



SANYO Semiconductors

DATA SHEET

Monolithic Linear IC

LA7301/7301M — VHS VTR Playback Head Amp, Recording Amp

Functions

- 4-channel playback head amp
- 2-channel recording amp
- PB: 2 head select switches, 4 mode select switches
- REC: 4 head select switches, 2 mode select switches
- Comparator for special playback

Features

- No more than one IC required for 4-head use
- On-chip comparator permitting GT-4-head use
- On-chip driver transistor permitting direct recording
- On-chip head select switches (4 types) facilitating the pattern design of a set

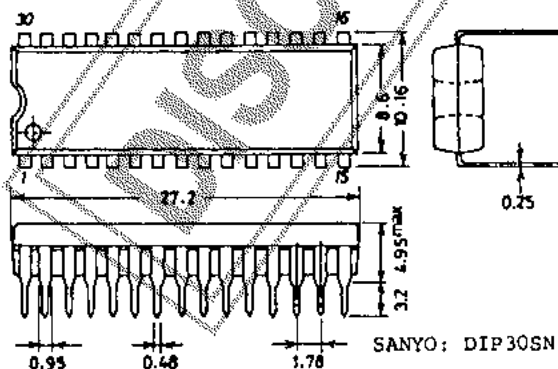
Maximum Ratings at Ta=25°C

			unit
Maximum Supply Voltage	V _{CC} max	(PB) 7.0	V
		(REC) 13.5	V
Allowable Power Dissipation	P _d max	(DIP) 920	mW
		(MFP) 840	mW
Operating Temperature	T _{opg}	-10 to +65	°C
Storage Temperature	T _{stg}	-40 to +125	°C

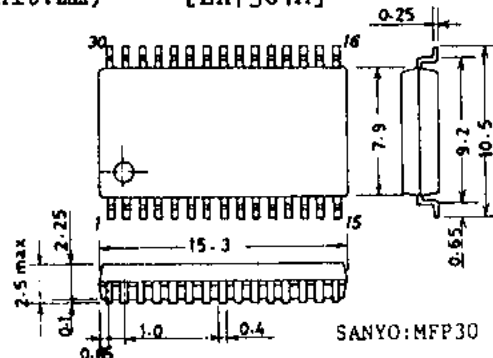
Operating Conditions at Ta=25°C

			unit
Supply Voltage	V _{CC}	(PB) 5.0	V
		(REC) 12.0	V
Operating Voltage Range	V _{CC} opg	(PB) 4.75 to 5.6	V
		(REC) 8.5 to 13.0	V

Case Outline 3061-D30SNIC
(unit:mm) [LA7301]



Case Outline 3073A-M30SIC
(unit:mm) [LA7301M]



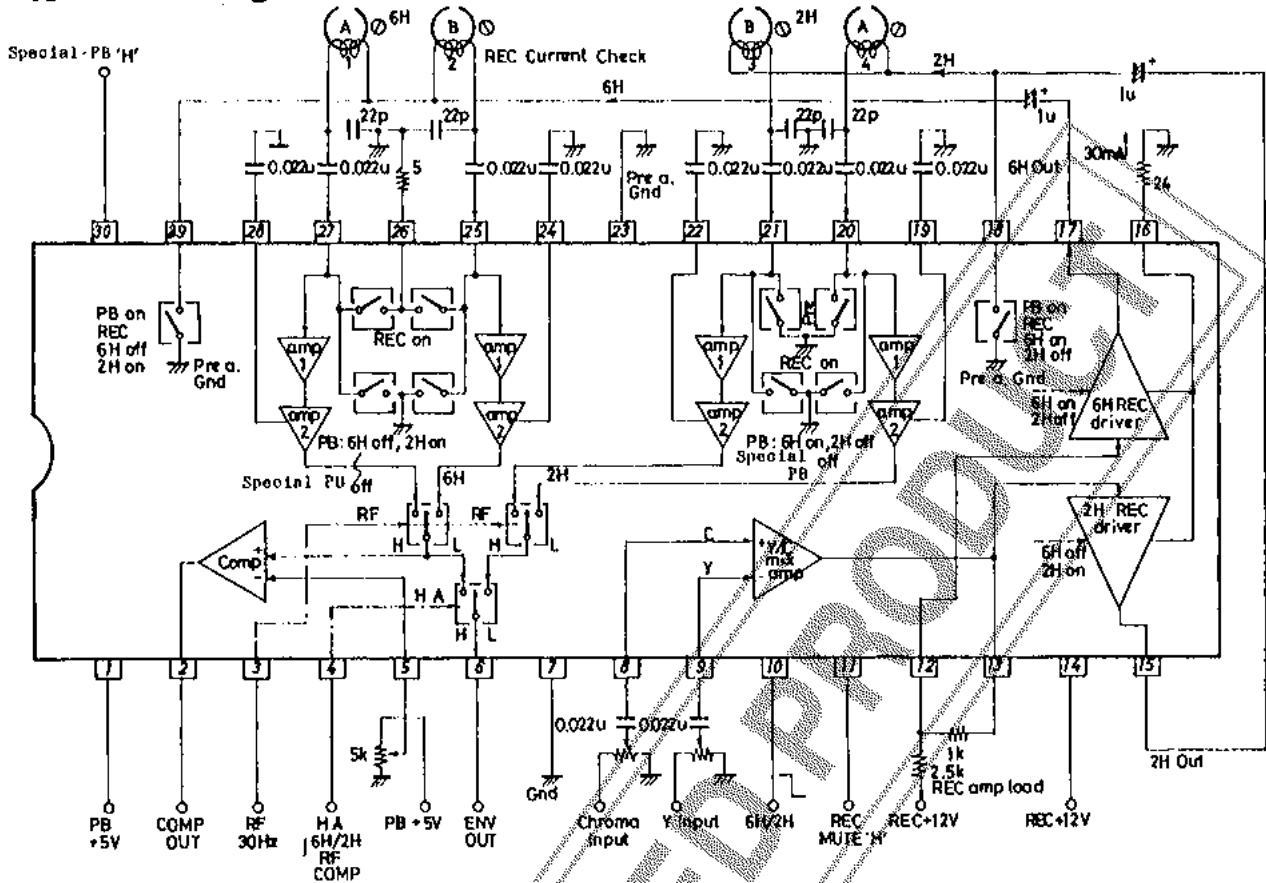
These specifications are subject to change without notice.

