

AN6361N, AN6361NS

VTR Color APC Circuits

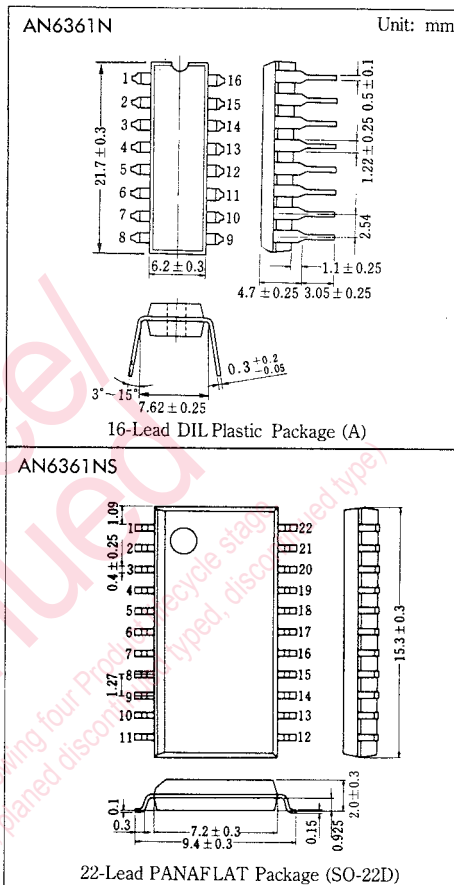
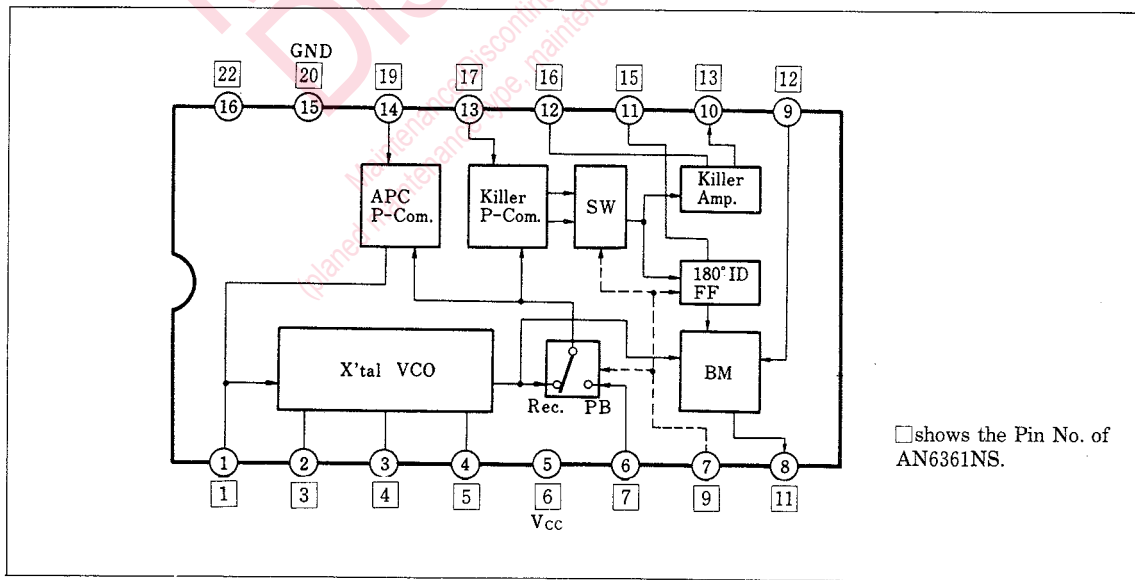
■ Outline

The AN6361N and the AN6361NS are integrated circuits designed for VTR color APC and constitute a color processing circuit by combining with the AN6360, the AN6360S, the AN6362 or the AN6362S.

