No.2733

LA7270, 7270M

Monolithic Linear IC

VHS VTR Playback Head Amplifier Recording Amplifier (Hi-Fi Audio Use)

DISCONTINUED PRODUCT

Functions and Features

(Functions)
- 2-channel playback head amp
- 1-channel recording amp
- PB : 1 head select switch
- REC : 2 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 : 60mAp-p)

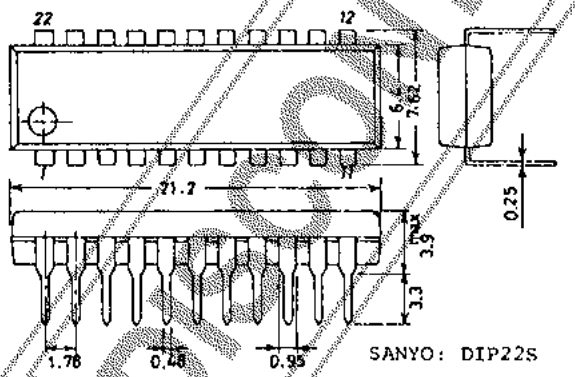
Maximum Ratings at Ta = 25°C

				unit
Maximum Supply Voltage	V_{CC} max		(PB) 7.0	V
			(REC) 14.0	V
Allowable Power Dissipation	Pd max	Ta = 65°C	(DIP) 840	mW
Operating Temperature	Topg		−10 to +65	°C
Storage Temperature	Tstg		−40 to +150	°C

Operating Conditions at Ta = 25°C

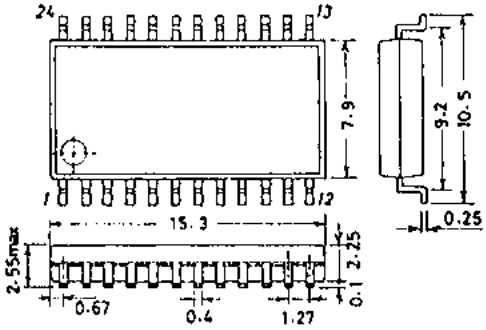
		unit
Recommended Supply Voltage	V_{CC}	(PB) 5.0	V
		(REC) 12.0	V
Operating Voltage Range	V_{CC} op	(PB) 4.5 to 5.5	V
		(REC) 10 to 13	V

Case Outline 3059-D22SIC (unit : mm) [LA7270]



SANYO : DIP22S

Case Outline 3108-M24IC (unit : mm) [LA7270M]



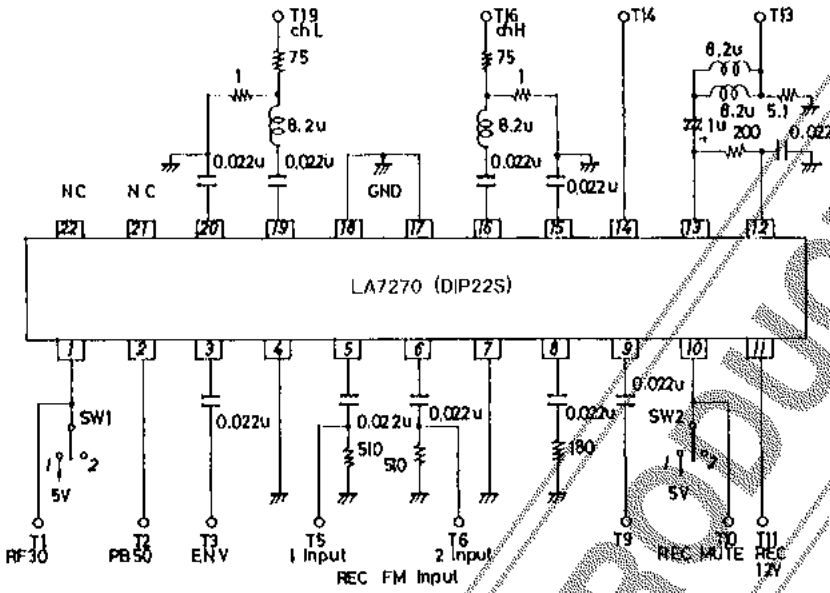
SANYO : MFP24D

The application circuit diagrams and circuit constants herein are included as an example and provide no guarantee for designing equipment to be mass-produced.
The information herein is believed to be accurate and reliable. However, no responsibility is assumed by SANYO for its use; nor for any infringements of patents or other rights of third parties which may result from its use.

