

SANYO	No.3212	LA7150
	Audio / Video Switch for PAL System VCR	

The LA7150 is ideal as a PAL VCR 21-pin connector interlace IC with a 2-input 1-output video switch, 2-input 1-output audio switch, 14dB amp, function select switch (FSS), and power supply ripple filter on chip.

Functions

- 2-input 1-output video switch
- 2-input 1-output audio switch
- 14dB amp
- Function select switch (FSS)
- Power supply ripple filter on chip.
- Current protector

Features

- Low distortion
- Extremely few peripheral components
- Low crosstalk
- On-chip function select switch (FSS) with current protector

Absolute Maximum Ratings at Ta=25°C

Maximum Supply Voltage	V _{CC} max	15	unit
Allowable Power Dissipation	P _g max	750	V
Operating Temperature	T _{opr}	-10 to +65	mW
Storage Temperature	T _{stg}	-55 to +125	°C

Operating Conditions at Ta=25°C

Recommended Supply Voltage	V _{CC}	12.0	unit
Operating Supply Voltage Range	V _{CC op}	11.5 to 12.5	V

Operating Characteristics at Ta=25°C, V_{CC}=12V

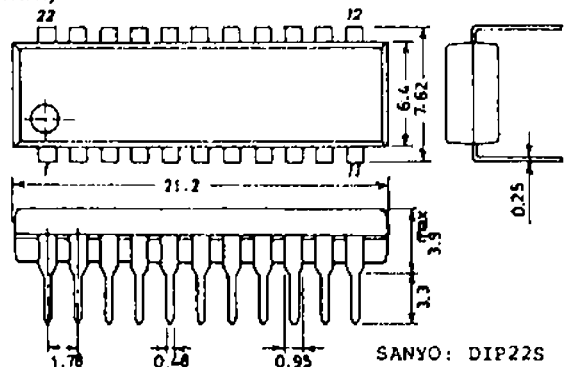
		min	typ	max	unit		
Current Dissipation	I _{CE1}	No input, EE mode control 0V	7.0	10.0	13.0	mA	
	I _{CE2}	No input, EE mode control 5V	7.5	11.0	14.5	mA	
	I _{CP1}	No input, PB mode control 0V	7.5	11.0	14.5	mA	
	I _{CP2}	No input, PB mode control 5V	8.0	12.5	16.5	mA	
[Video Switch Section]	Frequency Characteristic	G _{FV}	f=100kHz to 5MHz at V _{IN} =1V _{pp} , 100kHz:0dB	-0.5	0	0.5	dB
		G _{LV}	V _{IN} =2V _{pp} , f=100kHz	-0.5	-0.2		dB
Insertion Loss	ΔV _{odcv}	P _{in} 17 DC	-50	0	+50	mV	
Offset Voltage	CR	V _{IN} =2V _{pp} , f=4.43MHz		-65	-60	dB	
Crosstalk	Z _{IV}			15		kΩ	
Input Impedance	Z _{OV}			20	50	Ω	
Output Impedance							

Continued on next page.

Package Dimensions

(unit :mm)

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LA7150

Continued from preceding page.

[Audio Switch Section]

			min	typ	max	unit
Insertion Loss	G_{LA}	$V_{IN}=1V_{rms}, f=20Hz \text{ to } 20kHz$	-0.5	-0.2		dB
Offset Voltage	ΔV_{ODCA}	Pin 5 DC	-50	0	+50	mV
Total Harmonic Distortion	THD_A	$V_{IN}=1V_{rms}, f=1kHz$		0.005	0.1	%
Maximum Output	V_{OMA}	$f=1kHz, THD=1\%$	2.5	3.5		V _{rms}
Input Impedance	Z_{IA}			50		k Ω
Output Impedance	Z_{OA}			20	50	Ω
Output Noise Voltage	V_{ONA}	$R_g=600\Omega, \text{DIN AUDIO FILTER}$		2.0	4.0	μV_{rms}

