

**SANYO**

No.2767A

**LA7295 Series**

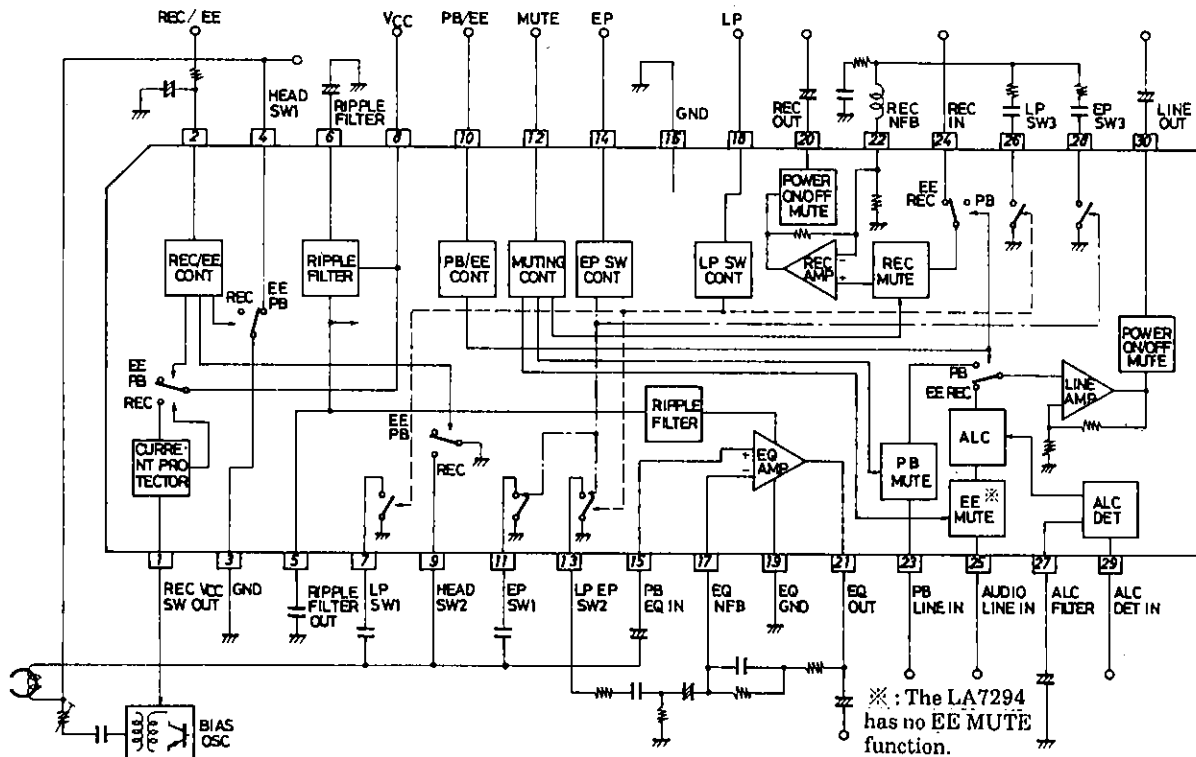
VTR Audio Signal Recording / Playback Processor

**Features**

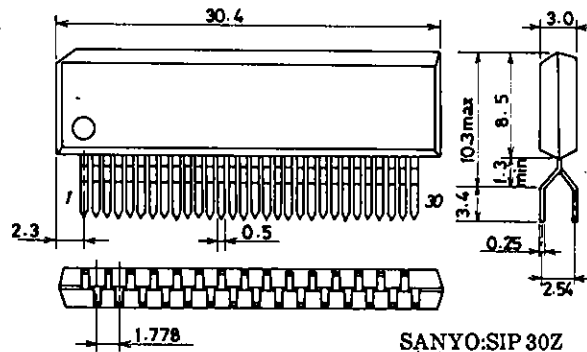
- Single-chip ICs that provide various functions (including two tape head select switches, a power supply switch for the OSC bias circuit, and five equalizer select switches (LP, EP) required for VTR audio signal recording / playback)
- High merit in space because of SIP package
- Minimum number of external parts required

LA7295	...	V <sub>CC</sub> =12V, PB "Hi"
LA7294	...	V <sub>CC</sub> =12V, PB "Hi", no EE muting function
LA7296	...	V <sub>CC</sub> =12V, PB "Lo"
LA7297	...	V <sub>CC</sub> =9V, PB "Hi"

**Block Diagram**



Package Dimensions 3117 (unit:mm)



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LA7294,7295,7296,7297

Maximum Ratings at Ta = 25°C		LA7294/95/96	LA7297	unit
Maximum Supply Voltage	V <sub>CC</sub> max	14	11	V
Allowable Power Dissipation	P <sub>d</sub> max Ta = 65°C	600	600	mW
Operating Temperature	Topr	-10 to +65	-10 to +65	°C
Storage Temperature	Tstg	-55 to +125	-55 to +125	°C

