



# LA7710

## SECAM, PAL (Quasi-Parallel) Audio IF Circuit

### Overview

The LA7710 is a SECAM (audio IF, electronic volume control, AF preamplifier) / PAL (quasi-parallel audio IF circuit) dual system IC that is packaged in a 16-pin DIP package. The LA7710 is applicable to the SECAM or PAL system by changing over the AGC system (pin 3 is brought to open state or grounded).

### Functions

- IF amplifier.
- Detector.
- IF AGC (peak AGC, average AGC).
- Electronic volume control.
- AF preamplifier.
- PAL/SECAM switch.

### Features

- Used as SECAM audio IF circuit by bringing pin 3 to open state. Also used as PAL quasi-parallel audio IF circuit by grounding pin 3.
- Electronic volume control : 0dB output available.

### Specifications

#### Maximum Ratings at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	$V_{CC \text{ max}}$		15	V
Maximum flow-out current	$I_{11 \text{ max}}$		-5	mA
	$I_5 \text{ max}$		-3	mA
	$I_4 \text{ max}$		-3	mA
Allowable power dissipation	$P_d \text{ max}$	$T_a = 60^\circ\text{C}$	900	mW
Operating temperature	$T_{opr}$		-20 to +70	$^\circ\text{C}$
Storage temperature	$T_{stg}$		-55 to +125	$^\circ\text{C}$

#### Operating Conditions at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Recommended supply voltage	$V_{CC}$		12	V
Operating voltage range	$V_{CC \text{ op}}$		9 to 13.5	V

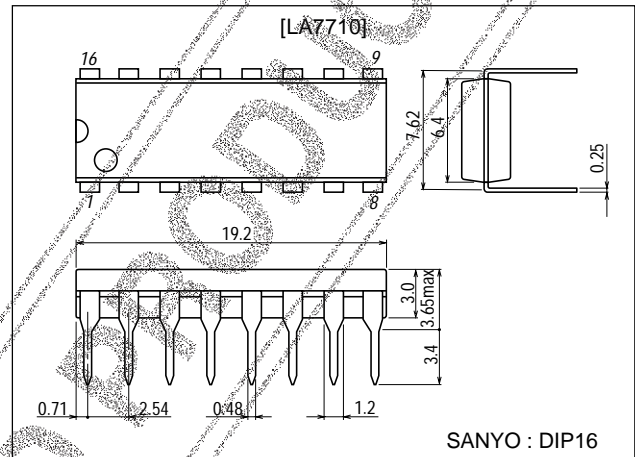
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### Package Dimensions

