AN5635N, AN5635NS

Chrominance Signal Processing ICs for SECAM System Color TV

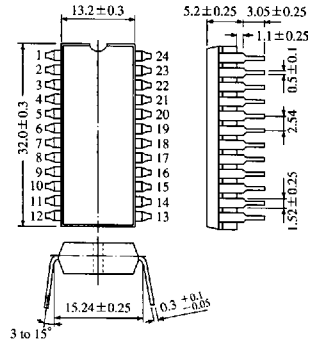
■ Overview

The AN5635N and the AN5635NS are integrated circuits designed for SECAM system color TV chrominance signal processing circuit.

■ Features

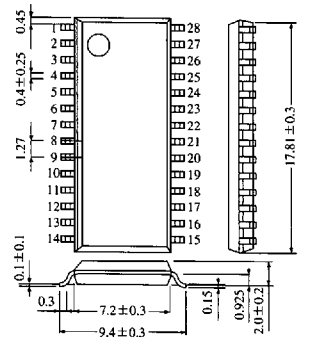
- Incorporates all chrominance signal processing circuits for SECAM system color TV receiver, on a single chip
- By incorporating color matrix circuit, color difference signals are provided
- Built-in color control circuit
- Built-in PAL/SECAM system switch
- Includes color killer function

AN5635N Unit : mm



24-Pin DIL Plastic Package (DIP024-P-0600B)

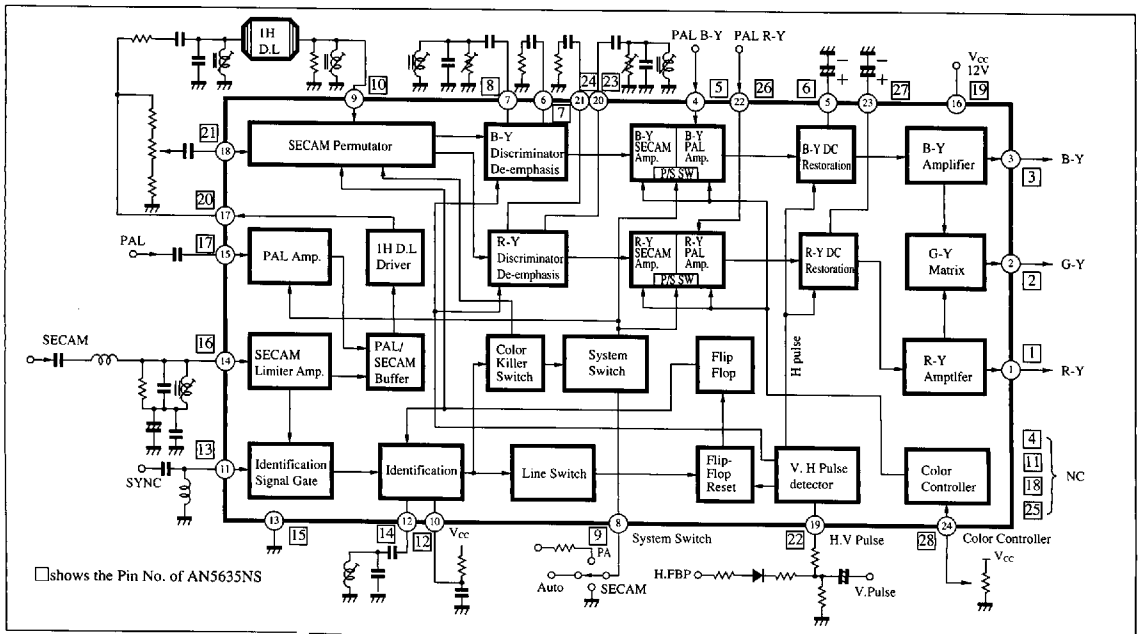
AN5635NS Unit : mm



28-Pin PANAFLAT Package (SO-28D) (SOP028-P-0375A)

ICs for TV

■ Block Diagram



■ Pin Descriptions ( ) shows the Pin No. of AN5635NS

Pin No.	Pin name	Pin No.	Pin name
1(1)	R-Y signal output	13(15)	GND
2(2)	G-Y signal output	14(16)	SECAM signal input
3(3)	B-Y signal output	15(17)	PAL signal input
4(5)	PAL B-Y demodulated sig. input	16(19)	V_{CC}
5(6)	B-Y clamp capacitor	17(20)	Chrominance signal output
6(7)	B-Y de-emphasis	18(21)	Permutator input (direct)
7(8)	B-Y discriminator	19(22)	H-V pulse input
8(9)	System ident. switch	20(23)	R-Y discriminator
9(10)	Permutator input (1H delayed)	21(24)	R-Y de-emphasis
10(12)	System ident. capacitor	22(26)	PAL R-Y demodulated sig. input
11(13)	Gate pulse input	23(27)	R-Y clamp capacitor
12(14)	System ident. discriminator	24(28)	Color control

