

**SANYO**

No.2590

**LA7096**Monolithic Linear IC  
VTR AUDIO SIGNAL RECORDING/PLAYBACK PROCESSOR**Functions**

- . Tape head select switches
- . Power supply switch for OSC bias circuit
- . Equalizer amp, line amp, ALC

**Features**

- . The LA7096 is an IC that provides various functions (including two tape head select switches and a power supply switch for the OSC bias circuit) required for VTR audio signal recording/playback. The LA7096 is fabricated on a single chip and requires a minimum number of peripheral parts.

**Maximum Ratings at Ta=25°C**

			unit
Maximum Supply Voltage	$V_{CCmax}$	15	V
Allowable Power Dissipation	$P_{dmax}$ (Ta=65°C)	600	mW
Operating Temperature	Topg	-10 to +65	°C
Storage Temperature	Tstg	-55 to +125	°C
Pin 1 Input Voltage	$V_{1IN}$	130(±65)	Vp-p
Pin 1 Input Current	$I_{1IN}$	±1.5	mA

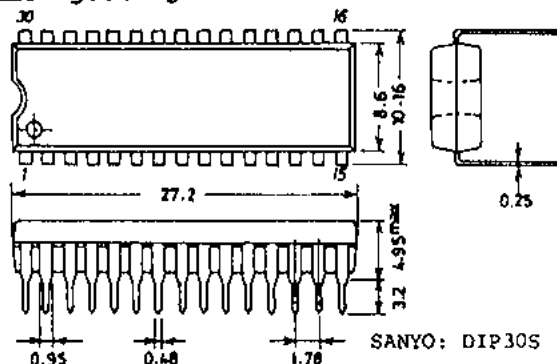
**Recommended Operating Conditions at Ta=25°C**

			unit
Recommended Operating Voltage	$V_{CC}$	12.0	V
Operating Voltage Range	$V_{opr}$	11.5 to 12.5	V

**Electrical Characteristics at Ta=25°C,  $V_{CC}=12V, f=1kHz, 0 dBv: 1.0V_{rms}$** 

		min	typ	max	unit
Current Dissipation (EE)	$I_{CCE}$ Quiescent	14.0	18.0	23.0	mA
	(PB) $I_{CCP}$ "	13.5	17.5	22.5	mA
	(REC) $I_{CCR}$ "	11.5	15.5	20.5	mA
Overall Gain at PB Mode	$V_{GPB}$ EQ IN to LINE OUT, $V_o = -5dBv$	67.0	68.5	70.0	dB
[Equalizer Amp]					
Open-Loop Voltage Gain	$V_{GOE}$ $V_o = -5dBv$	60.0	65.0		dB
Equivalent Input Noise Voltage	$V_{NIE}$ $R_g = 2.2k\Omega$ , DIN audio filter	1.0	1.8		$\mu V_{rms}$
Input Resistance	$Z_{LINE}$	140			kohm

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**Case Outline 3061-D30SNIC**  
(unit:mm)

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.