unit:mm

3006B-DIP16



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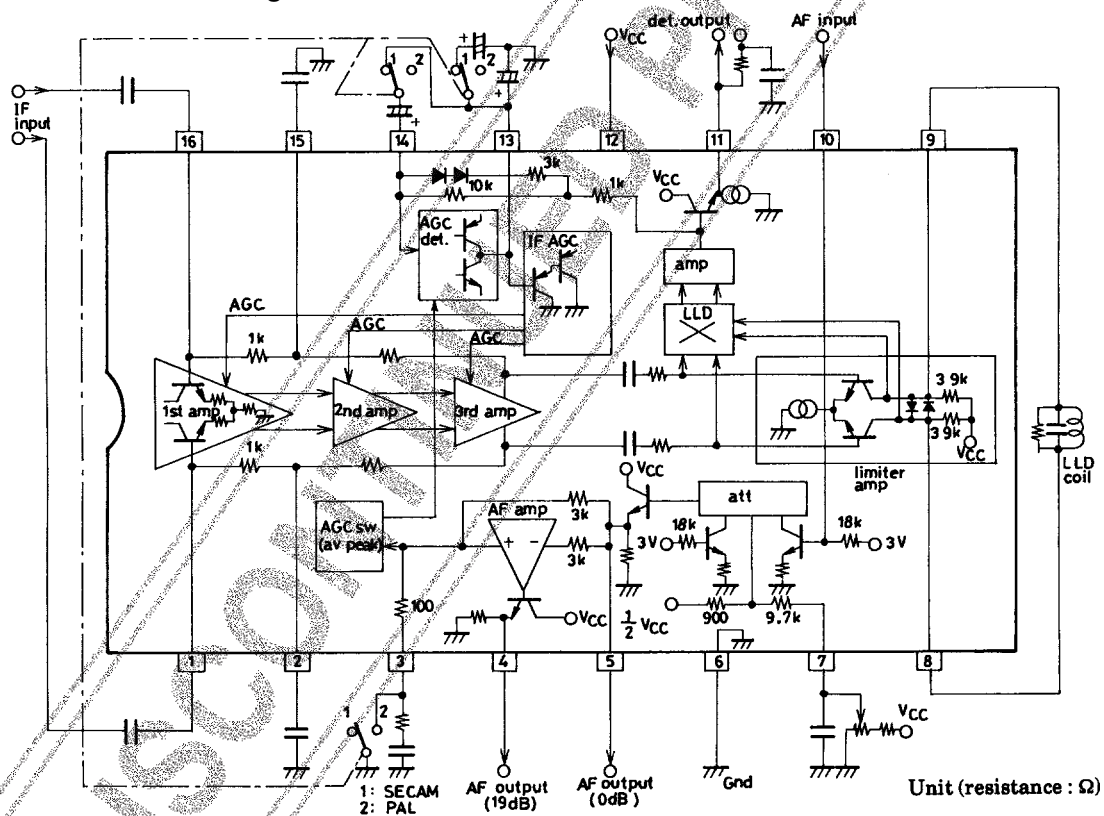
# LA7710

**Operating Characteristics** at  $T_a = 25^\circ\text{C}$ ,  $V_{CC}=12\text{V}$ ,  $f_s=39.2\text{MHz}$ ,  $f_p=32.7\text{MHz}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Circuit current	$I_{12}$		39	49	63	mA
Usable sensitivity	$V_i(S/N)$	400Hz-30% mod AM		39	46	dB
Average detection output	$V_{os}$	400Hz-30% mod AM	190	280	360	mV
SECAM S/N	S/Ns	400Hz-30% mod AM	52	59		dB
Detection output distortion	THDs	400Hz-30% mod AM		0.5	1.0	%
Maximum allowable input	$V_i \text{ max}$	THD=2%	92	98		dB/ $\mu\text{V}$
AGC range	GR		63	69		dB
Peak output amplitude	$V_{op}$	15kHz-78% mod AM	1.4	1.7	2.1	V
SIF output amplitude	$V_{SIF}$	P/S : 20dB	50	90	130	mV
Frequency characteristic	$f_c$	-3dB	5	7		MHz
Electronic volume control voltage gain	$V_{Gdc}$		-1	0	+1	dB
Electronic volume control distortion	THDatt			0.1	0.4	%
Electronic volume control max. attenuation	ATT		70	80		dB
AF amplifier voltage gain	$V_{Gaf}$		17	19	21	dB
AF amplifier distortion	THDaf			0.3	1.0	%

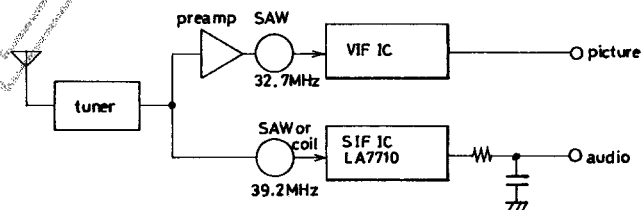
(Note ) Current direction : + : Flowing into IC  
 - : Flowing out of IC

