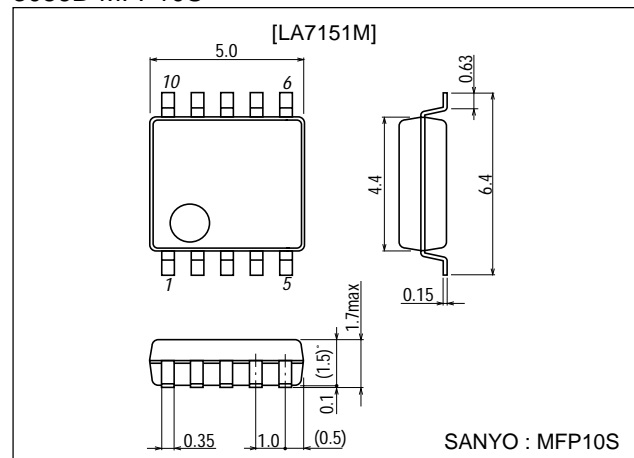
unit:mm

3116-SIP12S



unit:mm

3086B-MFP10S



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SANYO Electric Co., Ltd. Semiconductor Company

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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} max		15	V
Allowable power dissipation	P_d 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 $T_a = 25^\circ\text{C}$

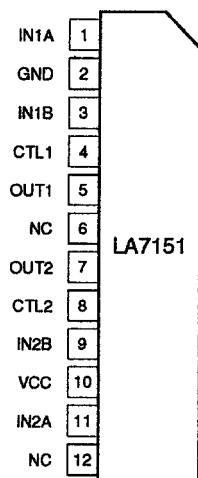
Parameter	Symbol	Conditions	Ratings	Unit
Supply voltage	V_{CC}		5, 9, 12	V
Supply voltage range	V_{CC} op		4.5 to 12.5	V

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}	$f=1\text{kHz}$, 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		Ω

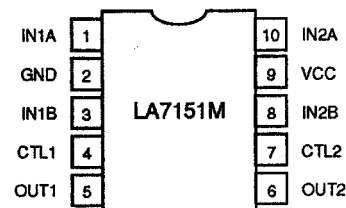
Pin Assignments

LA7151



Top view

LA7151M

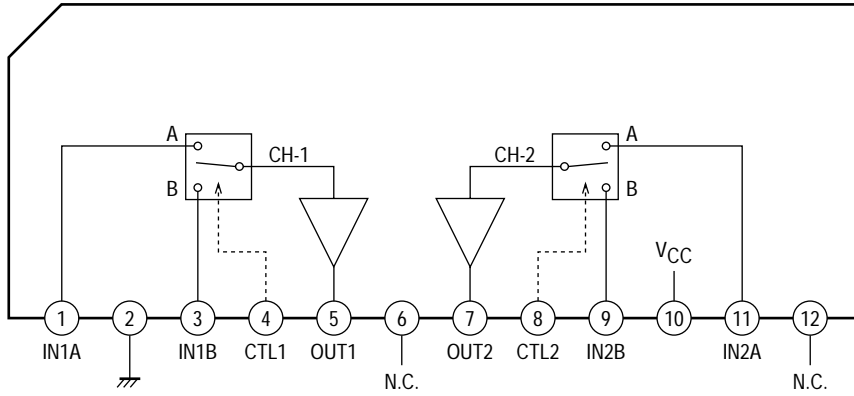


Top view

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Block Diagram

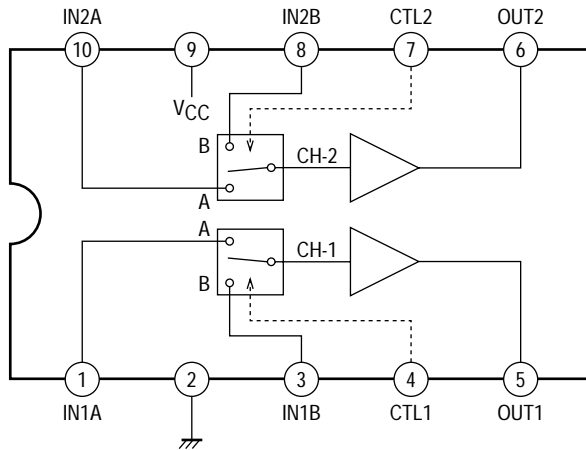
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CTL \	CH1	CH2
H	A	A
L	B	B