Operating Conditions at Ta = 25°C		LA7294/95/96	LA7297	unit
Recommended Supply Voltage	V <sub>CC</sub>	12.0	9.0	V
Operating Voltage Range	V <sub>CC</sub> op	11.25 to 12.75	8.25 to 9.75	V

Operating Characteristics at Ta = 25°C, V<sub>CC</sub> = 12V(9V), f = 1kHz, 0dBv:1.0Vrms

			min	typ	max	unit
Current Dissipation (EE)	I <sub>CCE</sub> Quiescent		11.0	15.0	20.0	mA
Current Dissipation (PB)	I <sub>CCP</sub> Quiescent		12.0	16.0	21.0	mA
Current Dissipation (REC)	I <sub>CCR</sub> Quiescent		9.0	13.0	18.0	mA
Overall Gain at PB Mode	V <sub>G</sub> PB EQ IN to LINE OUT, V <sub>o</sub> = -5dBv		67.0	68.0	69.0	dB
[Equalizer Amp]						
Open-Loop Voltage Gain	V <sub>G</sub> OE V <sub>o</sub> = -5dBv		67.0	72.0		dB
Equivalent Input Noise Voltage	V <sub>NIE</sub> R <sub>g</sub> = 2.2kΩ, DIN audio filter			1.0	1.8	μVrms
Input Resistance	r <sub>ie</sub>			130		kΩ
[Line Amp]						
Voltage Gain (PB Input)	V <sub>G</sub> LP V <sub>o</sub> = -5dBv		32.0	33.0	34.0	dB
Voltage Gain (EE, REC Input)	V <sub>G</sub> LR V <sub>o</sub> = -5dBv		32.0	33.0	34.0	dB
Total Harmonic Distortion	THD <sub>L</sub> V <sub>o</sub> = -5dBv			0.15	0.40	%
Output Noise Voltage	V <sub>NOL</sub> DIN audio filter *			-70.0	-64.0	dBv
Input Resistance (PB Input)	r <sub>i1</sub>			30.0		kΩ
Input Resistance (EE, REC Input)	r <sub>i2</sub>			30.0		kΩ
Maximum Output Voltage	V <sub>OML</sub> THD = 1%		1.5	2.2		Vrms
Output Voltage at ALC Mode	V <sub>OA</sub> V <sub>IN</sub> = -35dBv		-6.5	-5.0	-3.5	dBv
ALC Effect	ALC V <sub>IN</sub> = -35 to -10dBv			1.0	3.0	dB
Total Harmonic Distortion at ALC Mode	THD <sub>A</sub> V <sub>IN</sub> = -35dBv			0.2	0.6	%
[Recording Amp]						
Voltage Gain (Open Loop)	V <sub>G</sub> OR V <sub>o</sub> = -5dBv		51.0	57.0		dB
Voltage Gain (Closed Loop)	V <sub>G</sub> CR V <sub>o</sub> = -5dBv		13.5	14.5	15.5	dB
Total Harmonic Distortion	THD <sub>R</sub> V <sub>o</sub> = -5dBv			0.1	0.3	%
Input Resistance	r <sub>ir</sub>			30.0		kΩ
Maximum Output Voltage	V <sub>OMR</sub> THD = 1%		1.5	2.2		Vrms
[Muting Circuit]						
ON-State Voltage	V <sub>MON</sub> Pin 12 DC		3.3		V <sub>CC</sub>	V
OFF-State Voltage	V <sub>MOFF</sub> Pin 12 DC		0		1.0	V
Muting Attenuation (PB, EE)	M <sub>P, M<sub>E</sub></sub> LA7294 : No EE required		85.0	90.0		dB
Muting Attenuation (REC)	M <sub>R</sub>		73.0	78.0		dB
[PB/EE Select Circuit]						
PB Mode Hold Voltage (LA7296 EE mode)	V <sub>PP</sub> Pin 10 DC		3.3		6.0	V
EE Mode Hold Voltage (LA7296 PB mode)	V <sub>PE</sub> Pin 10 DC		0		1.0	V
[REC/EE Select Circuit]						
REC Mode Hold Voltage	V <sub>RR</sub> Pin 2 DC		3.8		6.0	V
EE Mode Hold Voltage	V <sub>RE</sub> Pin 2 DC		0		1.0	V

