



# SANYO Semiconductors DATA SHEET

## LA73052 — Monolithic Linear IC 4ch 75Ω Video Driver

### Overview

This LA73052 is a 4ch 75Ω Video Driver IC. The LA73052 is ideal for use the video output driver such as VCR and DVD-player equipment.

### Functions

- 6dB AMP+driver (2ch)
- 2input-1output SW+6dB AMP+driver (2ch)

### Specifications

#### Maximum Ratings at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	V <sub>CC</sub> max		±7, +14	V
Allowable power dissipation	Pd max	Ta ≤ 80°C *	700	mW
Operating temperature	Topr		-20 to +80	°C
Storage temperature	Tstg		-55 to +150	°C

\* When mounted on a 114.3×76.1×1.6mm<sup>3</sup> glass epoxy board.

#### Recommended Operating Conditions at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Recommending operation voltage	V <sub>CC</sub>		±5 +9	V
Operating voltage range	V <sub>CC</sub> op		±4.0 to ±5.5 +8 to +10	V

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

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Current dissipation	$I_{CC1}$	No signal	46.8	55	63.2	mA
Voltage gain	VG	$V_{IN} = 1\text{Vp-p}$ , $f = 4.43\text{MHz}$	5.7	6.2	6.7	dB
Frequency characteristics 1	VF1	$V_{IN} = 1\text{Vp-p}$ , $f = 100\text{k}/5\text{MHz}$	-1.0	0	1.0	dB
Frequency characteristics 2	VF2	$V_{IN} = 1\text{Vp-p}$ , $f = 100\text{k}/27\text{MHz}$		-25	-20	dB
Group delay	GD	$f = 100\text{k}/4.43\text{MHz}$		$\pm 10$	$\pm 15$	ns
Maximum output level	$V_O \text{ max}$	$f = 1\text{kHz}$ , THD = 1%	3.0	4.0		Vp-p
Control voltage H level	VcntH	Pins 12, 24, 28, 30, 33 input voltage	2.5		$V_{CC}$	V
Control voltage L level	VcntL	Pins 12, 24, 28, 30, 33 input voltage	0		1.0	V

### Design guarantee items

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Video S/N	$VG_{1V}$			-75	-70	dB
Differential Gain	DG	$V_{IN} = 1\text{Vp-p}$ , RAMP signal			1.0	%
Differential Phase	DP	$V_{IN} = 1\text{Vp-p}$ , RAMP signal			1.0	deg.
Mute attenuation	$V_{MUTEV}$	$V_{IN} = 1\text{Vp-p}$ , $f = 4.43\text{MHz}$		-60	-55	dB
Cross-talk between channel	$V_{CTKV}$	$V_{IN} = 1\text{Vp-p}$ , $f = 4.43\text{MHz}$		-60	-55	dB

