

SANYO

No.2734

LA7320, 7320M

Monolithic Linear IC

**VHS VTR Playback Head Amplifier
Recording Amplifier****Functions and Features**

(Functions) · 2-channel playback head amp

- 1-channel recording amp
- PB : 1 head select switch
- REC : 3 head select switches

(Features) · Designed for 2 heads

- On-chip driver transistor permitting direct recording (current type)
- On-chip head select switches (2 types) facilitating printed circuit pattern design of a set
- Load variations cause less recording current variations because of recording amp of constant-current type.

(Maximum recording current : 40mA_{p-p})**Maximum Ratings at Ta = 25°C**

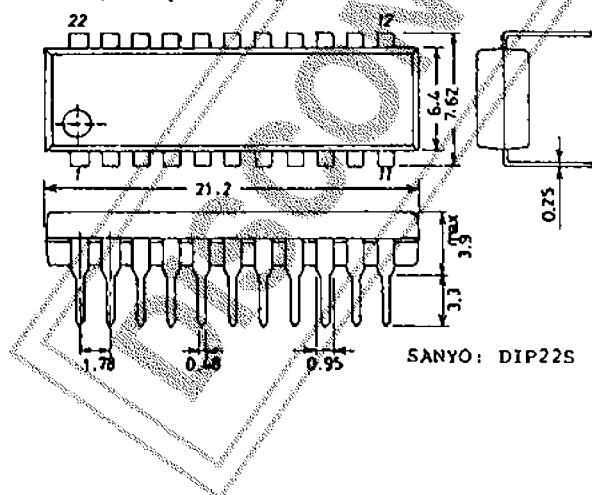
			unit
Maximum Supply Voltage	V _{CC} max	(PB) 7.0	V
		(REC) 14.0	V
Allowable Power Dissipation	P _d max	(DIP) 750	mW
Operating Temperature	T _{opg}	-10 to +65	°C
Storage Temperature	T _{stg}	-40 to +125	°C

Operating Conditions at Ta = 25°C

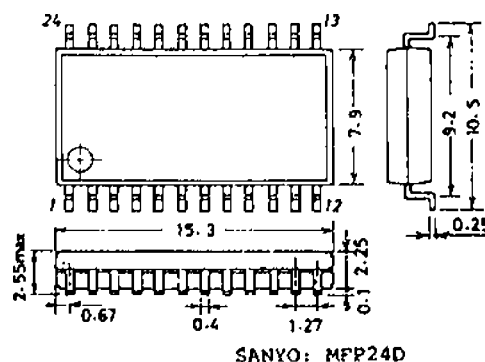
			unit
Recommended Supply Voltage	V _{CC}	(PB) 5.0	V
		(REC) 12.0	V
Operating Voltage Range	V _{CC op}	(PB) 4.75 to 5.5	V
		(REC) 10 to 13	V

Case Outline 3059-D22SIC

(unit : mm) [LA7320]

**Case Outline 3108-M24IC**

(unit : mm) [LA7320M]

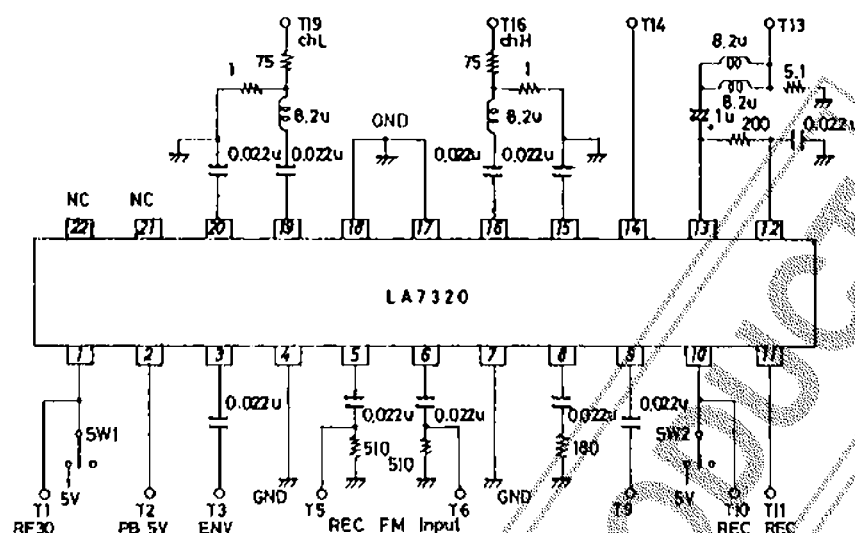


Specifications and information herein are subject to change without notice.

