

SANYO

No.2868A

LA7951

Video Switch for TV / VCR Use

Overview

The LA7951 Video Switch is a solid-state 4-input 4-output video switch ideally suited for use as a video selector switch in multiple-source video systems and multiple VCR video editing systems.

The switching logic, coupled with built-in video amplifier, ripple filter and 75Ω output driver facilitate a minimum parts count video switching subsystem. The solid-state switches feature low crosstalk and wide bandwidth.

The LA7951 operates from a single 12V power supply, and is available in 14-pin plastic DIPs.

Features

- 4-input 4-output multi-functional video switch
- Low crosstalk, wide bandwidth
- Internal 6dB video amplifier
- Ripple filter
- 75Ω output driver for video monitor (COMMON OUT)

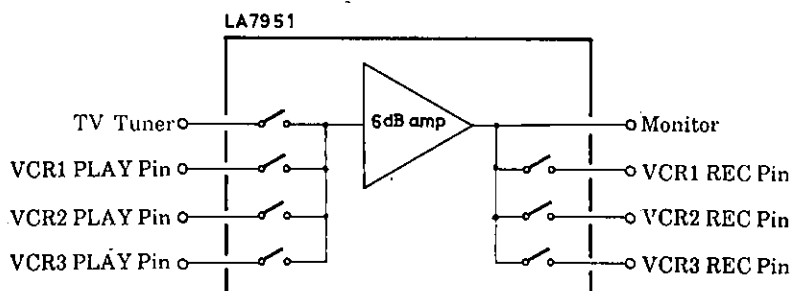


Figure 1. Editing System Switch Connections

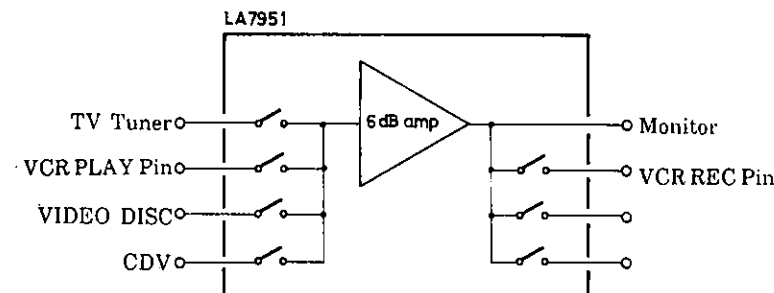
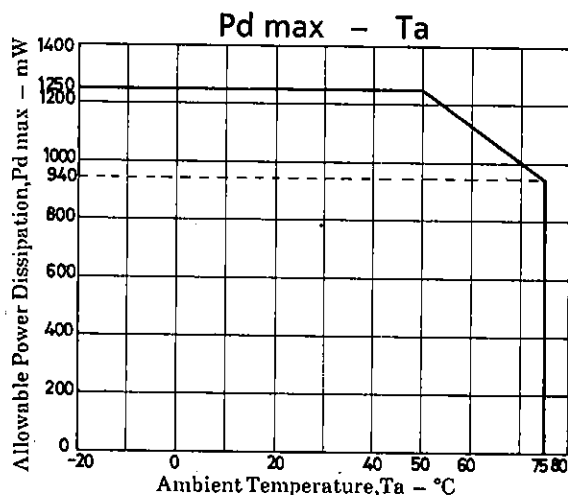


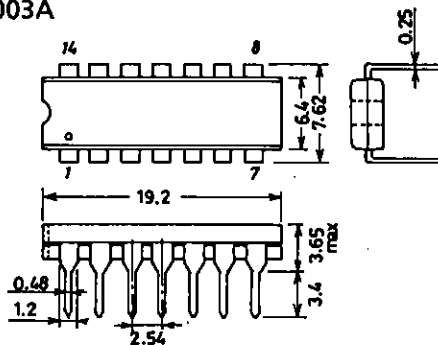
Figure 2. Video Selector Switch Connections



Package Dimensions

(unit : mm)

3003A



SANYO: DIP14

LA7951

Maximum Ratings at Ta = 25°C

			unit
Maximum Supply Voltage	V ₄ max	14	V
Maximum Control	V ₆ max, V ₉ max	V _{CC}	V
Input Voltage	V ₁₃ max		
Maximum Signal	I ₁ max	-5	mA
Output Current (1)			
Maximum Signal	I ₇ max, I ₈ max	-20	mA
Output Current (2)	I ₁₄ max		
Allowable Power Dissipation	P _d max	Ta ≤ 50°C	1.25 W
Operating Temperature	T _{opr}	-20 to +75	°C
Storage Temperature	T _{stg}	-55 to +125	°C