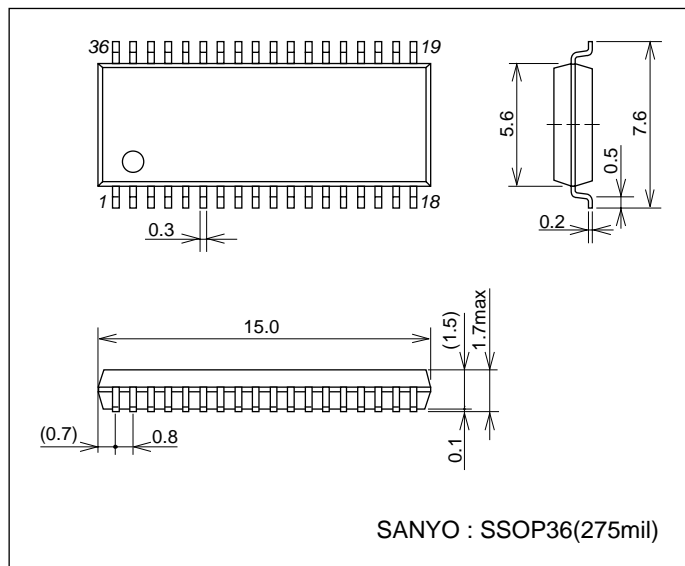
### Truth Table

	Pin 12	Pin 30	Pins 24, 28, 33
H	$V_{IN4A}$	$V_{IN1B}$	THROUGH
L	$V_{IN4B}$	$V_{IN1A}$	MUTE

### Package Dimensions

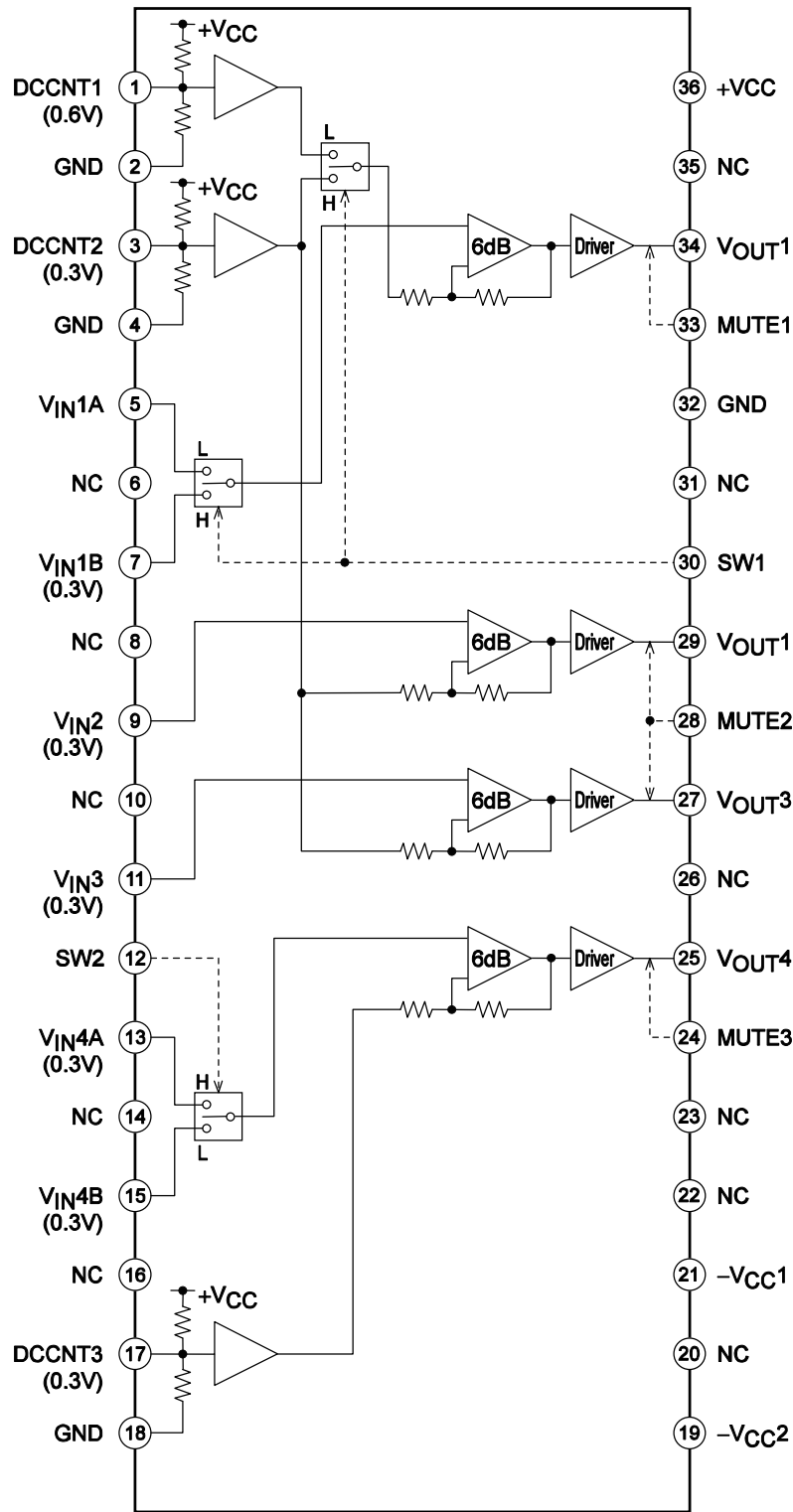
unit : mm

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## Block Diagram



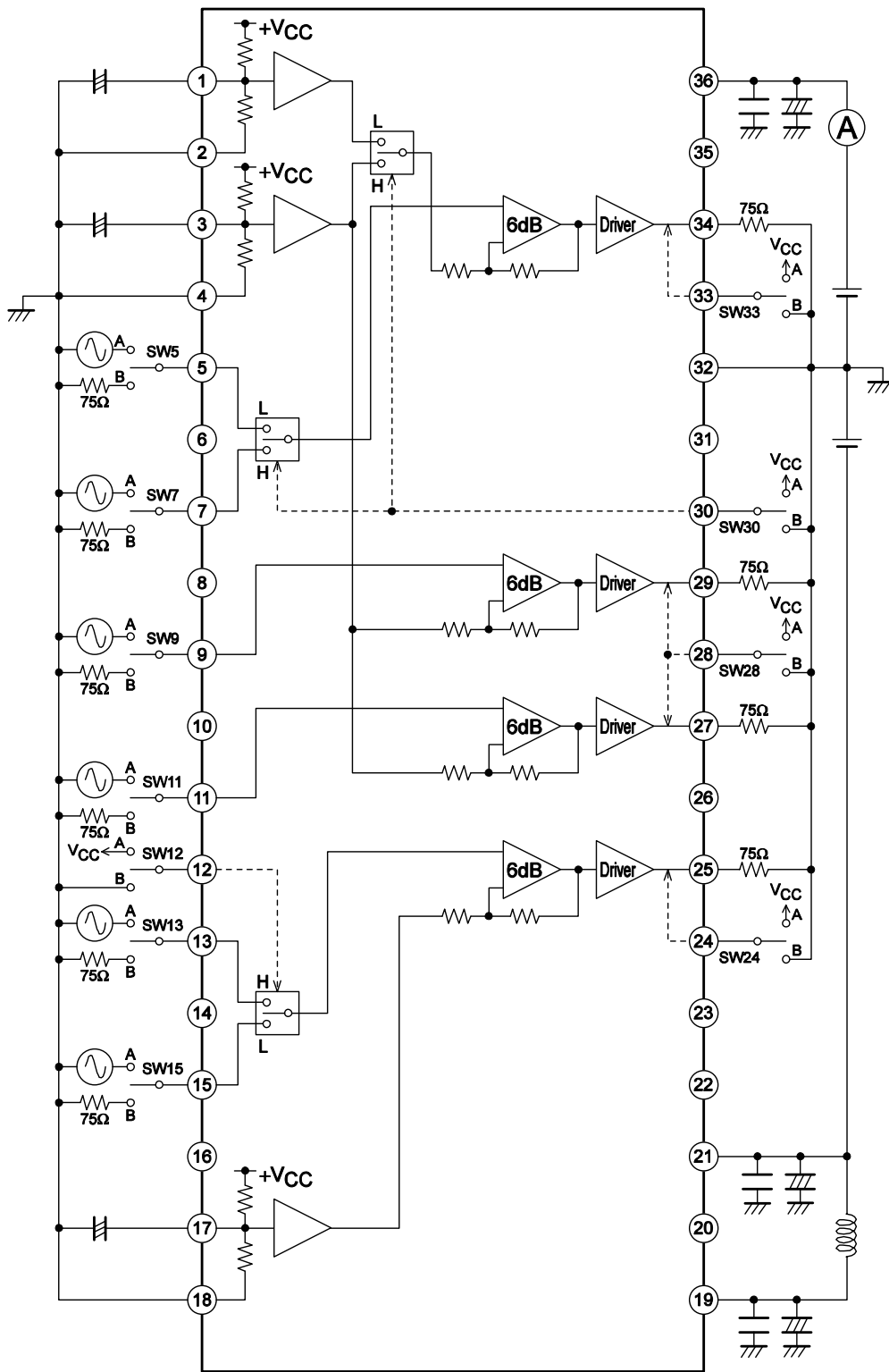
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## Test Circuit Diagram (Using $\pm$ power supply)



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## Pin Functions

Pin No.	Pin Name	Terminal Explanation	Equivalent Circuit
1 3 17	DCCNT1 DCCNT2 DCCNT3	<p>DC offset mode charge terminal between input and output.</p> <p>When a condenser is input at the position between pin 1 (DCCNT1) and GND, the operation of IC becomes the mode with 0.6V DC offset between input and output of 1ch (pins 5 and 34).</p> <p>Similarly when a condenser is input at the position between pin 3 (DCCNT2) and GND, it becomes the mode with 0.3V DC offset between input and output of 1, 2, 3ch (pins 7 and 34, pins 9 and 29, pins 11 and 27), and when a condenser is input at the position between pin 17 (DCCNT3) and GND, it becomes the mode with 0.3V DC offset between input and output of 4ch (pins 13 or 15, and pin 31).</p> <p>And when pins 1, 3, 17 and GND is shorted, it becomes the mode without DC offset between input and output.</p>	
2 4 18 32	GND	Both $\pm$ power supply and +power supply are GND.	