Specifications and information herein are subject to change without notice.

SANYO Electric Co.,Ltd. Semiconductor Overseas Marketing Div.
Natsume Bldg., 18-6, 2-chome, Yushima, Bunkyo-ku, TOKYO 113 JAPAN

LA7270 Test Circuit



DISCONTINUED PRODUCT

Operating Characteristics at Ta = 25°C

Characteristic		Symbol	Input	Output	Test Conditions	SW1	SW2	min	typ	max	unit
(PB Mode)			T2		PB+5V	RF	REC MUTE				
Current Dissipation		Iccp	T2		Pin 2 flow-in current	1		9	12	15	mA
Voltage Gain	CH1	$G_{VP}(1)$	T19	T3	Vi = 38mVpp f = 1MHz	2		56.5	59.5	62.5	dB
	CH2	$G_{VP}(2)$	T16	T3		1					
Voltage Gain Difference		ΔG_{VP}			$G_{VP}(1) - (2)$			−1.0	0	1.0	dB
Equivalent Input Noise Voltage	CH1	$V_{NI}(1)$		T3	$\frac{Vout}{G_{VP}(1),(2)}$ after 2.0MHz L.P.F.	2			1.1	1.6	μV rms
	CH2	$V_{NI}(2)$		T3		1					
Frequency Characteristic	CH1	$\Delta Vfp(1)$	T19	T3	Vi = 38mVpp f = 100k, 7MHz $\frac{2MHz}{100kHz}$ output ratio	2		−1.0	0		dB
	CH2	$\Delta Vfp(2)$	T16	T3		1					
2nd Harmonic Distortion	CH1	$V_{HDP}(1)$	T19	T3	Vi = 38mVpp f = 2MHz $\frac{4M\ component}{2M\ component}$ output ratio	2			−40	−35	dB
	CH2	$V_{HDP}(2)$	T6	T3		1					
Maximum Output Level	CH1	$V_{OMP}(1)$	T19	T3	Vi = 1MHz Output level when 3rd distortion is −30dB.	2		0.8	1.0		Vpp
	CH2	$V_{OMP}(2)$	T16	T3		1					
Crosstalk	CH1	$V_{CR}(1)$	T16	T3	Vi = 38mVpp f = 4MHz $\frac{Vout}{G_{VP}(1),(2)}$ output ratio	2			−40	−35	dB
	CH2	$V_{CR}(2)$	T16	T3		1					
Output DC Offset		ΔV_{ODC}		Pin 3	Output pin DC voltage difference	2→1		−100	0	100	mV

Continued on next page.

Continued from preceding page.