SANYO Electric Co., Ltd. Semiconductor Company

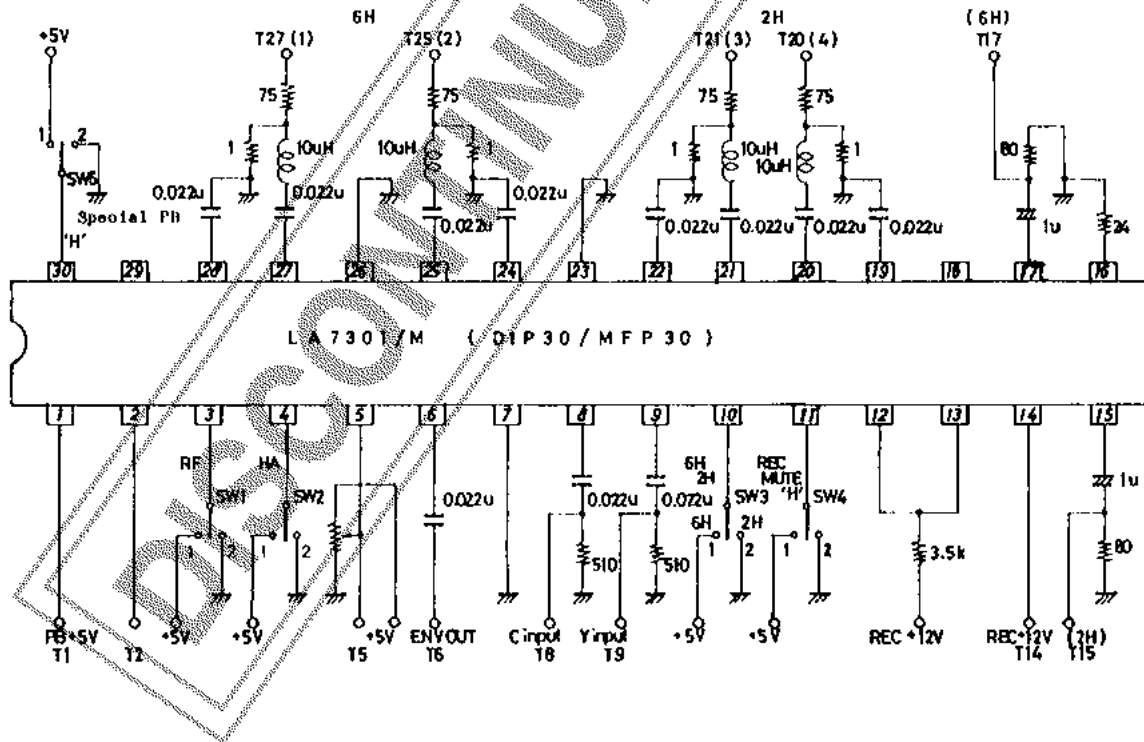
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4027TA, TS No.2404-1/4

