Ordering number : ENA1059

SANYO Semiconductors
DATA SHEET

LA72730 — Monolithic Linear IC For TV Audio/Video Switch

Overview

The LA72730 is an Audio/Video Switch for TV.

Functions

- Audio : Possible to Change 4 Channel×2, ALC OUTPUT, 4dB Amplifier MONITOR OUTPUT
- Video : Possible to Change 4 Channel, 6dB Amplifier
- Control : I^2C (Slave address : 92h)

Specifications

Maximum Ratings at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	V_{CC} max	Pin 8	7.0	V
Allowable power dissipation	Pd max	Ta ≤ 70°C	300	mW
Operating temperature	Topr		-20 to +70	°C
Storage temperature	Tstg		-55 to +150	°C

Recommended Operating Conditions at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Recommended operating voltage	V_{CC}	Pin 8	5.0	V
Operating voltage range	V_{CC} op	Pin 8	4.5 to 5.5	V

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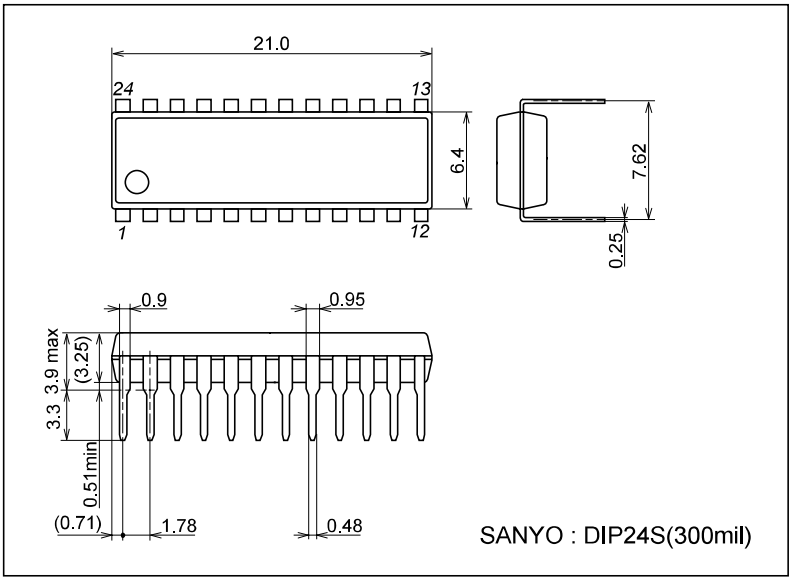
Electrical Characteristics at Ta = 25°C, V_{DD} = 5.0V

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Current dissipation	I_{CC}	V_{CC} = 5V, No signal	15.2	18	20.8	mA
Audio block						
Audio input DC voltage	INa	No signal pin 1, 2, 3, 4, 5, 6, 23, 24 DC voltage	2.2	2.4	2.6	V
Audio output DC voltage	Oa	No signal pin 19, 20 DC voltage	2.2	2.4	2.6	V
Audio channel bandwidth	Fa	Input : 1kHz/20kHz, -6dBV : Pin 19, 20 output	-2	0	+2	dB
Audio voltage gain (Audio-out)	Aa1	f = 1kHz, V_{IN} = -6dBV, Pin 19, 20 output	-0.3	0.0	+0.3	dB
Audio voltage gain (Monitor-out)	Aa2	f = 1kHz, V_{IN} = -6dBV, Pin 12, 16 output	3.5	4.0	4.5	dB
Audio input dynamic range (Audio-out)	Da1	f = 1kHz, THD = ≤1% Pin 19, 20 output	-3.0	-1.0		dBV
Audio input dynamic range (Monitor-out)	Da2	f = 1kHz, THD = ≤1% Pin 13, 16 output	-5.0	-3.0		dBV
Audio channel PSRR	PSa	V_{CC} = 5V+1Vp-p, SINE WAVE (50Hz)	35	50		dB
Audio channel input impedance	Ria		80	100	120	kΩ
Audio channel output impedance	Roa		150	200	250	Ω
Audio channel crosstalk	CTa	f = 1kHz	65	80		dB
Audio channel S/N	SNa	Filter = DIN/AUDIO	70	85		dB
Audio channel THD	THDa	f = 1kHz, V_{IN} = -6dBV		0.15	0.3	%
ALC Detect level-1	ALC1		-10.5	-9	-7.5	dBV
ALC Detect level-2	ALC2		-15.5	-14	-12.5	dBV
ALC Detect level-3	ALC3		-13.5	-12	-10.5	dBV
ALC Detect level-4	ALC4		-19.5	-18	-16.5	dBV
Video block						
Video input DC voltage	INv		1.44	1.6	1.76	V
Video output DC voltage	Ov		1.26	1.4	1.54	V
Video channel bandwidth	Fv	-3dB frequency	10			MHz
Video signal voltage gain	Av	f = 500kHz, V_{IN} = 1Vp-p	5.0	6.0	7.0	dB
Video input dynamic range	Dv	f = 100kHz, THD ≤ 1%	2.0	2.5		Vp-p
Video channel PSRR	PSv	V_{CC} = 5V+1Vp-p, SINE WAVE (50Hz)	35	50		dB
Video channel input impedance	Riv		8.0	10	12.0	kΩ
Video channel output impedance	Rov		30	40	50	Ω
Video channel crosstalk	CTv	f = 3.58MHz, V_{IN} = 1Vp-p	45	60		dB
Video channel noise	SNv	Bandwidth 10MHz	55	60		dB