Characteristic		Symbol	Input	Output	Test Conditions	SW1	SW2	min	typ	max	unit
(REC Mode)			T11		REC+12V	RF	REC MUTE				
Current Dissipation		IccR	T11		Pin 11 flow-in current		2		54.0	64.0	mA
Voltage Gain	1	$G_{VR}(1)$	T5	T13	Vi=300mVpp f=2MHz		2	−8.0	−6.0	−4.0	dB
	2	$G_{VR}(2)$	T6	T13	Vi=300mVpp f=2MHz		2	−8.0	−6.0	−4.0	
Frequency Characteristic	1	$\Delta V_{fR}(1)$	T5	T13	Vi=300mVpp f=1MHz,2MHz $\frac{2M}{1M}$ output ratio		2	−1.0	−0.5	1.0	dB
	2	$\Delta V_{fR}(2)$	T6	T13			2				
2nd Harmonic Distortion	1	$V_{HDR}(1)$	T5	T13	Vout=50mApp f=2MHz $\frac{4M, 6M \text{ component}}{2M \text{ component}}$ output ratio		2		−40	−35	dB
	2	$V_{HDR}(2)$	T6	T13			2				
Maximum Output Level	1	$V_{OMP}(1)$	T5	T13	f=2MHz Output level when 2rd distortion is −40dB.		2	40	50		nApp
	2	$V_{OMP}(2)$	T6	T13			2				
Muting Attenuation	1	$V_{MR}(1)$	T5	T13	Vi=300mVpp f=2MHz $\frac{Vout}{G_{VR}(1),(2)}$ output ratio		1		−50	−45	dB
	2	$V_{MR}(2)$	T6	T13			1				
Y/C MIX Amp Voltage Gain	1	G(1)	T5	T9	Vi=300mVpp f=2MHz			8.0	10.5	13.0	dB
	2	G(2)	T6	T9	Vi=300mVpp f=2MHz						
(Switch Tr) ON Resistance											
ON Resistance of SW turned ON at PB		$RB_{ON}(14)$		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	$RR_{ON}(19)$		Pin 19	REC mode ※1 Difference between DC voltage at 1mA flow-in and DC voltage at 2mA flow-in				7	10	Ω
	CH2	$RR_{ON}(16)$		Pin 16							
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	μA

DISCONTINUED PRODUCT

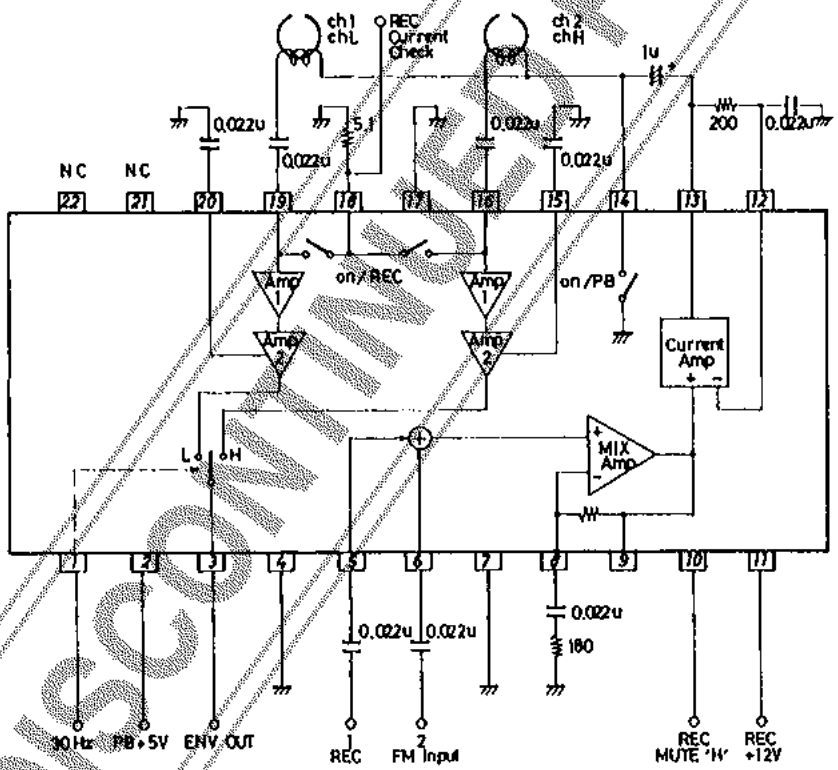
Continued on next page.

Continued from preceding page.