5 7 9 11 13 15	$V_{IN1A}$ $V_{IN1B}$ $V_{IN2}$ $V_{IN3}$ $V_{IN4A}$ $V_{IN4B}$	<p>Input terminal.</p> <p>Non-bias. It is possible to use with being directly connected with DC. When DC coupling, it is necessary to add bias after the coupling.</p>	
6 8 10 14 16 20 22 23 26 31 35	NC		
12 24 28 30 33	SW2 MUTE3 MUTE2 SW1 MUTE1	<p>Changeover terminal of Mute or Input Switch</p> <p>When the Mute terminal is Low, it is Mute.</p> <p>Changeover of Input Switch is :</p> <p>SW1 High : <math>V_{IN1B}</math> Low : <math>V_{IN1A}</math></p> <p>SW2 High : <math>V_{IN4A}</math> Low : <math>V_{IN4B}</math></p> <p>When the terminal is Open, it is Low.</p>	

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Pin No.	Pin Name	Terminal Explanation	Equivalent Circuit
19 21	$-V_{CC}$	$-V_{CC}$ of using $\pm$ power supply. Using +power supply, it is GND.	
25 27 29 34	$V_{OUT4}$ $V_{OUT3}$ $V_{OUT2}$ $V_{OUT1}$	Output terminal Using $\pm$ power supply, in case of the mode with DC offset, it is possible to use without capacitor of output by setting pin 5 to 0.6V-bias and by setting pins 7, 9, 11, 13, 15 to 0.3V-bias. And in case of the mode without DC offset, it is possible to use without capacitor of output by setting each input to zero-bias. When using +power supply, both of the modes needs coupling capacitor.	
36	$+V_{CC}$	Both $\pm$ power supply and +power supply are $+V_{CC}$ .	

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