Ordering number : EN5559A

SANYO Semiconductors
DATA SHEET

LA7976 — Monolithic Linear IC For TV and VCR Multi-system PAL SIF Converter IC

Overview

The LA7976 is an IC that converts PAL SIF signals (5.5MHz, 6MHz, and 6.5MHz) to 6MHz.

Functions

- Mixer, amplifier, oscillator, oscillator mute

Specifications

Maximum Ratings at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	V_{CC} max		13.2	V
Maximum feed current	I_5 max		3	mA
	I_4 max		1	mA
Allowable power dissipation	Pd max	Ta ≤ 85°C	200	mW
Operating temperature	Topr		-20 tp +85	°C
Storage temperature	Tstg		-40 to +150	°C

Operating Conditions at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Recommended supply voltage	V_{CC} max		9	V
Operating voltage range	V_{CC} op		4.5 to 12	V

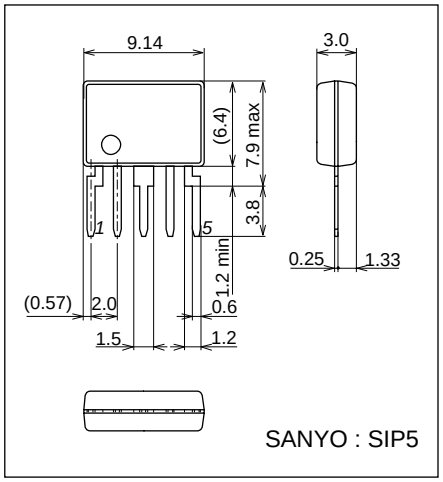
Electrical Characteristics at Ta = 25°C, V_{CC} = 9V

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Current drain	I_{CC}		5	6.5	9	mA
Conversion gain	G5.0	5.0MHz, 80dBμV input	10	13.5	17	dB
	G5.5	5.5MHz, 80dBμV input	10	13.5	17	dB
	G6.0	6.0MHz, 80dBμV input	10	13.5	17	dB
Oscillation level	VOSC		15	48	80	mVp-p
Maximum output level	V_O max	5.5MHz, 100 dBμV input	104	108	112	dB/μV
Input impedance	Ri	5.5MHz input		4.8		Ω
Pin voltages	V_1	Pin 1	2.6	3.0	3.4	V
	V_4	Pin 4	7.3	7.7	8.1	V
	V_5	Pin 5	7.2	7.6	8.0	V
500kHz level difference relative to 6MHz	OSC leak		30	40		dB
Maximum input level	V_{IN} max			85		dB/μV

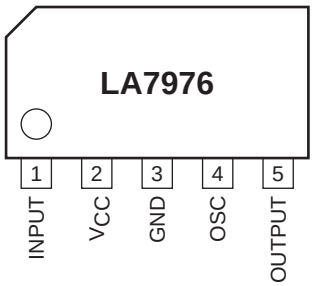
Package Dimensions

unit : mm (typ)

