

AN5421N

TV Synchronous Signal Detection IC

Overview

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

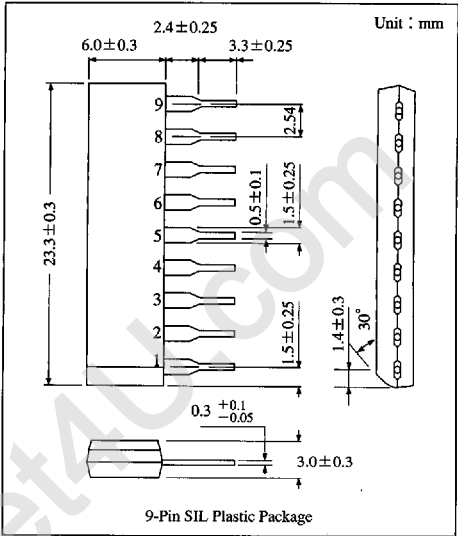
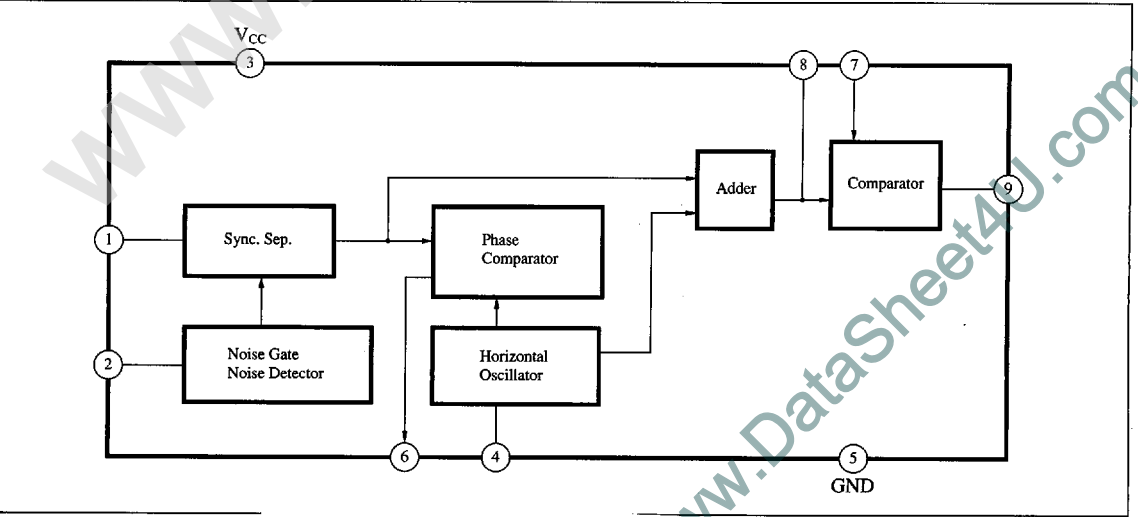
Features

- 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 _{CC}
4	Hor. Osc. CR
5	GND
6	Hor. AFC output
7	Comp. voltage input
8	Integral capacitor
9	Sync. Det. output

Block Diagram



6932852 0014319 202

Absolute Maximum Ratings ($T_a=25^\circ\text{C}$)