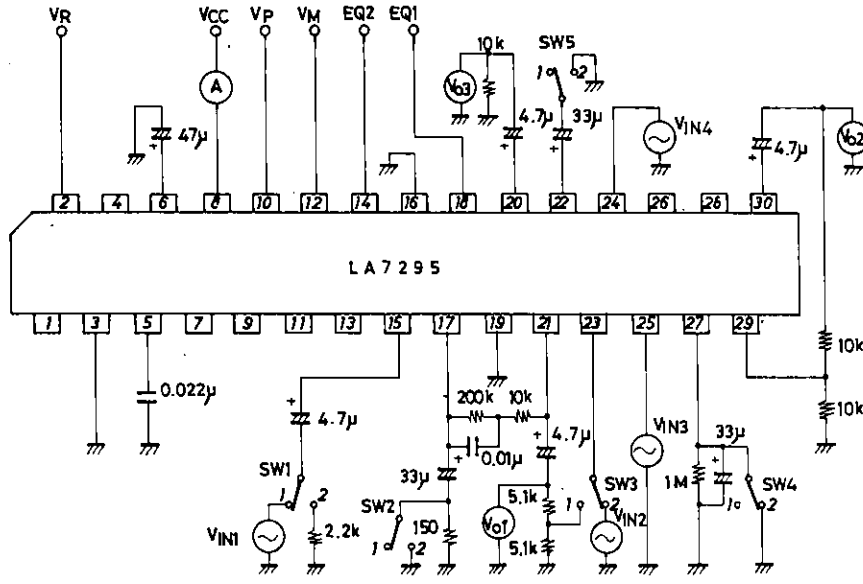
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LA7294,7295,7296,7297

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			min	typ	max	unit
[Equalizer Select Circuit]						
Switch ON-State Voltage	$V_{EON}$	Pins 14,18 DC	3.0		6.0	V
Switch OFF-State Voltage	$V_{EOFF}$	Pins 14,18 DC	0		0.8	V
[Head Select Switch]						
Pin 4 ON-State Resistance	$R_{ON4}$	$I_4 = \pm 1\text{mA}$		10	20	$\Omega$
Pin 9 ON-State Resistance	$R_{ON9}$	$I_9 = \pm 1\text{mA}$		5	10	$\Omega$
Pin 4 Input Voltage	$V_{IN4}$	$T_a = 65^\circ\text{C}, f = 80\text{kHz}(\text{sin})$ $I_{LK} = 10\mu\text{A}$			$\pm 40$	V
[REC $V_{CC}$ Switch]						
Pin 1 Output Voltage (LA7294/95/96)	$V_{RO}$	Pin 1 load current 100mA	10.5	10.8		V
Pin 1 Output Voltage (LA7297)	$V_{RO}$	Pin 1 load current 100mA	7.5	7.8		V

Test Circuit



Unit (resistance: Ω, capacitance: F)

(Switch Operating Table)

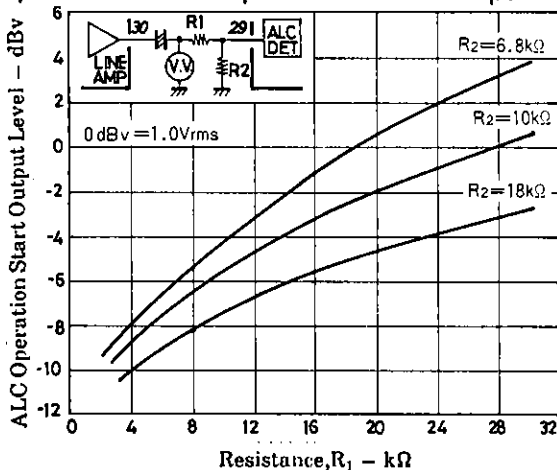
Item (Symbol)	SW1	SW2	SW3	SW4	SW5	V <sub>M</sub>	V <sub>P</sub>	V <sub>R</sub>	Input	Test
I <sub>CCE</sub>	2	1	1	2	1	GND	GND	GND		A
I <sub>CCP</sub>	2	1	1	2	1	GND	5V	GND		A
I <sub>CCR</sub>	2	1	1	2	1	GND	GND	5V		A
V <sub>GPB</sub>	1	1	1	2	1	GND	5V	GND	V <sub>IN1</sub>	Vo2
V <sub>GDE</sub>	1	2	2	2	1	GND	5V	GND	V <sub>IN1</sub>	Vo1
V <sub>NIE</sub>	2	1	2	2	1	GND	5V	GND		Vo1
V <sub>GLP,THDL,VOML</sub>	2	1	2	2	1	GND	5V	GND	V <sub>IN2</sub>	Vo2
V <sub>GLR</sub>	2	1	1	2	1	GND	GND	GND	V <sub>IN3</sub>	Vo2
V <sub>NOL</sub>	2	1	2	2	1	GND	GND	GND		Vo2
V <sub>OA,ALC,THDA</sub>	2	1	2	1	1	GND	GND	GND	V <sub>IN3</sub>	Vo2
V <sub>GOR</sub>	2	1	2	2	2	GND	GND	GND	V <sub>IN4</sub>	Vo3
V <sub>GCR,THDR,VOMR</sub>	2	1	2	2	1	GND	GND	GND	V <sub>IN4</sub>	Vo3
M <sub>P</sub>	1	1	1	2	1	5V	5V	GND	V <sub>IN1</sub>	Vo2
M <sub>R</sub>	2	1	1	2	1	5V	GND	GND	V <sub>IN4</sub>	Vo3
M <sub>E</sub>	2	1	2	2	1	5V	GND	GND	V <sub>IN2</sub>	Vo2

For the LA7294 that has no EE MUTE function, the ME test is not required.