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N228TA, TS No.2734-1/6

LA7320 Test Circuit

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

Characteristic	Symbol	Test Conditions		min	typ	max	unit
		Input	Output				
(PB Mode)		T2		PB +5V			
Current Dissipation	I_{ccp}	T2		Pin 2 flow-in current	1		mA
Voltage Gain	CH1 $G_{vp}(1)$	T19	T8	$V_i = 38\text{mVpp}$ $f = 1\text{MHz}$	1		dB
	CH2 $G_{vp}(2)$	T16	T3		1		
Voltage Gain Difference	ΔG_{vp}			$G_{vp}(1) - (2)$			dB
Equivalent Input Noise Voltage	CH1 $V_{Ni}(1)$		T3	V_{out} $G_{vp}(1), (2)$ after 1 MHz L.P.F.	2		μV_{rms}
	CH2 $V_{Ni}(2)$		T3		1		
Frequency Characteristic	CH1 $\Delta V_{fp}(1)$	T19	T3	$V_i = 30\text{mVpp}$ $f = 100\text{kHz}, 7\text{MHz}$	2		dB
	CH2 $\Delta V_{fp}(2)$	T16	T3	100kHz output ratio	1		
2nd Harmonic Distortion	CH1 $V_{HDP}(1)$	T19	T3	$V_i = 38\text{mVpp}$ $f = 4\text{MHz}$ 8M component	2		dB
	CH2 $V_{HDP}(2)$	T16	T3	4M component output ratio	1		
Maximum Output Level	CH1 $V_{OMP}(1)$	T19	T3	$V_i = 1\text{MHz}$ Output level when 3rd distortion is -30dB.	2		Vpp
	CH2 $V_{OMP}(2)$	T16	T3		1		
Crosstalk	CH1 $V_{CR}(1)$	T16	T3	$V_i = 38\text{mVpp}$ $f = 4\text{MHz}$ V_{out} $G_{vp}(1), (2)$ output ratio	2		dB
	CH2 $V_{CR}(2)$	T19	T3		1		
Output DC Offset	ΔV_{ONC}		Pin 3	Output pin DC voltage difference	2→1		mV

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Characteristic		Symbol	Test Conditions		SW1	SW2	min	typ	max	unit
			Input	Output						
(REC Mode)			T11		REC + 12V	RF	REC MUTE			
Current Dissipation		I _{ccR}	T11		Pin 11 flow-in current		2	46.0	67.0	mA
Voltage Gain	C	G _{VR} (C)	T5	T13	V _i = 300mVpp f = 1MHz		2	-8.0	-6.0	-4.0
	Y	G _{VR} (Y)	T6	T13	V _i = 300mVpp f = 4MHz		2	-8.0	-6.0	-4.0
Frequency Characteristic	C	ΔV _m (C)	T5	T13	V _i = 300mVpp f = 1MHz, 7MHz		2			
	Y	ΔV _m (Y)	T6	T13	$\frac{7M}{1M}$ output ratio		2	-2.0	-0.6	1.0
2nd Harmonic Distortion	C	V _{HDR} (C)	T5	T13	V _{out} = 30mApp f = 4MHz		2			
	Y	V _{HDR} (Y)	T6	T13	$\frac{8M \text{ component}}{4M \text{ component}}$ output ratio		2	-46	-40	dB
Maximum Output Level	C	V _{OMP} (C)	T5	T13	f = 4MHz Output level when 2nd distortion is -40dB.		2	30	40	mApp
	Y	V _{OMP} (Y)	T6	T13			2			
Muting Attenuation	C	V _{MR} (C)	T5	T13	V _i = 300mVpp f = 1MHz, 4MHz		1			
	Y	V _{MR} (Y)	T6	T13	$\frac{V_{out}}{G_{MR}(1),(2)}$ output ratio		1	-50	-45	dB
Cross Modulation Relative Level		V _{CY}	T5 T6	T13	Input T5, V _{out} = 40mVpp, f = 629kHz Input T6, V _{out} = 150mVpp, f = 4MHz 4M ± 629k / 4MHz output ratio		2	-45	-40	dB
Y/C MIX Amp Voltage Gain	C	G(C)	T5	T9	V _i = 300mVpp f = 1MHz			8.0	10.5	13.0
	Y	G(Y)	T6	T9	V _i = 300mVpp f = 4MHz					
(Switch Tr) ON Resistance										
ON Resistance of SW turned ON at PB		R _{PON} (14)		Pin 14	PB mode ※1 Difference between DC voltage at 1mA flow-in and DC voltage at 2mA flow-in			6	10	Ω
ON Resistance of SW turned ON at REC	CH1	R _{RON} (19)		Pin 19	REC mode ※1 Difference between DC voltage at 1mA flow-in and DC voltage at 2mA flow-in			7	10	Ω
	CH2	R _{RON} (16)		Pin 19						
Switch Tr Leakage Current										
Leakage Current of SW Tr turned ON at PB		I _L (14)		Pin 14	REC mode Flow-in current when ±5V is applied			-2	0	2