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LA7151M

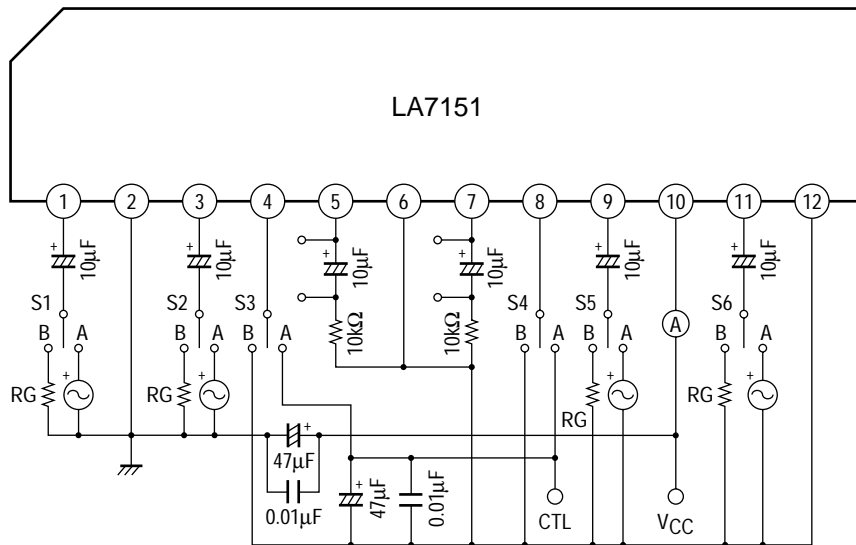


CTL \	CH1	CH2
H	A	A
L	B	B

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Test Circuit

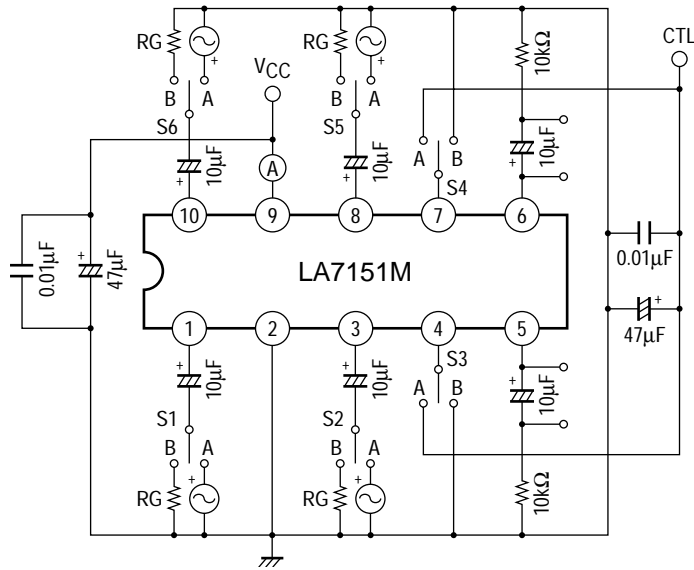
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Pin Functions

Pin No.		Pin Name	Equivalent circuit	DC voltage (V _{CC} 5V)	Description
SIP	MFP				
1	1	IN 1A		3.10V	V _{CC} 9V : 5.78V V _{CC} 12V : 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	V _{CC} 9V : 5.06V V _{CC} 12V : 7.07V
7	6	OUT 2			
6	-	N. C.			OPEN or GND
12	-	N. C.			OPEN or GND
10	9	V _{CC}		5.0V	

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