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

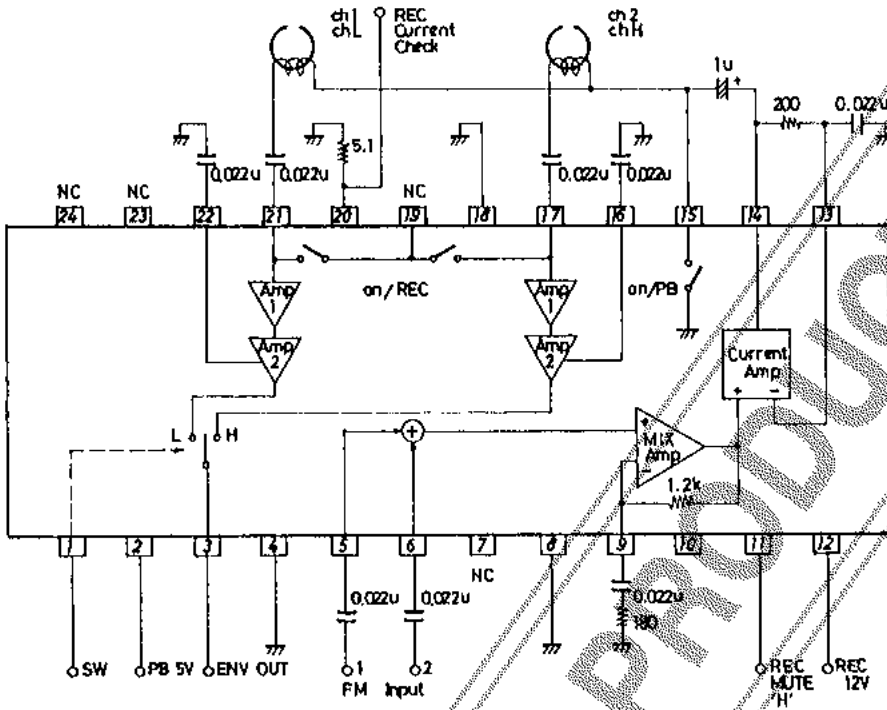
※1 Let the ON resistance to be obtained be x,
$2x$(mV) at 2mA flow-in x(mV) at 1mA flow-in
Therefore, difference $2x-x=x$ is the ON resistance.

LA7270 (DIP22S) Block Diagram

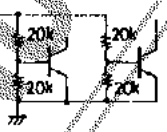
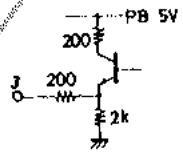
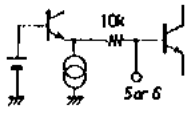
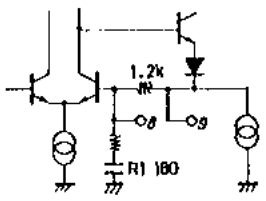


DISCONTINUED PRODUCT

LA7270M (MFP24) Block Diagram



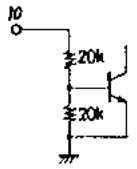
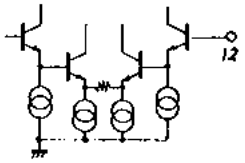
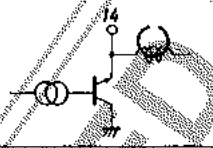
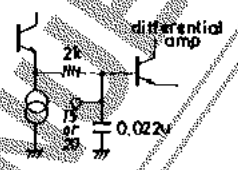
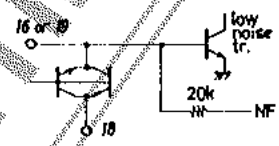
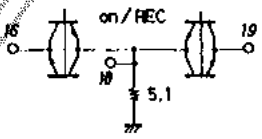
Pin Description

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=2kΩ externally when the output line is routed around.
4	Preamp GND	0 (V)		
5 6	REC amp input	6.7 (V)		
7	REC amp GND	0 (V)		
8	REC Y/C MIX amp feedback pin	5.9 (V)		The gain of Y/C MIX amp depends on R1. (Example) R1 : 180Ω=10.5dB
9	REC Y/C MIX amp output	5.9 (V)		

Continued on next page.

DISCONTINUED PRODUCT

Continued from preceding page.

Pin No.	Function	Standard Potential	Input/Output Configuration	Remarks
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: 60mAp-p (2ch)
14	Pin for switch Tr turned ON at PB			ON resistance : 6 to 10kΩ
15 22	Preamp bypass capacitor	1.9 (V)		
16 19	Preamp input	0.65 (V)		Rin ≒ 400Ω Cin ≒ 25 to 35p
17	Pre GND	0 (V)		
18				Switch Tr ON resistance : 7 to 10Ω
21 22	N.C.			

DISCONTINUED PRODUCT