■ Features

- The functions consist of :
 - APC circuit
 - Color-killer circuit
 - Balanced modulator
 - ID detector
- Supply voltage either 9V or 12V

■ Block Diagram



■ Pin

() shows the Pin No. of AN6361NS

Pin No.	Pin Name	Pin No.	Pin Name
1 (1)	APC Filter	9 (12)	630kHz Input
2 (3)	X' tal Osc.	10 (13)	Killer Output
3 (4)		11 (15)	ID Detect
4 (5)		12 (16)	Killer Detect
5 (6)	V _{cc}	13 (17)	Killer Burst Input
6 (7)	3.58MHz Input	14 (19)	APC Burst Input
7 (9)	Rec./P.B. Select	15 (20)	GND
8 (11)	4.2MHz Output	16 (22)	NC

In case of AN6361NS, Pin No.②,③,⑩,⑭,⑱,⑳ are NC.

■ Absolute Maximum Ratings (T_a=25°C)

Item	Symbol	Rating	Unit
Supply voltage	V _{CC}	14.4	V
Power dissipation (T _a =70°C)	AN6361N	550	mW
	AN6361NS	270*	
Operating ambient temperature	T _{opr}	-20~+70	°C
Storage temperature	AN6361N	-40~+150	°C
	AN6361NS	-40~+125	

*Indicates a package capability.

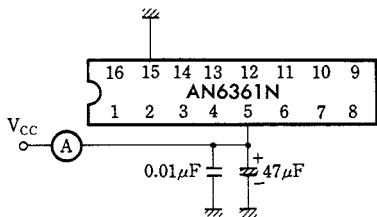
■ Electrical Characteristics (V_{CC}=12V, T_a=25°C ± 2°C)

Item	Symbol	Test Circuit	Condition	min.	typ.	max.	Unit
Circuit current	AN6361N	I ₅	1	20		40	mA
	AN6361NS	I ₆					
X'tal VCO frequency control sensitivity	AN6361N	β ₈	2	7.2		17.3	Hz/mW
	AN6361NS	β ₁₁					
APC P-COM discrimination sensitivity		μ ₁	4	Burst 1V _{P-P}	9.5	26	mV/deg
Color killer sensitivity ON		S _(B/W)	4	H→L	-8.0		dB
Color killer sensitivity OFF		S _(Color)	4	L→H		-2.8	dB
Color killer output (H)	AN6361N	V _{10-H}	4		9		V
	AN6361NS	V _{13-H}					
Color killer output (L)	AN6361N	V _{10-L}	4			0.5	V
	AN6361NS	V _{13-L}					
180° ID detection phase	AN6361N	S _(ID13)	4	Burst 1V _{P-P}	150	230	deg
	AN6361NS	S _(ID17)					
BM output amplitude	AN6361N	v _{O8}	3		1.4	2	V _{P-P}
	AN6361NS	v _{O11}					
Carrier leak	AN6361N	CL ₈	3			-30	dB
	AN6361NS	CL ₁₁					
Rec./PB select sensitivity	AN6361N	S ₇	5		3		V
	AN6361N	S ₉					

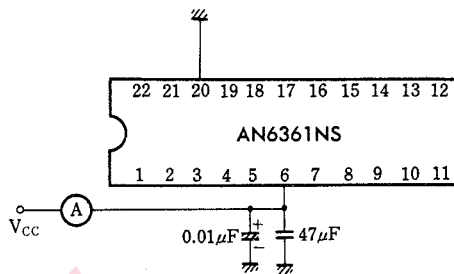
Note) Operating supply voltage range V_{CC(oper)}=8.5~13V

Test Circuit 1

- AN6361N (I_G)

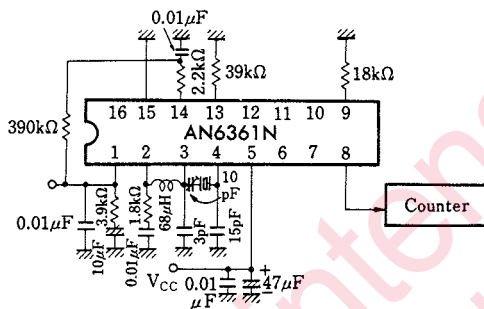


- AN6361NS (I_G)