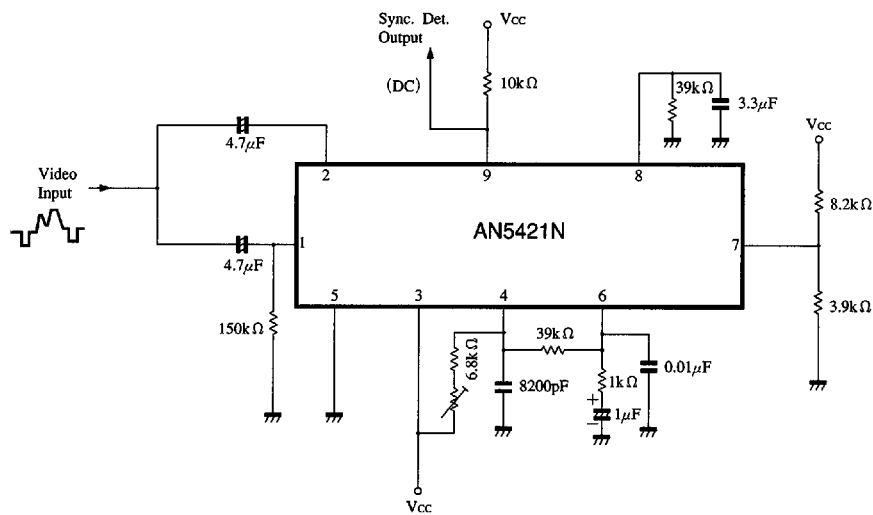
Parameter		Symbol	Rating		Unit
Voltage	Supply voltage	V _{3.5}	14.4		V
	Circuit voltage	V _{7.5}	0	V _{3.5}	V
		V _{8.5}	0	V _{3.5}	V
		V _{9.5}	0	V _{3.5}	V
Current	Supply current	I ₃	35		mA
	Circuit current	I ₁	−3	0	mA
		I ₂	−1	3	mA
		I ₄	0	5	mA
		I ₆	−3	3	mA
		I ₇	0	1	mA
		I ₈	−15	1	mA
		I ₉	0	10	mA
Power dissipation (Ta=70℃)		P _D	510		mW
Temperature	Operating ambient temperature	T _{opr}	−20 to +70		℃
	Storage temperature	T _{stg}	−55 to +150		℃

Electrical Characteristics ($T_a=25^\circ\text{C}$)

Parameter	Symbol	Condition	min	typ	max	Unit
Circuit current	I_3	$V_{CC}=12\text{V}$	17	24	31	mA
Circuit voltage	$V_{1.5}$	$V_{CC}=12\text{V}$	6.2	6.6	7.0	V
	$V_{2.5}$		5.8	6.2	6.6	V
	$V_{8.5}$		10.1	10.5	10.9	V
Noise detector (1)	$V_{8.5(1)}$	$V_{CC}=12\text{V}$	9.8	10.4	11.0	V
Noise detector (2)	$V_{8.5(2)}$		—	—	0.2	V
Video signal discrimination (1)	$V_{8.5}$	$V_{CC}=12\text{V}$	—	—	0.2	V
Video signal discrimination (2)	$V_{8.5}$		—	—	0.2	V
Video signal discrimination (3)	$V_{8.5}$		—	—	0.2	V
Video signal discrimination (4)	$V_{8.5}$		9.8	10.4	11.0	V
Horizontal oscillation frequency	f_{HO}	$V_{CC}=12\text{V}$	14.9	15.6	16.3	kHz
f_{HO} supply voltage dependency	$\Delta f_{HO}/V_{CC}$	f_{HO} difference between at $V_{CC}=6\text{V}$ and at $V_{CC}=14.4\text{V}$	—	45	65	Hz/V
f_{HO} control sensitivity	β	f_{HO} difference at flow-in of $I_O=\pm 100\mu\text{A}$	23.0	25.5	28.0	Hz/ μA
Video signal discriminative video input *	$V_{i(min.)}$	Video input for $V_8\leq 0.2\text{V}$	—	—	0.2	V_{P-P}
f_{HO} ambient temperature dependency *	$\Delta f_{HO}/T_a$	$V_{CC}=12\text{V}, T_a=-20^\circ\text{C}$ to $+70^\circ\text{C}$	—	-3.5	—	Hz/ $^\circ\text{C}$
AFC loop gain *	f_{AFC}	$\mu \cdot \beta$	—	1.1	—	kHz/ μs
Filter voltage (1) *	$V_{8(1)}$	Video input signal detected	—	—	0.2	V
Filter voltage (2) *	$V_{8(2)}$	Video input signal not detected	—	6.2	—	V
Horizontal sync pulse width *	$\tau_{sync.}$	$V_i=0.3V_{P-P}$	—	8.0	—	μs
Horizontal oscillation pulse width *	τ_{HO}	$V_{CC}=12\text{V}$	—	3.2	—	μs

* Reference value for design

■ Application Circuit



■ 6932852 0014321 960 ■

Panasonic