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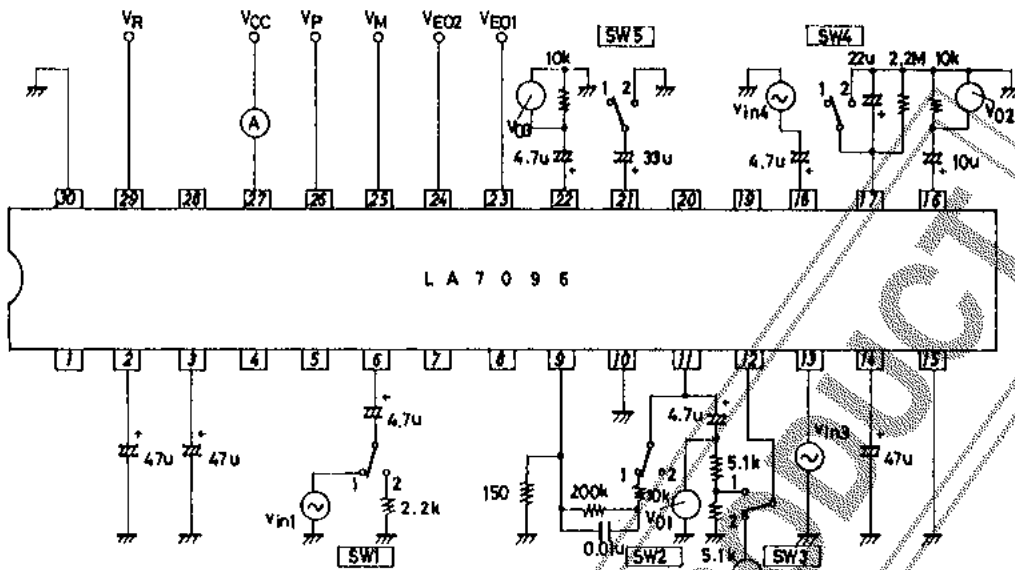
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			min	typ	max	unit
<b>[Line Amp]</b>						
Voltage Gain (PB Input)	$V_{G_{LP}}$	$V_0 = -5\text{dBv}$	32.5	34.0	35.5	dB
(EE, REC Input)	$V_{G_{LR}}$	"	32.5	34.0	35.5	dB
Total Harmonic Distortion	$THD_L$	"		0.15	0.4	%
Output Noise Voltage	$V_{NOL}$	PB mute ON, DIN audio filter		-71.0	-65.0	dBv
Input Resistance (PB Input)	$Z_{IN1}$			35.0		kohm
(EE, REC Input)	$Z_{IN2}$			35.0		kohm
Maximum Output Voltage	$V_{OML}$	THD=3%	2.7	3.2		Vrms
Output Voltage at ALC Mode	$V_{OA}$	$V_{in} = -30\text{dBv}$	-3.0	-1.5	0	dBv
ALC Effect	ALC	$V_{in} = -30$ to $-10\text{dBv}$		1.0	3.0	dB
Total Harmonic Distortion at ALC Mode	$THD_A$	$V_{in} = -30\text{dBv}$		0.2	0.6	%
<b>[Recording Amp]</b>						
Voltage Gain (Open Loop)	$V_{G_{OR}}$	$V_0 = -5\text{dBv}$	35.0	40.0		dB
(Closed Loop)	$V_{G_{CR}}$	"	11.5	12.5	13.5	dB
Total Harmonic Distortion	$THD_R$	"		0.2	0.6	%
Input Resistance	$Z_{INR}$			35.0		kohm
Maximum Output Voltage	$V_{OMR}$	THD=3%	2.5	3.0		Vrms
<b>[Muting Circuit]</b>						
ON-State Voltage	$V_{MON}$	Pin25 DC	3.0		10	V
OFF-State Voltage	$V_{MOF}$	"	0		1.0	V
Muting Attenuation (PB)	$M_P$		85.0	90.0		dB
(REC)	$M_R$		75.0	80.0		dB
<b>[PB/EE Select Circuit]</b>						
PB Mode Hold Voltage	$V_{PP}$	Pin26 DC	3.8		10	V
EE Mode Hold Voltage	$V_{PE}$	"	0		1.0	V
<b>[REC/EE Select Circuit]</b>						
REC Mode Hold Voltage	$V_{RR}$	Pin29 DC	4.0		10	V
EE Mode Hold Voltage	$V_{RE}$	"	0		1.0	V
<b>[Equalizer Select Circuit]</b>						
Switch ON-State Voltage	$V_{EON}$	Pins23,24 DC	3.0		10	V
Switch OFF-State Voltage	$V_{EOF}$	"	0		0.8	V
<b>[Head Select Switch]</b>						
Pin 1 ON-State Resistance	$R_{ON1}$	$I_1 = \pm 1\text{mA}$		10	20	ohm
Pin 5 ON-State Resistance	$R_{ON5}$	$I_5 = \pm 1\text{mA}$		5	10	ohm
Pin 1 Leakage Current	$I_{L1}$	$V_1 = \pm 50\text{V}$			$\pm 10$	uA
Pin 5 Leakage Current	$I_{L5}$	$V_5 = \pm 0.1\text{V}$			$\pm 2$	uA

LA7096

Test Circuit



Switch Operating Table

Item (Symbol)	SW1	SW2	SW3	SW4	SW5	VM	VP	VR	Input	Test
ICCE	2	1	1	2	1	GND	GND	GND	-	A
ICCP	2	1	1	2	1	GND	VCC	GND	-	A
ICCR	2	1	1	2	1	GND	GND	VCC	-	A
VGPB	1	1	1	2	1	GND	VCC	GND	VIN1	V02
VGDE	1	2	2	2	1	GND	VCC	GND	VIN1	V01
VNIL	2	1	2	2	1	GND	VCC	GND	-	V01
VGLP, THDL, VOML	2	1	2	2	1	GND	VCC	GND	VIN2	V02
VGLR	2	1	1	2	1	GND	GND	GND	VIN3	V02
VNOL	2	1	2	2	1	VCC	VCC	GND	-	V02
VOA, ALC, THDA	2	1	2	1	1	GND	GND	GND	VIN3	V02
VGOR	2	1	2	2	2	GND	GND	GND	VIN4	V03
VGCR, THDR, VOMR	2	1	2	2	1	GND	GND	GND	VIN4	V03
MP	1	1	1	2	1	VCC	VCC	GND	VIN1	V02
MR	2	1	1	2	1	VCC	GND	GND	VIN4	V03



Sample Application Circuit

