

# AN5421N

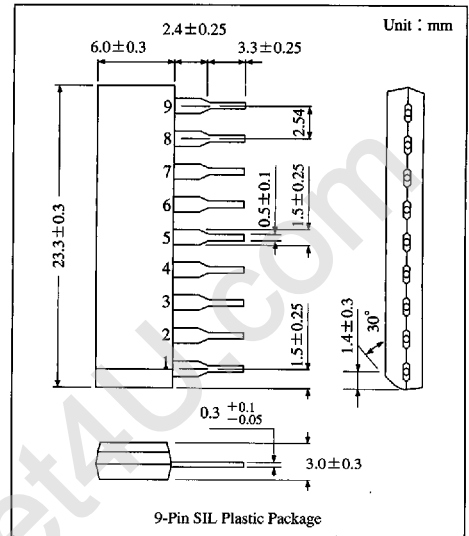
## TV Synchronous Signal Detection IC

### Overview

The AN5421N is an integrated circuit designed for TV synchronous signal detection circuit.

### Features

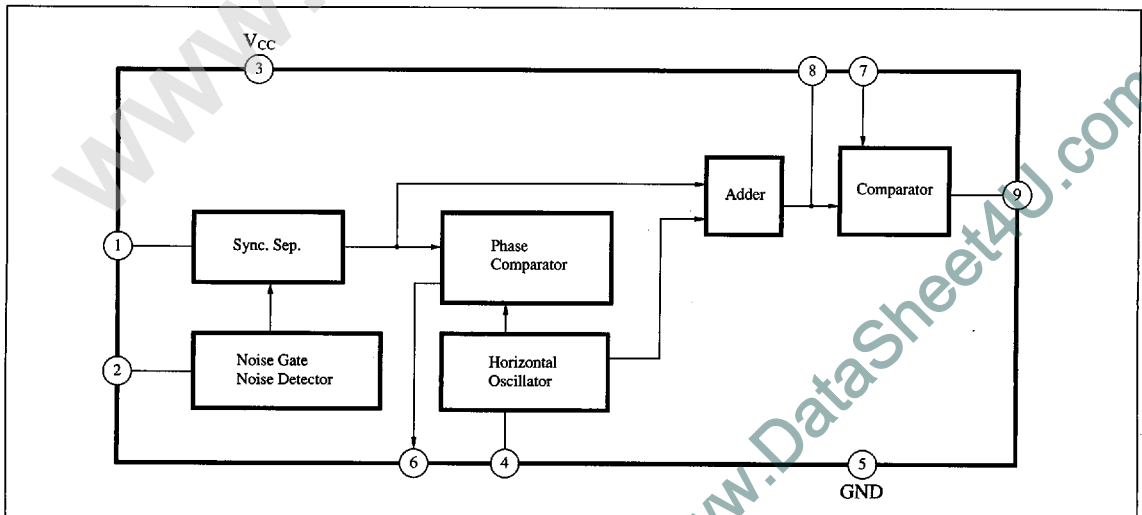
- Signal detection circuit providing stable operation against changes in supply voltage and temperature built-in
- Signal separating circuit providing stable operation against noise built-in



### Pin Descriptions

Pin No.	Pin name
1	Video input
2	Noise gate input
3	V <sub>CC</sub>
4	Hor. Osc. CR
5	GND
6	Hor. AFC output
7	Comp. voltage input
8	Integral capacitor
9	Sync. Det. output

### Block Diagram



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### ■ Absolute Maximum Ratings (Ta=25°C)

Parameter		Symbol	Rating		Unit
Voltage	Supply voltage	V <sub>3-5</sub>	14.4		V
	Circuit voltage	V <sub>7-5</sub>	0	V <sub>3-5</sub>	V
		V <sub>8-5</sub>	0	V <sub>3-5</sub>	V
		V <sub>9-5</sub>	0	V <sub>3-5</sub>	V
Current	Supply current	I <sub>3</sub>	35		mA
	Circuit current	I <sub>1</sub>	-3	0	mA
		I <sub>2</sub>	-1	3	mA
		I <sub>4</sub>	0	5	mA
		I <sub>6</sub>	-3	3	mA
		I <sub>7</sub>	0	1	mA
		I <sub>8</sub>	-15	1	mA
		I <sub>9</sub>	0	10	mA
Power dissipation (Ta=70°C)		P <sub>D</sub>	510		mW
Temperature	Operating ambient temperature	T <sub>opr</sub>	-20 to +70		°C
	Storage temperature	T <sub>stg</sub>	-55 to +150		°C