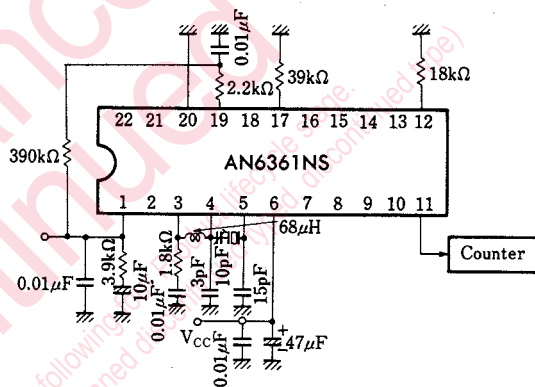


Test Circuit 2

- AN6361N (β_B)



- AN6361NS (β_{11})



- Adjust the Pin ③ trimmer so that a Pin ⑧ output frequency will be 3.579545MHz.
- Frequency difference in case of $\pm 100\text{mV}$ to a pin ① voltage

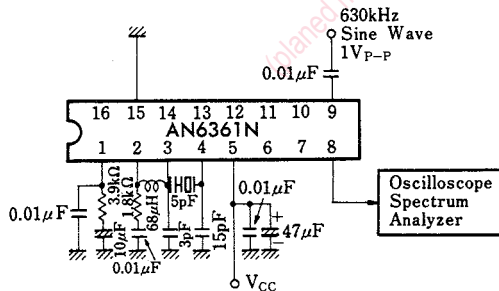
$$\beta = \frac{f(+100\text{mV}) - f(-100\text{mV})}{200}$$

- Adjust the Pin ⑤ trimmer so that a Pin ⑩ output frequency will be 3.579545MHz.
- Frequency difference in case of $\pm 100\text{mV}$ to a pin ① voltage

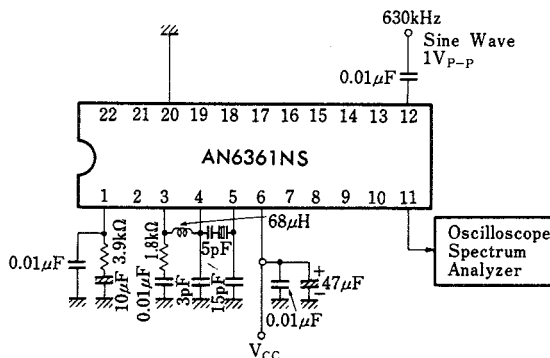
$$\beta = \frac{f(+100\text{mV}) - f(-100\text{mV})}{200}$$

Test Circuit 3

- AN6361N (v_{O8} , CL_8)

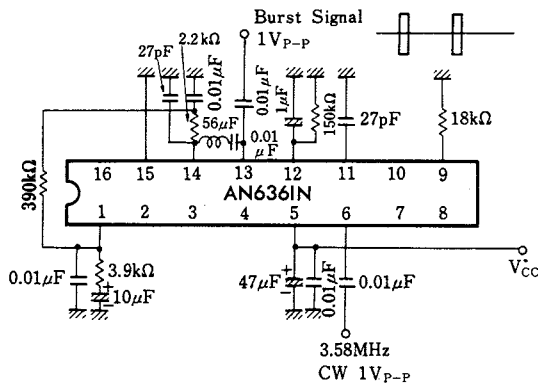


- AN6361NS (v_{O11} , CL_{11})



Test Circuit 4

- AN6361N (μ_1 , $S_{(B/W)}$, $S_{(Color)}$, V_{10-H} , V_{10-L} , $S_{(ID13)}$)



Pin ⑬ and ⑥ signals are locked ones.

- APC P-COM(μ_1)

Assume that a Pin ① voltage is V_1 when a Pin ⑬ burst input signal ($1V_{p-p}$) has a phase of 50° (see a burst phase diagram), and that it is V_2 when having a phase of 30° , and obtain out of $V_1 - V_2/20$.

