



SANYO Semiconductors

DATA SHEET

LA7151 LA7151M

Monolithic Linear IC

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).

Specifications

Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	VCC max		15	V
Allowable power dissipation	Pd max	Ta \leq 80°C	150	mW
Operating temperature	Topr		-20 to +80	°C
Storage temperature	Tstg		-55 to +150	°C

Operating Conditions at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Supply voltage	VCC		5, 9, 12	V
Supply voltage range	VCC op		4.5 to 12.5	V

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LA7151, 7151M

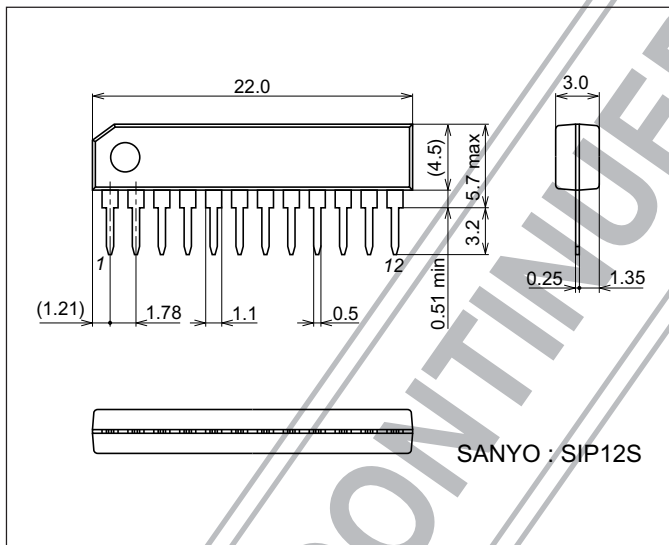
Operating Characteristics at $T_a=25^\circ\text{C}$, $V_{CC}=5\text{V}$

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

Package Dimensions

unit : mm

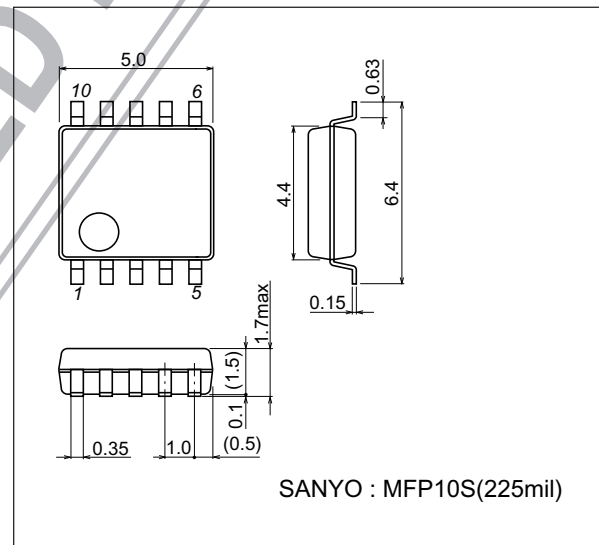
3116A [LA7151]



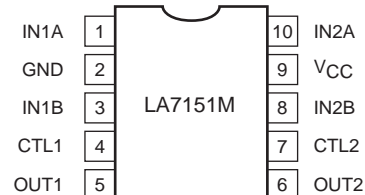
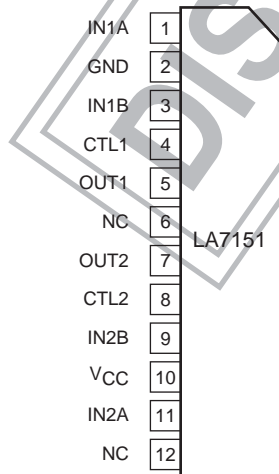
Package Dimensions

unit : mm

3086B [LA7151M]