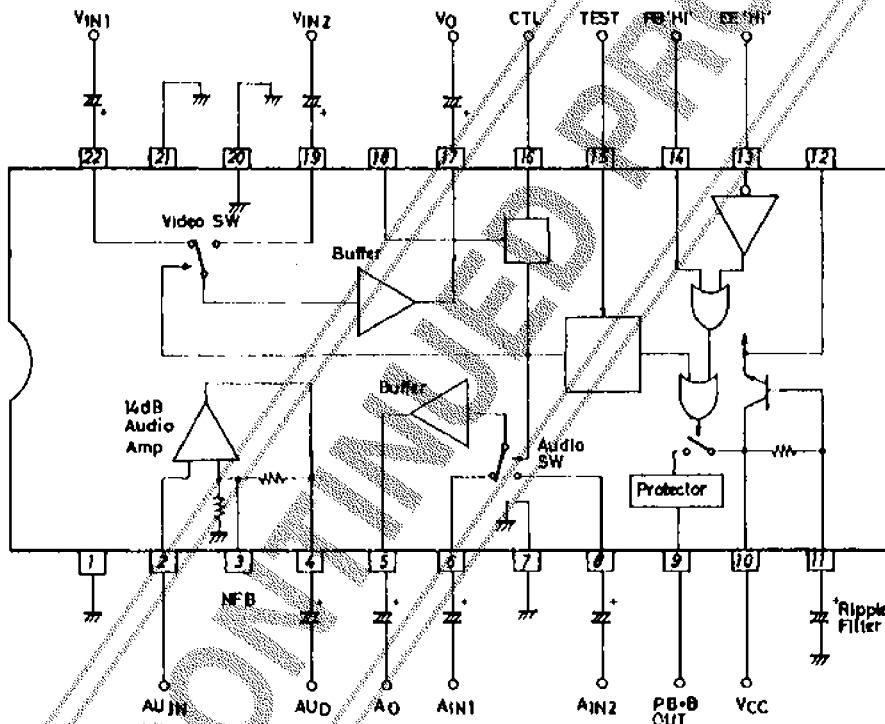
[Audio Amp Section]

Voltage Gain	V_G	$V_{IN}=0.1V_{rms}, f=20Hz \text{ to } 20kHz$	13.0	14.0	15.0	dB
Total Harmonic Distortion	THD_{AMP}	$V_{IN}=0.1V_{rms}, f=1kHz$		0.02	0.1	%
Maximum Output	V_{OMAMP}	$f=1kHz, THD=1\%$	2.0	2.5		V _{rms}
Input Impedance	Z_{IAMP}			50		k Ω
Output Impedance	Z_{OAMPA}			20	50	Ω
Output Noise Voltage	V_{ONAMPA}	$R_g=600\Omega, \text{DIN AUDIO FILTER}$		60	120	μV_{rms}

[Control Section]

High Level Voltage	V_{CHI}	Pins 13, 14, 15, 16 and DC	3.5		V_{CC}	V
Low Level Voltage	V_{CLOW}	Pins 13, 14, 15, 16 and DC	0		1.0	V

Equivalent Circuit Block Diagram



Note: Pins 1 and 21 are NC pins, so must be grounded or left be open. (Do not connect to other pins.)

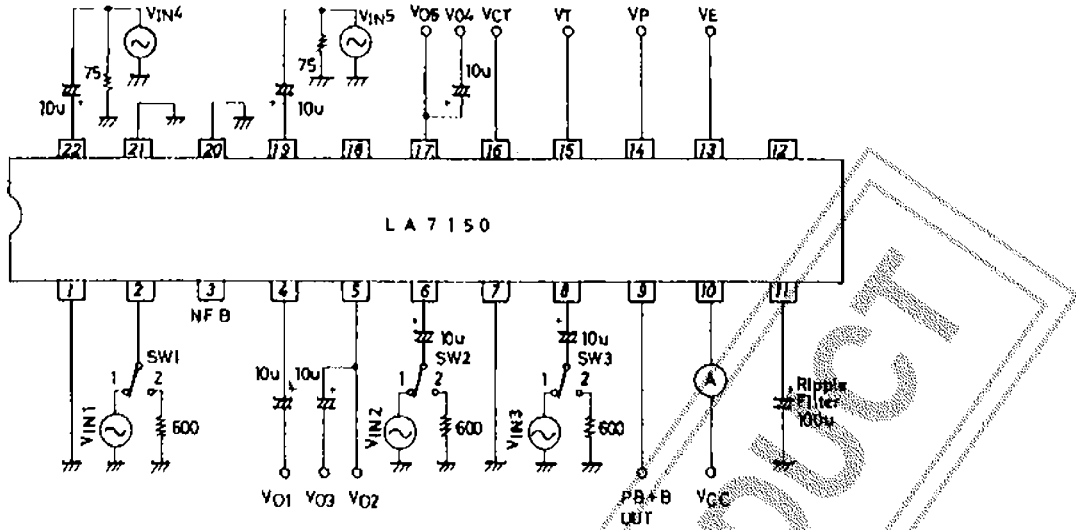
MODE	CTL	TEST	PB+B OUT
EE	L	L	L
	H	L	L
	L	H	H
	H	H	L
PB	L	L	H
	H	L	H
	L	H	H
	H	H	H