- Color killer sensitivity ON($S_{(B/W)}$)

Pin ⑬ input amplitude when a Pin ⑩ output voltage is turned from H to L by lowering the Pin ⑬ input amplitude (burst phase 0°)

- Color killer sensitivity OFF($S_{(Color)}$)

Pin ⑬ input amplitude when a Pin ⑩ output voltage is turned from L to H by raising the Pin ⑬ input amplitude (burst phase 0°)

- Color killer output (V_{10-H})

Pin ⑩ voltage when Pin ⑬ input is $1V_{p-p}$

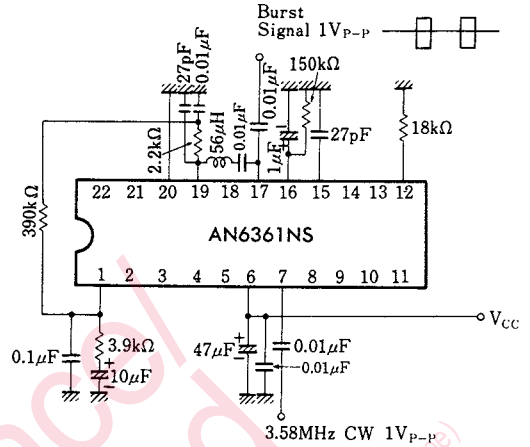
- Color killer output (V_{10-L})

Pin ⑩ voltage when Pin ⑬ input is OFF

- 180° ID detection phase ($S_{(ID13)}$)

Phase which causes a Pin ⑧ output voltage to be changed by changing a Pin ⑬ input phase

- AN6361NS (μ_1 , $S_{(B/W)}$, $S_{(Color)}$, V_{13-H} , V_{13-L} , $S_{(ID17)}$)



Pin ⑦ and ⑰ signals are locked ones.

- APC P-COM(μ_1)

Assume that a Pin ① voltage is V_1 when a Pin ⑰ burst input signal ($1V_{p-p}$) has a phase of 50° (see a burst phase diagram), and that it is V_2 when having a phase of 30° , and obtain out of $V_1 - V_2/20$.

- Color killer sensitivity ON($S_{(B/W)}$)

Pin ⑰ input amplitude when a Pin ⑬ output voltage is turned from H to L by lowering the Pin ⑰ input amplitude (burst phase 0°)

- Color killer sensitivity OFF($S_{(Color)}$)

Pin ⑰ input amplitude when a Pin ⑬ output voltage is turned from L to H by lowering the Pin ⑰ input amplitude (burst phase 0°)

- Color killer output (V_{13-H})

Pin ⑬ voltage when Pin ⑰ input is $1V_{p-p}$

- Color killer output (V_{13-L})

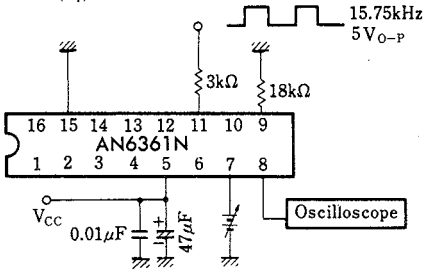
Pin ⑬ voltage when Pin ⑰ input is OFF

- 180° ID detection phase ($S_{(ID17)}$)

Phase which causes a Pin ⑪ output voltage to be changed by changing a Pin ⑰ input phase

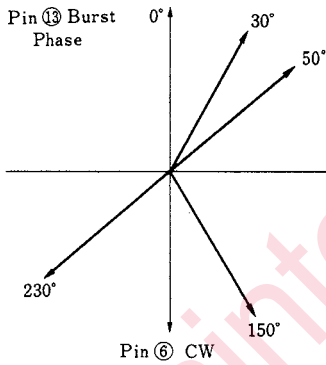
Test Circuit 5

- AN6361N (S₇)

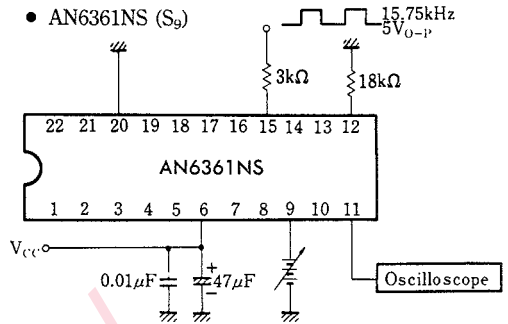


• Pin ⑦ voltage when a rectangular wave disappears from Pin ⑩ output

Burst Phase Diagram

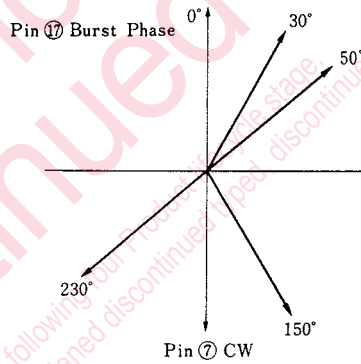


- AN6361NS (S₉)