LA7301 Block Diagram



LA7301/M Test Circuit



Electrical Characteristics at $T_a=25^{\circ}\text{C}$

Characteristic	Symbol	Test Conditions		Limits					unit
		Input	Output	SW1	SW2	SW3	SW4	SW5	
(PB mode)	CH	T1		RF	HA	6H/2H	REC MUTE	Special PB *H*	
Current Dissipation	I_{CCP}			30				1	
Voltage Gain	$G_{VP}(1)$	T27	T6	1	1	1		2	
	2	T25	T6	2	1	1		2	
	3	T21	T6	1	2	2		2	
	4	T20	T6	2	2	2		2	
Voltage Gain Difference 1	$\Delta G_{VP}(1)$								
Voltage Gain Difference 2	$\Delta G_{VP}(2)$								
Gain Difference between Modes	$\Delta G_{VP6H-2H}$								
Equivalent Input Noise Voltage	$V_{NIN}(1)$		T6	1	1	1		2	
	2		T6	2	1	1		2	
	3		T6	1	2	2		2	
	4		T6	2	2	2		2	
Frequency Characteristic	$\Delta V_{FP}(1)$	T27	T6	1	1	1		2	
	2	T25	T6	2	1	1		2	
	3	T21	T6	1	2	2		2	
	4	T20	T6	2	2	2		2	
Second Harmonic Distortion	$V_{HDP}(1)$	T27	T6	1	1	1		2	
	2	T25	T6	2	1	1		2	
	3	T21	T6	1	2	2		2	
	4	T20	T6	2	2	2		2	
Maximum Output Level	$V_{OMP}(1)$	T27	T6	1	1	1		2	
	2	T25	T6	2	1	1		2	
	3	T21	T6	1	2	2		2	
	4	T20	T6	2	2	2		2	
Crosstalk 1 6H	$V_{CR1}(1)$	T25	T6	1	1	1		2	
	2	T27	T6	2	1	1		2	
Crosstalk 2 2H	$V_{CR2}(3)$	T20	T6	1	2	2		2	
	4	T21	T6	2	2	2		2	
Output DC Offset 1 to 6	ΔV_{ODC1}		Pin6	1-2	1			1	
	2			1-2	2			1	
	3			1	1-2			1	
	4			2	1-2			1	
	5			1-2	1-2			1	
	6			2-1	1-2			1	
Comparator Control Characteristic	V_{CM1}		T5	1	1			1	
	V_{CM2}	T27	T5	1	1			1	

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Characteristic	Symbol	Input	Output	Test Conditions	SW1	SW2	SW3	SW4	SW5	Limits			
(REC mode)		T14		REC+12V	RF	HA	6H/ 2H	REC MUTE	Special PB "R"	min	typ	max	unit
Current Dissipation	I_{CCB}	T14		Pin14 flow-in current			1	2		37	50	63	mA
Voltage Gain	$G_{VR}(6C)$	T8	T17	$v_i=0.4V_{pp}$			1	2					
6H	(6Y)	T9	T17	$f=1MHz$			1	2					
2H	(2C)	T8	T15				2	2		16.0	19.0	22.0	dB
	(2Y)	T9	T15				2	2					
Voltage Gain Difference 1	$\Delta G_{VR}(6H)$	-	-	$G_{VR}(6C)-(6Y)$						-1.0	0	1.0	dB
Voltage Gain Difference 2	$\Delta G_{VR}(2H)$	-	-	$G_{VR}(2C)-(2Y)$						-1.0	0	1.0	dB
Frequency Characteristic	$\Delta V_{FR}(6C)$	T8	T17	$v_i=0.4V_{pp}$			1	2					
	(6Y)	T9	T17	$f=1MHz, 7MHz$			1	2					
	(2C)	T8	T15	$\frac{7M}{1M}$ output ratio			2	2		-4.5	-2.8	0	dB
	(2Y)	T9	T15				2	2					
Second Harmonic Distortion	$V_{HDR}(6C)$	T8	T17	$v_i=0.4V_{pp}$			1	2					
	(6Y)	T9	T17	$f=4MHz$			1	2					
	(2C)	T8	T15	$\frac{8M}{4M}$ output ratio			2	2		-50	-40		dB
	(2Y)	T9	T15				2	2					
Maximum Output Level	$V_{OHR}(6C)$	T8	T17	$f=1MHz$			1	2					
	(6Y)	T9	T17	Output level when			1	2		5.0	5.7		Vpp
	(2C)	T8	T15	3rd harmonic distortion is -30dB			2	2					
	(2Y)	T9	T15				2	2					
Mute Attenuation	$V_{MR}(6C)$	T8	T17	$v_i=0.4V_{pp}$			1	1					
	(6Y)	T9	T17	$f=1MHz$			1	1					
	(2C)	T8	T15	V_{out} output ratio			2	1		-60	-50		dB
	(2Y)	T9	T15				2	1					
Cross Modulation Relative Level	6H $V_{CY}(6H)$	T8	T17	$T8 \quad v_i=55mV_{pp}$			1	2					
		T9	T17	$f=630kHz$						-50	-40		dB
				$T9 \quad v_i=0.4V_{pp}$									
				$f=4MHz$									
	2H $V_{CY}(2H)$	T8	T15	$\frac{4 \pm 0.63M}{4MHz}$ output ratio			2	2		-50	-40		dB
		T9	T15										

The application circuit diagrams and circuit constants herein are included as an example and provide no guarantee for designing equipment to be mass-produced.

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