CTL	SW SELECT
L	V_{IN1}
	A_{IN1}
H	V_{IN2}
	A_{IN2}

Pins 13 and 14 are for handling EE H or PB H system control. When using pin 13, ground pin 14; when using pin 14, connect pin 13 to pin 12.

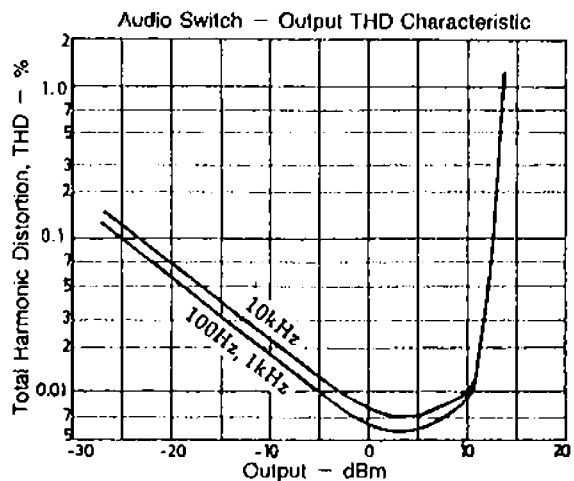
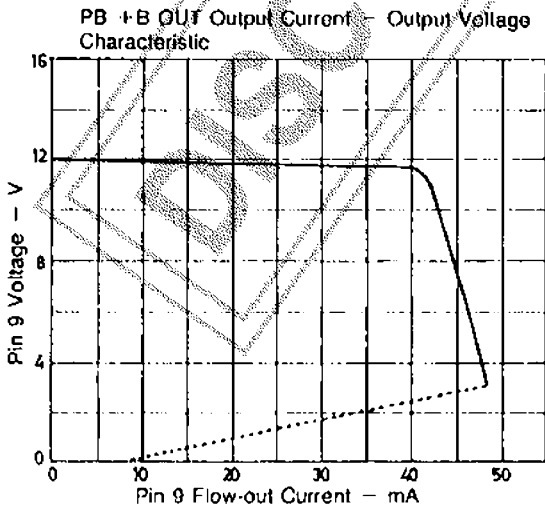
LA7150