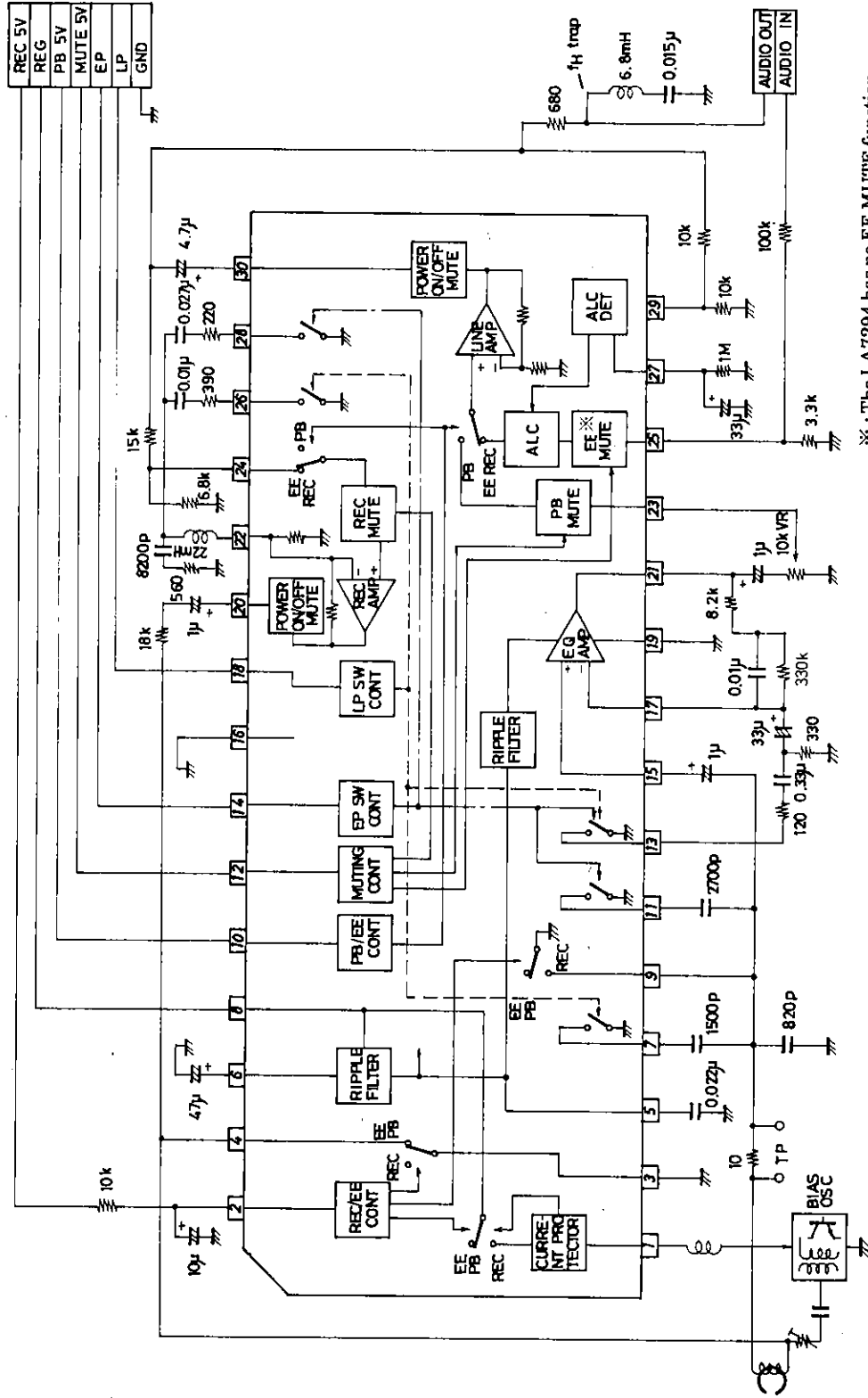
ALC Output Level Setting

The ALC output level depends on the value of the resistor connected to the detector input (pin 29) as shown below.

ALC Operation Start Output Level vs. ALC Input Resistance



Sample Application Circuit



Unit (resistance: Ω, capacitance: F)

※ : The LA7294 has no EE MUTE function.

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