## Equivalent Circuit Block Diagram

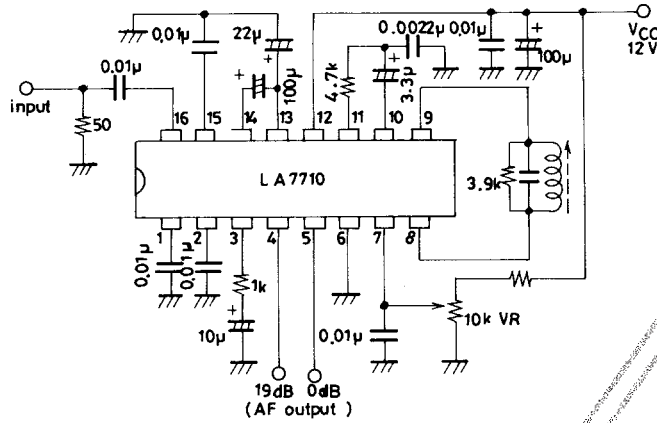


## Sample Application Circuits-Each system diagram and IC peripheral circuit

(1) SECAM

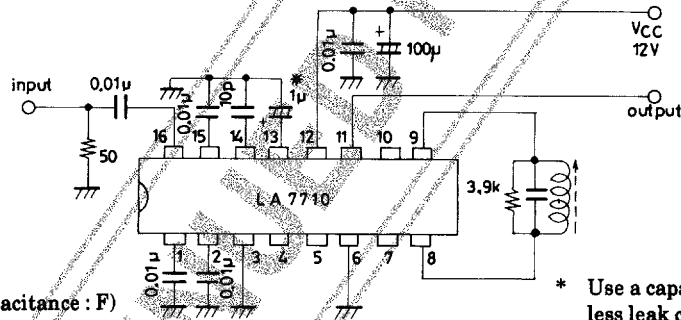
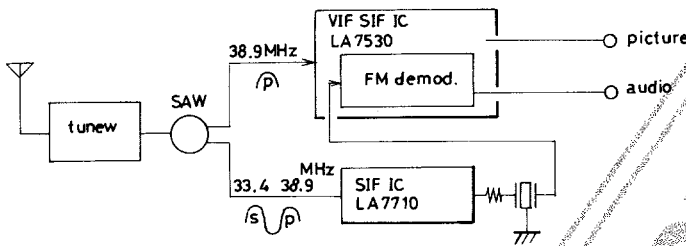


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Unit (resistance : Ω, capacitance : F)

## (2) PAL

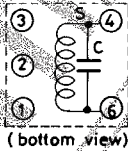


Unit (resistance : Ω, capacitance : F)

\* Use a capacitor with less leak current.

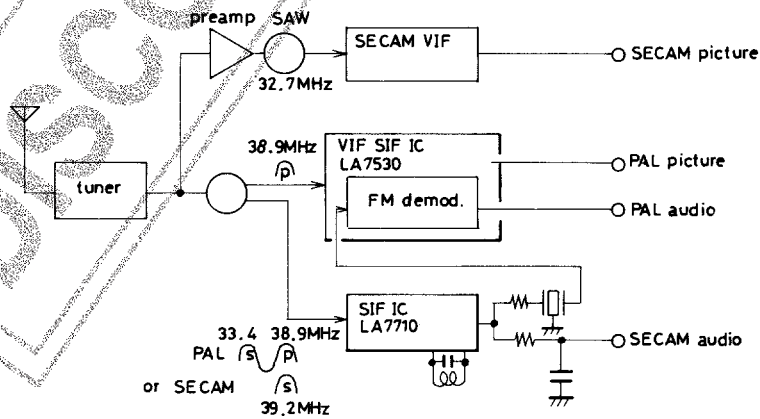
[ Coil specification ]

