AN5421N

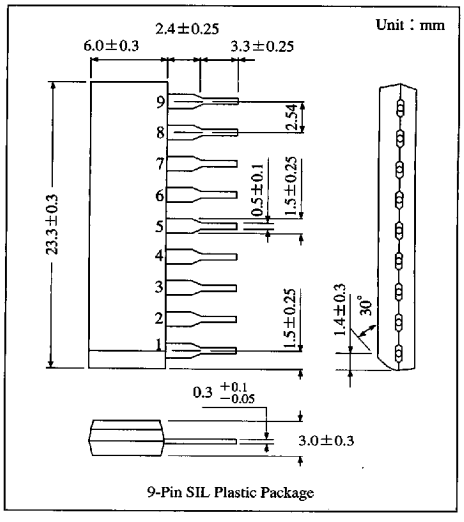
TV Synchronous Signal Detection IC

■ 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 temperatire built-in
- Signal separating circuit providing stable operation against noise built-in

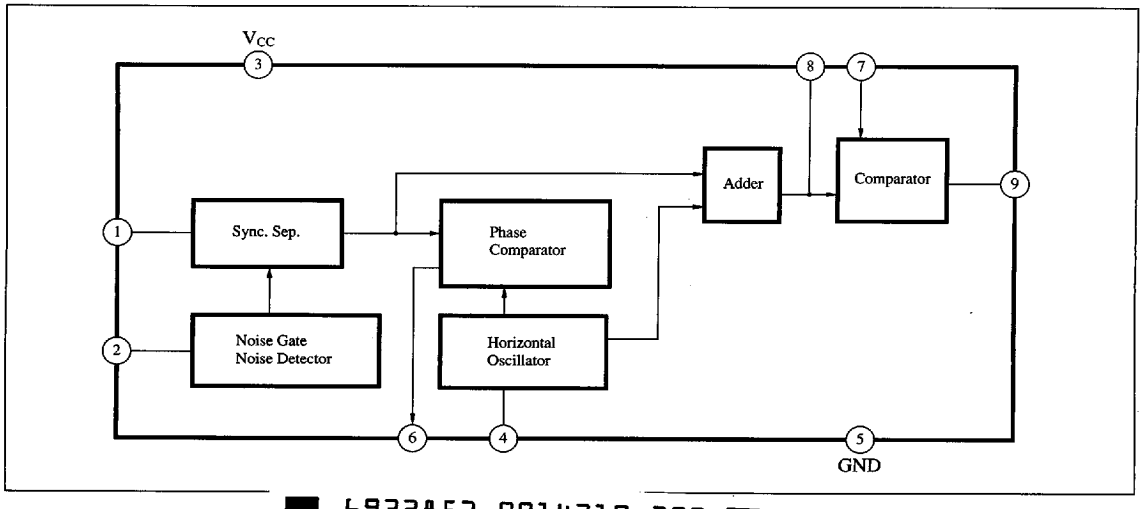


9-Pin SIL Plastic Package

■ 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



■ Absolute Maximum Ratings (Ta=25℃)

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		℃

ICs for TV

■ Electrical Characteristics (Ta=25℃)

Parameter	Symbol	Condition	min	typ	max	Unit
Circuit current	I_3	V_{CC}=12V	17	24	31	mA
Circuit voltage	V_{1-5}	V_{CC}=12V	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}=12V	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}=12V	—	—	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}=12V	14.9	15.6	16.3	kHz
f_{HO} supply voltage dependency	$\Delta f_{HO}/V_{CC}$	f_{HO} difference between at V_{CC}=6V and at V_{CC}=14.4V	—	45	65	Hz/V
f_{HO} cotrol sensitivity	β	f_{HO} difference at flow-in of $I_O=\pm 100\mu A$	23.0	25.5	28.0	Hz/μA
Video signal discriminative video input *	$V_{i(min.)}$	Video input for $V_8 \leqq 0.2V$	—	—	0.2	V_{P-P}
f_{HO} ambient temperature dependency *	$\Delta f_{HO}/T_a$	V_{CC}=12V, T_a=−20℃ to +70℃	—	−3.5	—	Hz/℃
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}=12V	—	3.2	—	μs

* Reference value for design

Application Circuit