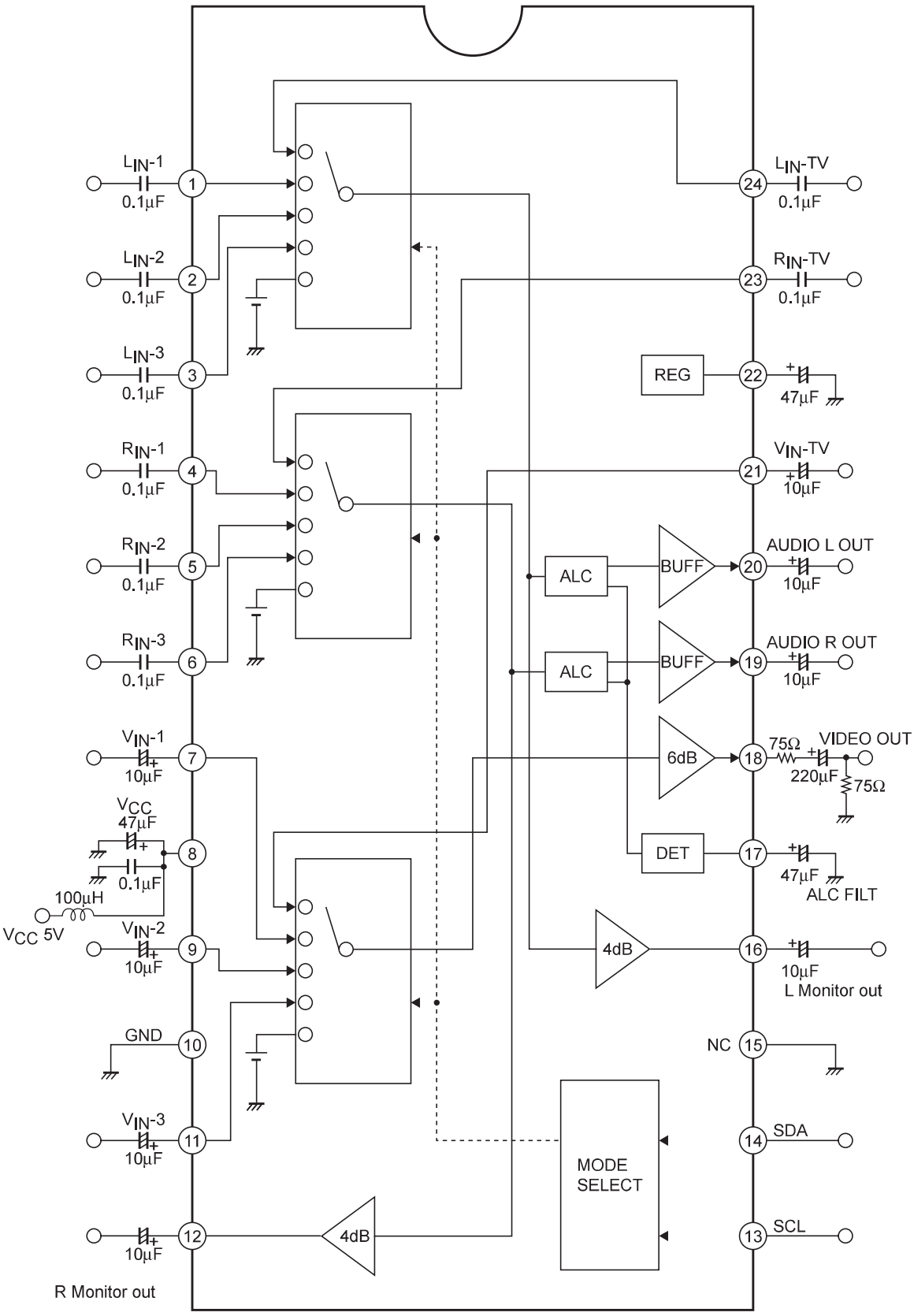
Package Dimensions

unit : mm (typ)

3067B



Block Diagram

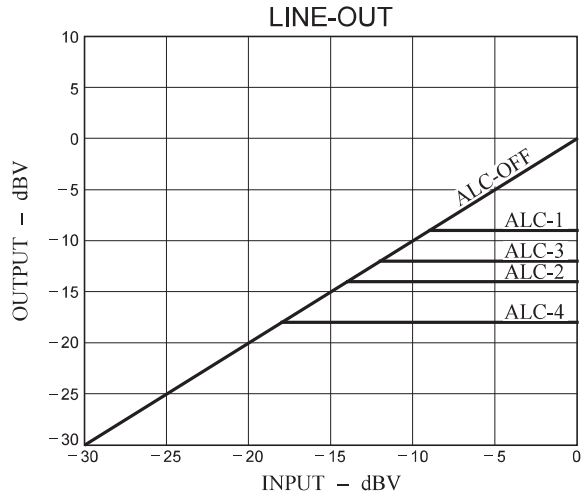


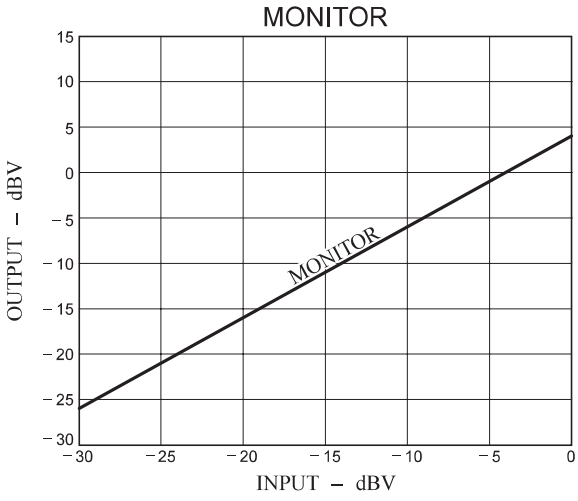
I²C Bit Pattarn

	D8	D7	D6	D5	D4	D3	D2	D1	Condition
*							0	0	AV IN-TV
							0	1	AV IN-1
							1	0	AV IN-2
							1	1	AV IN-3
*						0			Norma
						1			Mute
				0	0				ALC Level-1 (-9dBV)
				0	1				ALC Level-2 (-14dBV)
*				1	0				ALC Level-3 (-12dBV)
				1	1				ALC Level-4 (-18dBV)
*			0						ALC-ON
			1						ALC-OFF
		0							Prohibit
*		1							Fix
*	0								Fix
	1								Prohibit

"*" : Shows initial condition.

Slave address : 92h (1001 0010)





Test Circuit