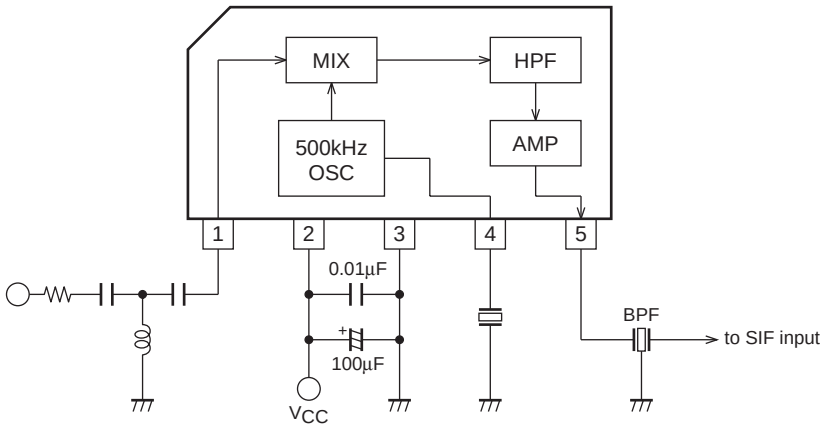
3042D



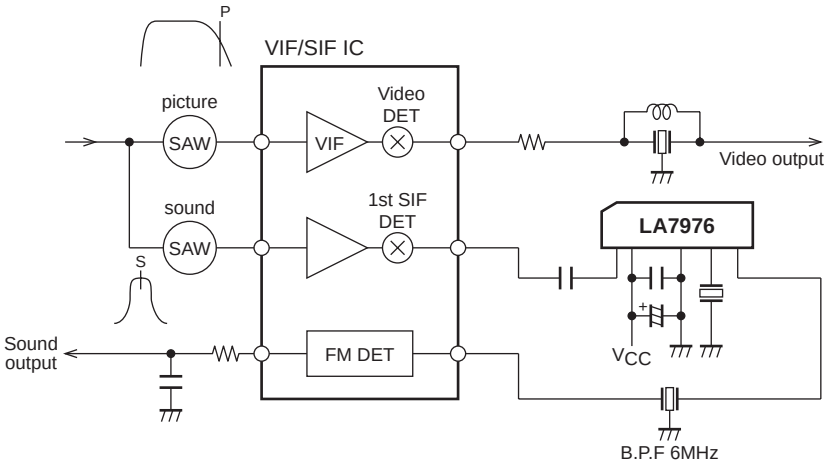
Pin Assignment



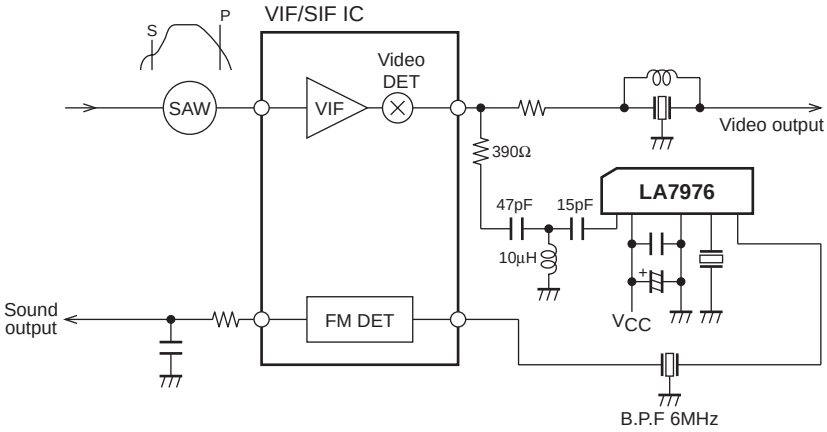
Application Circuit Example



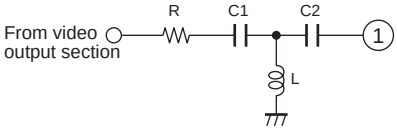
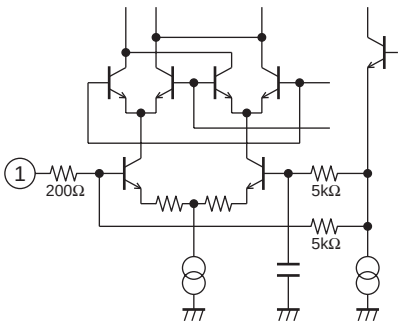
Reference Example 1



Reference Example 2



Pin Description

Pin No.	Pin name	Description	Equivalent circuit
1	INPUT	SIF input pin. The filter in Fig.1 can be connected to the input section to improve the buzz characteristic. If C1 is too small, the buzz characteristic improves for normal input, but the filter cuts into the sound carrier and the buzz characteristic deteriorates for the P/S (picture/sound carrier) ratio.  **Fig.1**	
2	V_{CC}	Power supply pin.	
3	GND	Ground pin.	

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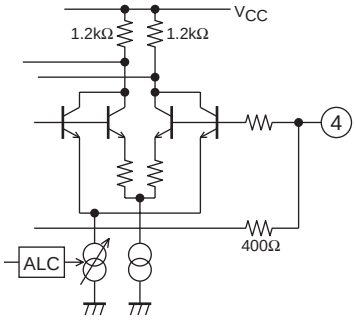
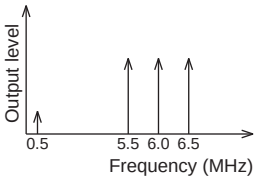
Pin No.	Pin name	Description	Equivalent circuit
4	OSC	Ceramic oscillator pin. To make the oscillation waveform approach a sine wave, the oscillation level is controlled internally. Oscillation levels of 15 to 80mVp-p at Pin 4 give the waveform shown in Fig.2.  **Fig.2** (Pin 4 oscillation waveform)	
5	OUTPUT	Output pin. The output from Pin 5 is input to the SIF via a 6MHz band-pass filter (BPF). When 5.5MHz is input to Pin 1, the spectrum shown in Fig.3 is obtained at Pin 5.  **Fig.3**