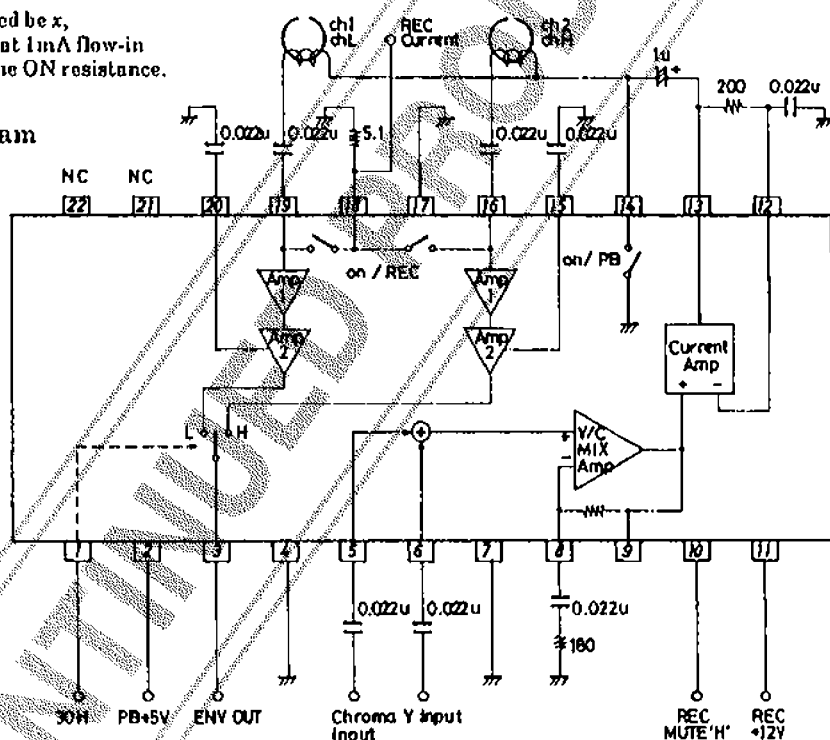
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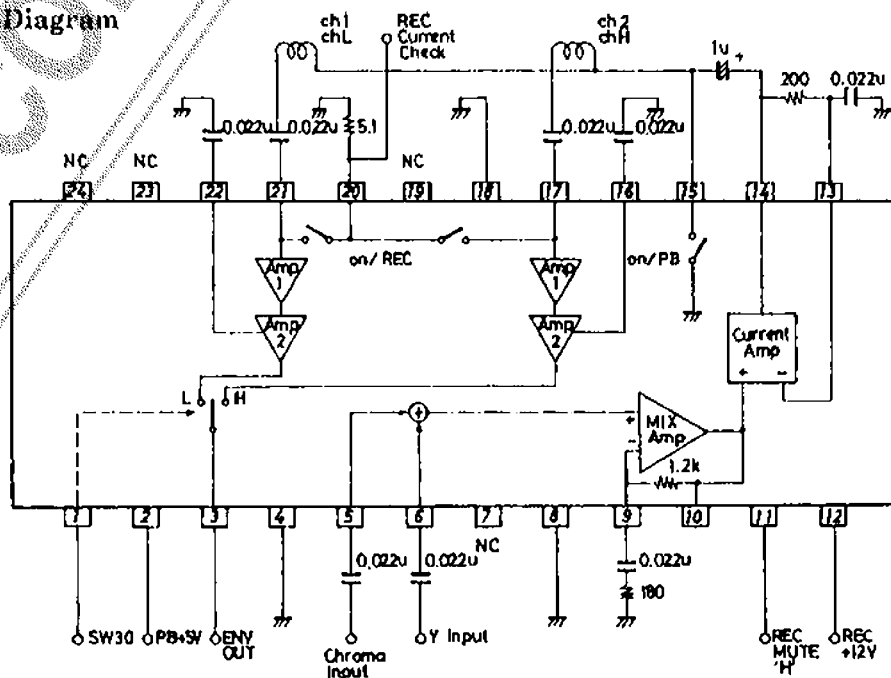
Characteristic	Symbol	Test Conditions					min	typ	max	unit
		Input	Output		SW1	SW2				
Control Pin (Threshold Level)										
RF Switch (Threshold Level)	SW RF(1)	T1		CH1→CH2 changeover voltage			2.5		5.0	V
	SW RF(2)			CH2→CH1 changeover voltage			0		0.8	
REC Muting Switch Threshold Level	SW MUTE(1)	T10		T10 voltage when T13 output waveform dis- appears			2.6		5.0	V
	SW MUTE(2)			T10 voltage when T13 output waveform appears			0		0.8	