Operating Conditions at Ta = 25°C

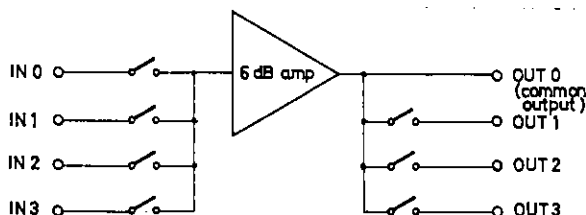
			unit
Recommended Supply Voltage	V _{CC}	12	V
Operating Voltage Range	V _{CC} op	9 to 13.2	V

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

			min	typ	max	unit
Quiescent Current	I _{CC}	Pins 7,8,14 open Pins 6,9,13 to GND	20	27.5	37	mA
Input Pin Bias Voltage	V ₃ , V ₅ , V ₁₀ , V ₁₂		2.6	3.1	3.6	V
Output Pin Bias Voltage (1)	V ₁		4.6	5.3	6.0	V
Output Pin Bias Voltage (2)	V ₇ , V ₈ , V ₁₄		3.3	4.0	4.7	V
Control Threshold Voltage H1	V _{6H}		2.3		V _{CC}	V
Control Threshold Voltage H2	V _{9H} , V _{13H}		3.0		V _{CC}	V
Control Threshold Voltage L1	V _{6L}		0		0.8	V
Control Threshold Voltage L2	V _{9L} , V _{13L}		0		1.5	V
Control Input Current 1	I ₆	V ₆ = 5V		0.32	0.5	mA
Control Input Current 2	I ₉ , I ₁₃	V ₉ = V ₁₃ = 5V		0	-50	μA
Voltage Gain 1	GV1	f = 1MHz, V _o = 1V _{pp} See Note.	-0.5	+0.5	+1.5	dB
Voltage Gain 2	GV2	f = 1MHz, V _o = 1V _{pp} See Note.	-0.7	+0.3	+1.3	dB
Frequency Characteristics	GV _f	f = 100kHz, V _o = 1V _{pp} = 0dB, f = 10MHz See Note.	-3	-1		dB
Output Noise Voltage	V _N	BPF = 10kHz to 4.2MHz See Note.		0.5	1.0	mVrms
Output Dynamic Range 1	DR1	f = 10kHz, V _o = 1.5V _{pp} See Note.		0.5	1.2	%
Output Dynamic Range 2	DR2	f = 10kHz, V _o = 1.5V _{pp} See Note.		1.0	2.0	%
Crosstalk 1	CT1	f = 4MHz, V _o = 1V _{pp} See Note.	-50	-55		dB
Crosstalk 2	CT2	f = 4MHz, V _o = 1V _{pp} See Note.	-20	-40		dB

Note) Measured output terminated with 75Ω. Current flowing into IC is taken as plus (+). Parameter 1 refers to the COMMON OUT signal output and parameter 2 to the OUT1 to OUT3 signal outputs.