• Pin ⑨ voltage when a rectangular wave disappears from Pin ⑪ output

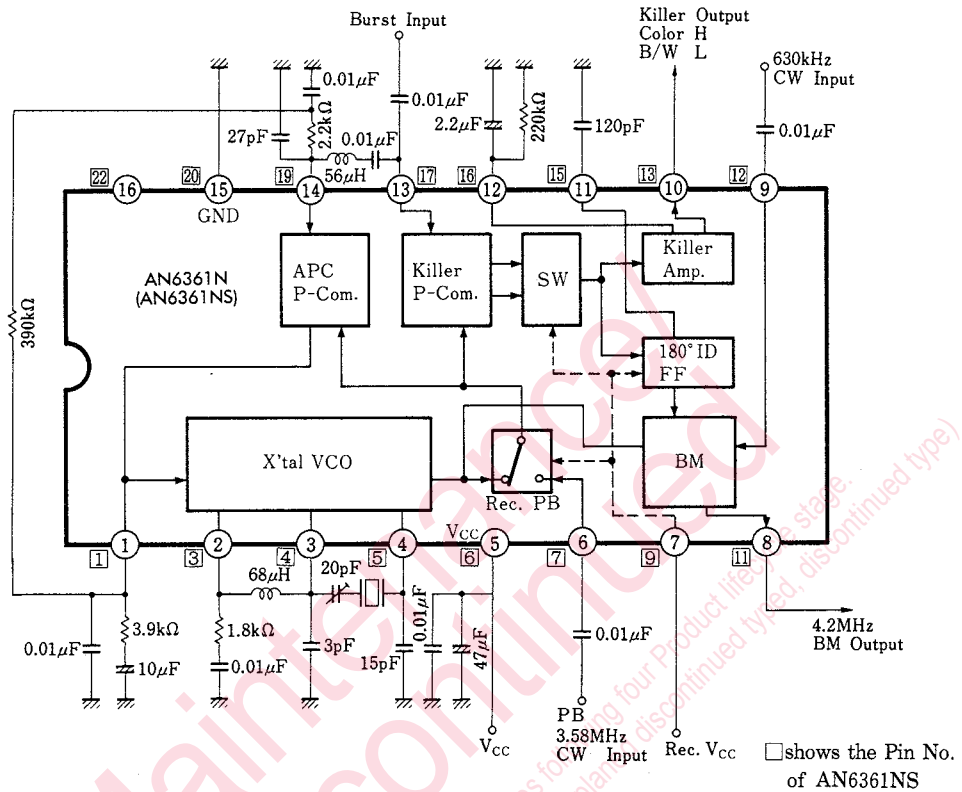
Burst Phase Diagram



Maintenance/Discontinued

(planned maintenance type, maintenance type, planned discontinued type, planned discontinued type)

■ Application Circuit



Precautions for Use

★AN6361N

- Adjusting xtal VCO:
Turn off all signals, connect 39kΩ between Pin⑬ and GND, and 18kΩ between Pin⑨ and GND, and adjust with a Pin③ trimmer so that Pin⑧ output will be 3.579545MHz.
- xtal VCO changes its characteristic depending on a printed circuit board condition. Before setting, examine pull-in, oscillation power, etc. Be sure to connect 3PF of the Pin③.

● AN6361NS

- Adjusting xtal VCO:
Turn off all signals, connect 39kΩ between Pin⑰ and GND, and adjust with a Pin④ trimmer so that Pin⑩ output will be 3.579545MHz.
- xtal VCO changes its characteristic depending on a printed circuit board condition. Before setting, examine pull-in, oscillation power, etc. Be sure to connect 3PF of the Pin④.

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