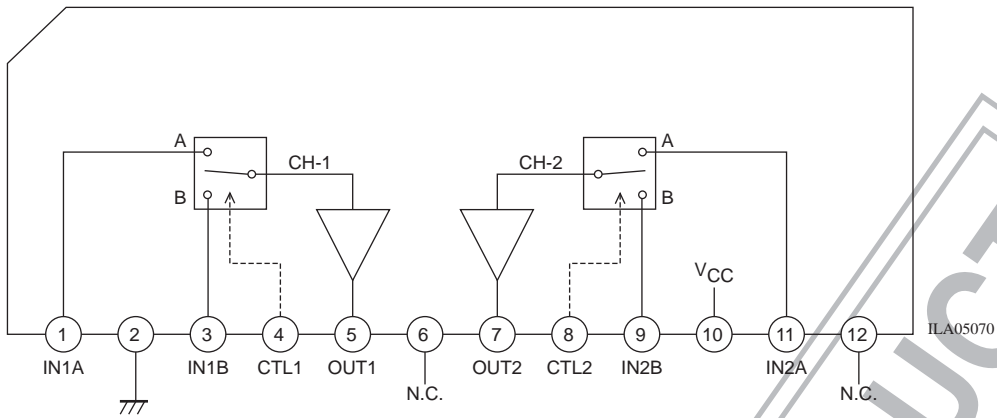
Pin Assignments



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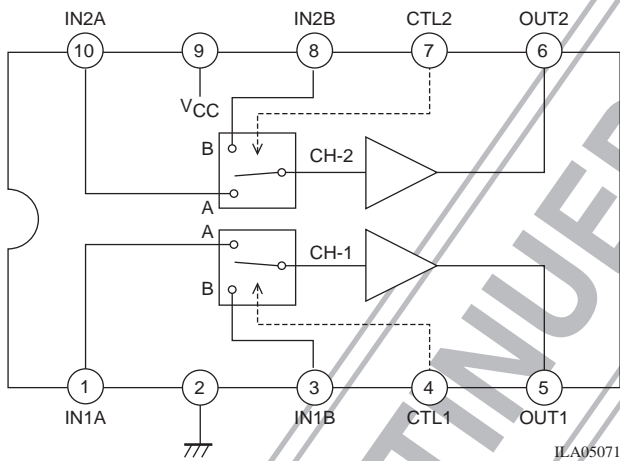
Block Diagram