Test Circuit

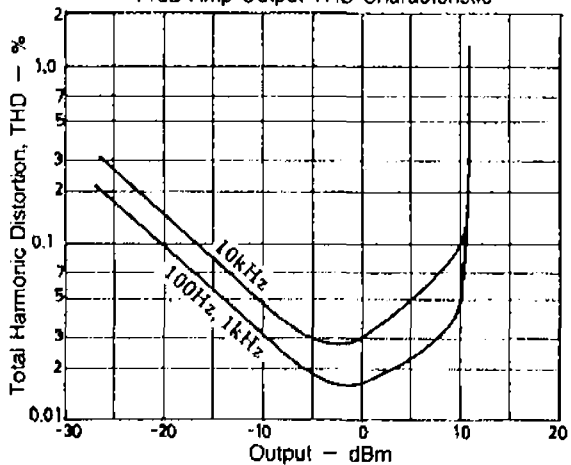


Test Conditions

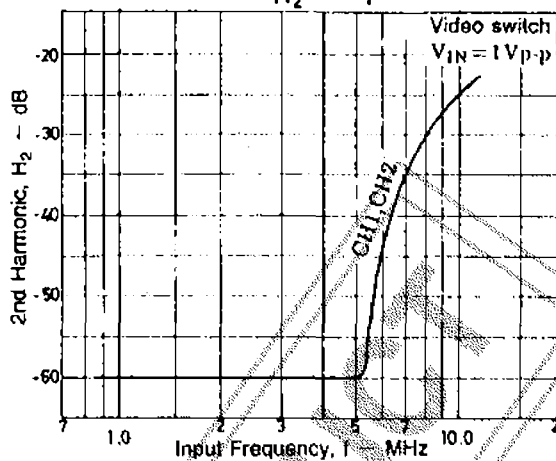
Measurement Item	SW1	SW2	SW3	V _{ct}	V _i	V _p	V _e	Input	Test Point
I _{CE1}	2	2	2	GND	GND	GND	5V	—	A
I _{CE2}	2	2	2	5V	GND	GND	5V	—	A
I _{CP1}	2	2	2	GND	GND	GND	GND	—	A
I _{CP2}	2	2	2	5V	GND	GND	GND	—	A
G _{fv}	2	2	2	GND/5V	GND	GND	GND	V _{IN4} /V _{IN5}	V ₀₄
G _{lv}	2	2	2	GND/5V	GND	GND	GND	V _{IN4} /V _{IN5}	V ₀₄
ΔV _{ODCV}	2	2	2	5V/GND	GND	GND	GND	—	V ₀₅
CR	2	2	2	5V/GND	GND	GND	GND	V _{IN4} /V _{IN5}	V ₀₄
G _{LA}	2	2/1	1/2	GND/5V	GND	GND	GND	V _{IN2} /V _{IN3}	V ₀₃
ΔV _{ODCA}	2	2	2	5V/GND	GND	GND	GND	—	V ₀₂
THD	2	2/1	1/2	GND/5V	GND	GND	GND	V _{IN2} /V _{IN3}	V ₀₃
V _{OMA}	2	2	2	GND/5V	GND	GND	GND	V _{IN2} /V _{IN3}	V ₀₃
V _{ONA}	2	2	2	GND/5V	GND	GND	GND	—	V ₀₃
VG	1	2	2	GND	GND	GND	GND	V _{IN1}	V ₀₁
THD _{AMP}	1	2	2	GND	GND	GND	GND	V _{IN1}	V ₀₁
V _{OMAMP}	1	2	2	GND	GND	GND	GND	V _{IN1}	V ₀₁
V _{ONAMP}	2	2	2	GND	GND	GND	GND	—	V ₀₁
PB+B OUT	2	2	2	GND	GND	GND	GND	—	Pin 9



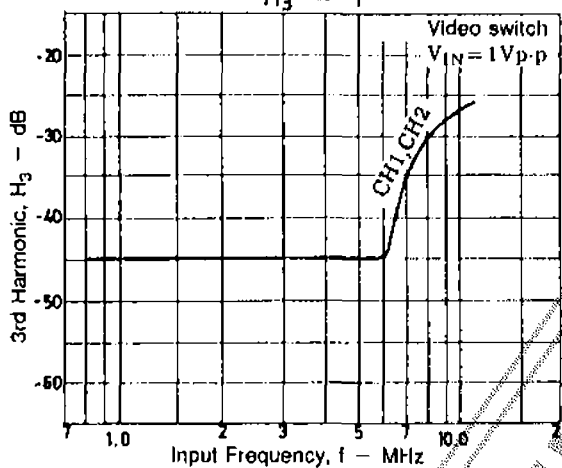
14dB Amp Output THD Characteristic



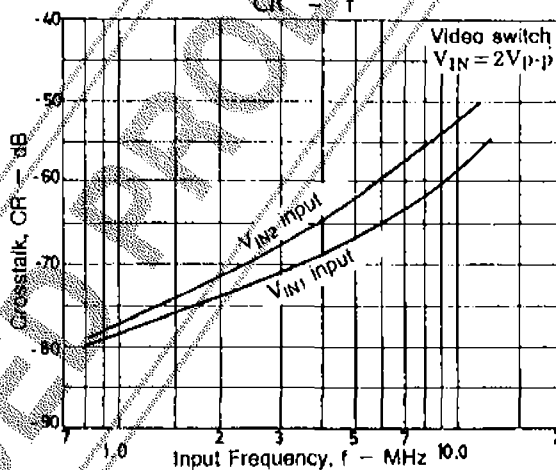
$H_2 - f$



$H_3 - f$



$CR - f$



DISCONTINUED