Video Switch Block Diagram

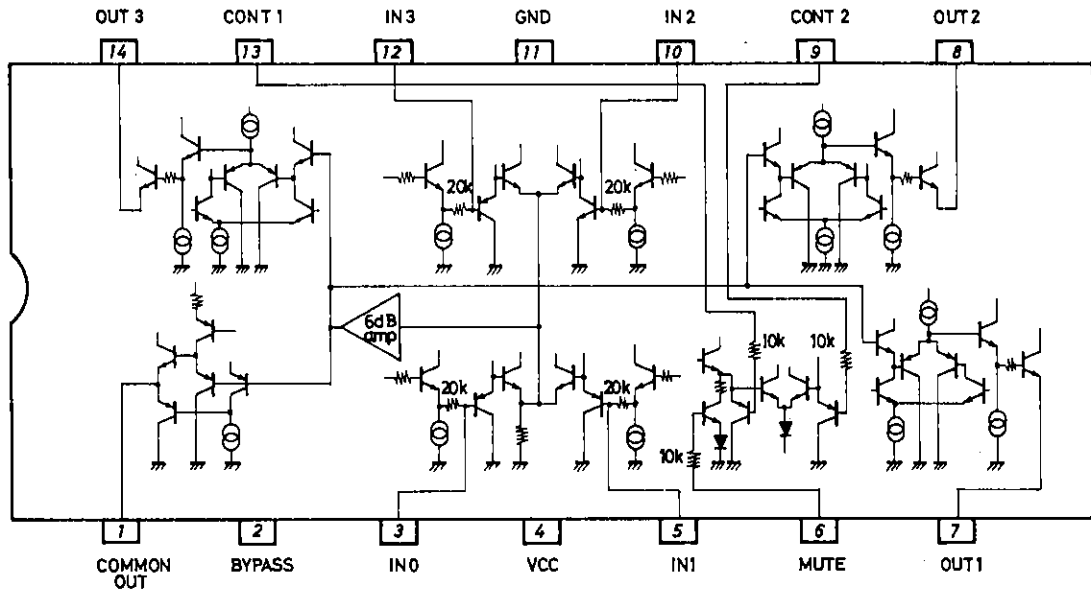


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Switching Functions

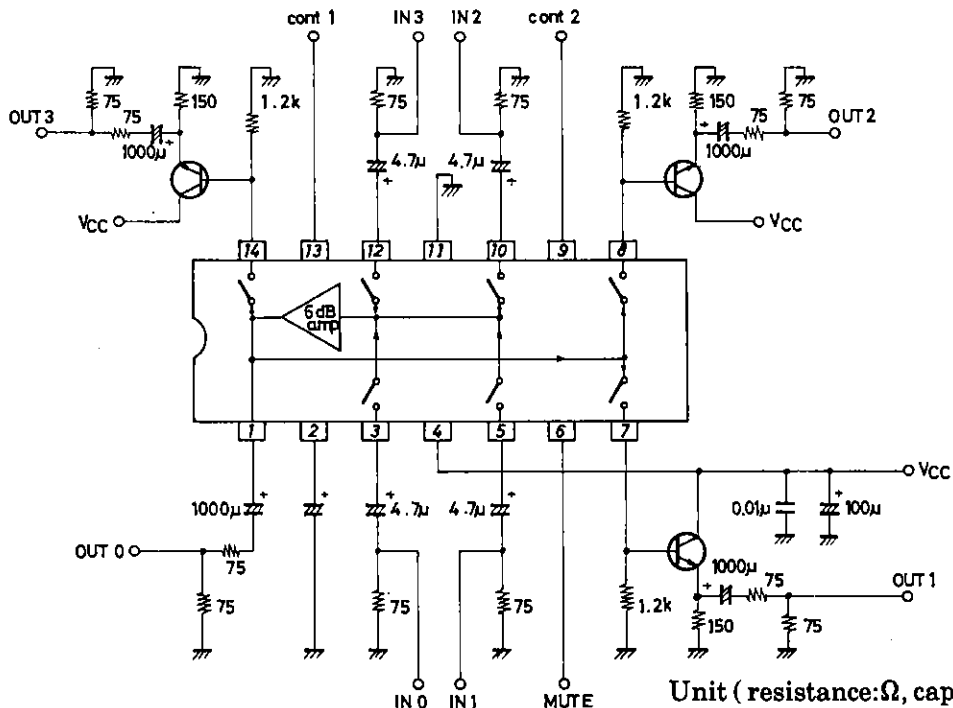
Control			Input				Output			
MUTE (Pin 6)	1 (Pin 13)	2 (Pin 9)	0 (Pin 3)	1 (Pin 5)	2 (Pin 10)	3 (Pin 12)	COMMON (Pin 1)	1 (Pin 7)	2 (Pin 8)	3 (Pin 14)
L	-	-	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF
H	L	L	ON	OFF	OFF	OFF	ON	ON	ON	ON
H	L	H	OFF	ON	OFF	OFF	ON	OFF	ON	ON
H	H	L	OFF	OFF	ON	OFF	ON	ON	OFF	ON
H	H	H	OFF	OFF	OFF	ON	ON	ON	ON	OFF

Equivalent Circuit Block Diagram



Unit (resistance:Ω)

Sample Application Circuit



Unit (resistance:Ω, capacitance:F)

The power supply decoupling capacitor should be mounted as close to the LA7951 as physically possible.

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