※1 Let the ON resistance to be obtained be x ,
 $2x(\text{m}\Omega)$ at 2mA flow-in $x(\text{m}\Omega)$ at 1mA flow-in
 Therefore, difference $2x - x = x$ is the ON resistance.

LA7320 (DIP22S) Block Diagram



LA7320M (MFP24) Block Diagram

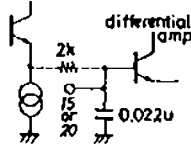
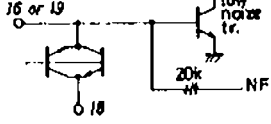
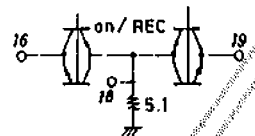


Pin Description

Pin No.	Function	Standard Potential	Input/Output Configuration	Remarks
1	RF 30Hz control pin			"L": CH1 at open state or 0.8V or less "H": CH2 at 2.5 to 5.0V
2	PB +5V	5.0 (V)		12mA typ.
3	Preamp output	2.3 (V)		Connect $R = 2k\Omega$ externally when the output line is routed around.
4	Preamp GND	0 (V)		
5	REC amp input	6.7 (V)		
6				
7	REC amp GND	0 (V)		
8	REC Y/C MIX amp feedback pin	5.9 (V)		
9	REC Y/C MIX amp output			The gain of Y/C MIX amp depends on R1. (Example) $R1 : 180\Omega = 10.5dB$
10	REC muting control pin			"L": Muting OFF at open state or 0.8V or less "H": Muting ON at 2.5V to 5.0V
11	REC +12V	12.0 (V)		Typ.
12	REC current amp feedback pin	5.9 (V)		
13	REC current amp output pin	5.9 (V)		Max. REC current : 40mA p-p (2ch)
14	Pin for switch Tr turned ON at PB			ON resistance : 6 to 10k Ω

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Pin No.	Function	Standard Potential	Input/Output Configuration	Remarks
15 22	Preamp bypass capacitor	1.9 (V)		
16 19	Preamp input	0.65 (V)		$R_{in} \approx 400\Omega$ $C_{in} \approx 25 \text{ to } 35\text{p}$
17	Pre GND	0 (V)		
18				Switch Tr ON resistance : 7 to 10 Ω
21 22	N.C			

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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