Bobbin : 7mm square



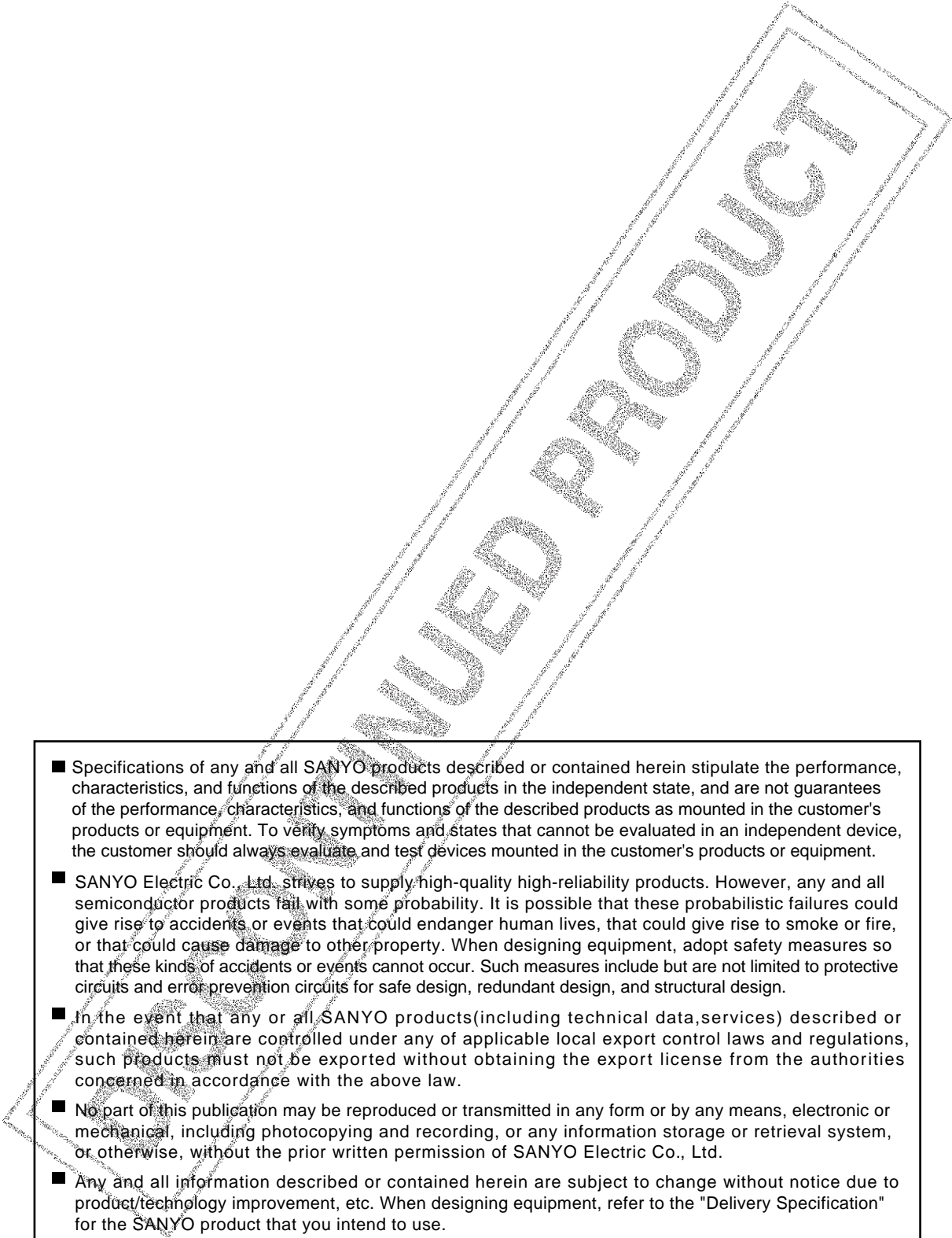
Number of turns	④-⑥	7T
Material	UEW	0.12φ
Capacitance		33pF
Frequency		39.2MHz

## (3) PAL/SECAM



(Note) \*1 When selecting the PAL/SECAM, the LLD tuning point of the LA7710 must be changed over (38.9MHz → 39.2MHz).

\*2 When selecting the PAL/SECAM, the filter characteristic must be changed over.

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