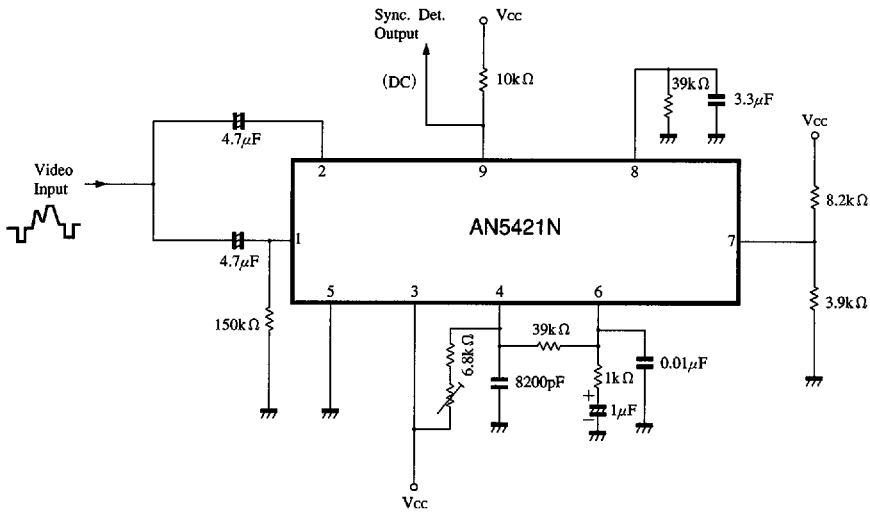
ICs for TV

### ■ Electrical Characteristics (Ta=25°C)

Parameter	Symbol	Condition	min	typ	max	Unit
Circuit current	I <sub>3</sub>	V <sub>CC</sub> =12V	17	24	31	mA
Circuit voltage	V <sub>1-5</sub>	V <sub>CC</sub> =12V	6.2	6.6	7.0	V
	V <sub>2-5</sub>		5.8	6.2	6.6	V
	V <sub>8-5</sub>		10.1	10.5	10.9	V
Noise detector (1)	V <sub>8-5(1)</sub>	V <sub>CC</sub> =12V	9.8	10.4	11.0	V
Noise detector (2)	V <sub>8-5(2)</sub>		—	—	0.2	V
Video signal discrimination (1)	V <sub>8-5</sub>	V <sub>CC</sub> =12V	—	—	0.2	V
Video signal discrimination (2)	V <sub>8-5</sub>		—	—	0.2	V
Video signal discrimination (3)	V <sub>8-5</sub>		—	—	0.2	V
Video signal discrimination (4)	V <sub>8-5</sub>		9.8	10.4	11.0	V
Horizontal oscillation frequency	f <sub>HO</sub>	V <sub>CC</sub> =12V	14.9	15.6	16.3	kHz
f <sub>HO</sub> supply voltage dependency	Δf <sub>HO</sub> /V <sub>CC</sub>	f <sub>HO</sub> difference between at V <sub>CC</sub> =6V and at V <sub>CC</sub> =14.4V	—	45	65	Hz/V
f <sub>HO</sub> control sensitivity	β	f <sub>HO</sub> difference at flow-in of I <sub>O</sub> =±100μA	23.0	25.5	28.0	Hz/μA
Video signal discriminative video input *	V <sub>i(min.)</sub>	Video input for V <sub>8</sub> ≤0.2V	—	—	0.2	V <sub>P-P</sub>
f <sub>HO</sub> ambient temperature dependency *	Δf <sub>HO</sub> /T <sub>a</sub>	V <sub>CC</sub> =12V, T <sub>a</sub> =-20°C to +70°C	—	-3.5	—	Hz/°C
AFC loop gain *	f <sub>AFC</sub>	μ · β	—	1.1	—	kHz/μs
Filter voltage (1) *	V <sub>8(1)</sub>	Video input signal detected	—	—	0.2	V
Filter voltage (2) *	V <sub>8(2)</sub>	Video input signal not detected	—	6.2	—	V
Horizontal sync pulse width *	τ <sub>sync.</sub>	V <sub>i</sub> =0.3V <sub>P-P</sub>	—	8.0	—	μs
Horizontal oscillation pulse width *	τ <sub>HO</sub>	V <sub>CC</sub> =12V	—	3.2	—	μs

\* Reference value for design

■ Application Circuit



■ 6932852 0014321 960 ■

Panasonic