LA7151



CTL	CH1	CH2
H	A	A
L	B	B

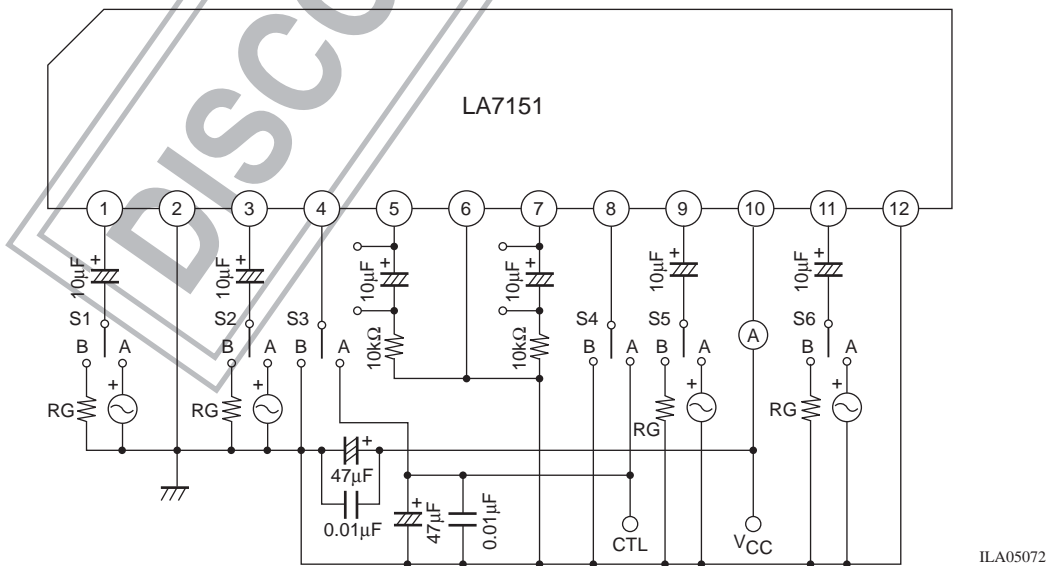
LA7151M



CTL	CH1	CH2
H	A	A
L	B	B

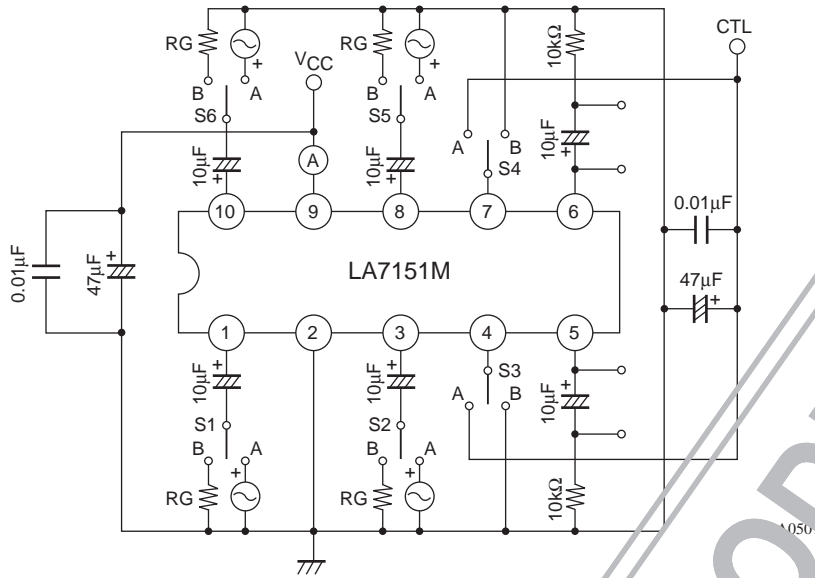
Test Circuit

LA7151



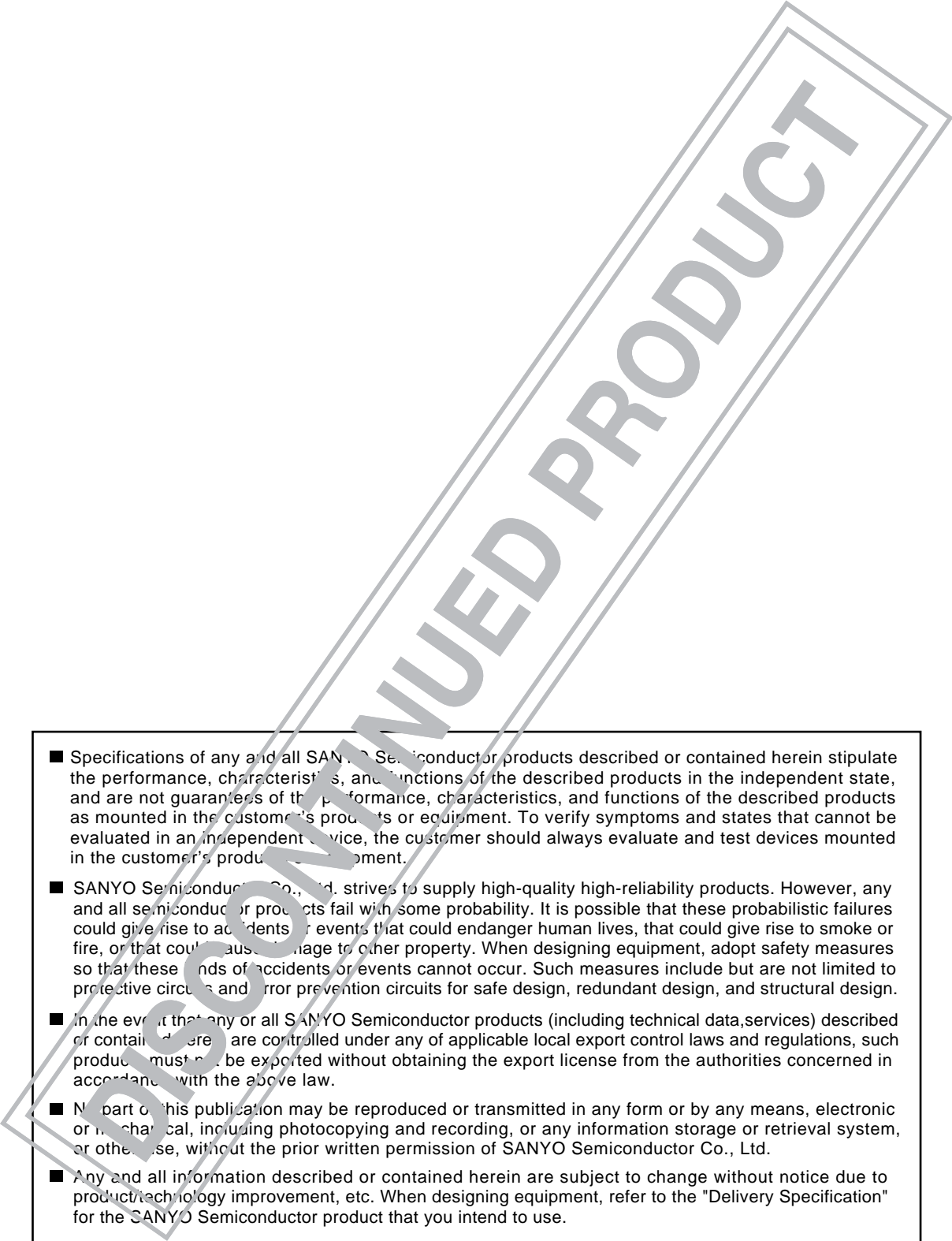
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LA7151M



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 VCC 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	VCC 9V: 5.06V VCC 12V: 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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