In case of AN5635NS, No.④, ⑪, ⑱, ㉕, are NC

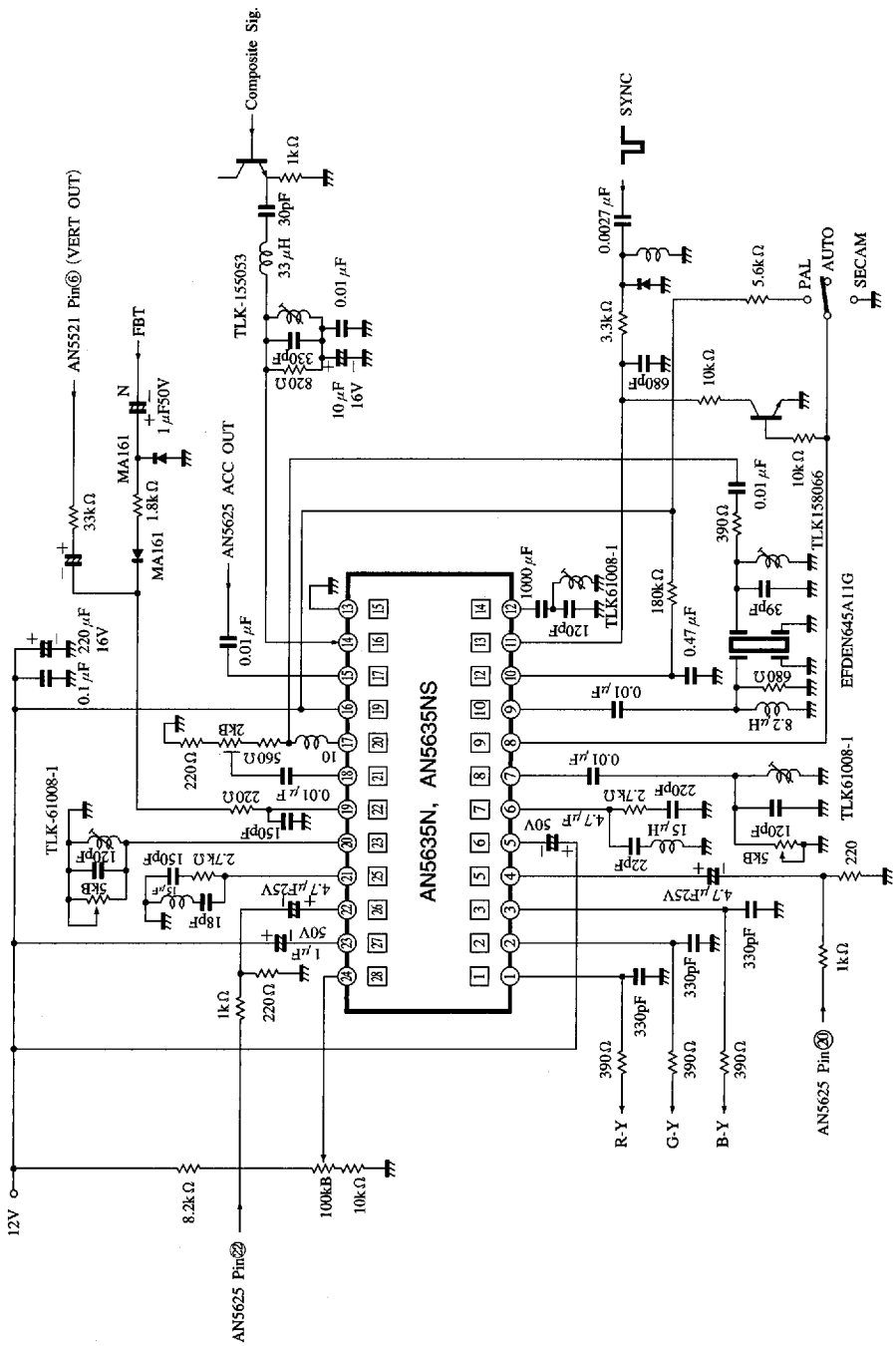
■ Absolute Maximum Ratings (Ta=25℃)

Parameter		Symbol	Rating		Unit
Supply voltage	AN5635N	V_{CC} (V_{16-13})	14.4		V
	AN5635NS	V_{CC} (V_{19-13})	12.0		
Circuit voltage (AN5635N)		$V_{8,11-13}$	0	V_{16-13}	V
		$V_{19,24-13}$	−0.4	V_{16-13}	V
		$V_{4,9,14,15,18,22-13}$	0	9	V
Circuit voltage (AN5635NS)		$V_{9,13-15}$	0	V_{19-15}	V
		$V_{22,28-15}$	−0.4	V_{19-15}	V
		$V_{5,10,16,17,21,26-15}$	0	9	V
Circuit current		$I_{1,2,3}$	−25	10	mA
Circuit current (AN5635N)		$I_{5,6,21,23}$	−5	10	mA
		I_{10}	−10	10	mA
		I_{17}	−25	0	mA
Circuit current (AN5635NS)		$I_{6,7,24,27}$	−5	10	mA
		I_{12}	−10	10	mA
		I_{20}	−25	0	mA
Power dissipation	AN5635N	P_D	1159		mW
	AN5635NS	P_D	567		
Operating ambient temperature		T_{opr}	−20 to +70		℃
Storage temperature	AN5635N	T_{stg}	−55 to +150		℃
	AN5635NS		−55 to +125		

■ Electrical Characteristics (Ta=25℃)

Parameter		Symbol	Condition	min	typ	max	Unit
Total circuit current		I_{tot}	V_{CC}=12.0V	49	58	67	mA
Circuit voltage	AN5635N	$V_{9,14,18-13}$	V_{CC}=12.0V	1.7	2.4	3.1	V
	AN5635NS	$V_{10,16,21-15}$					
	AN5635N	V_{15-13}	V_{CC}=12.0V	2.7	3.4	4.1	V
	AN5635NS	V_{17-15}					
	AN5635N	V_{17-13}	V_{CC}=12.0V, Pin⑰ 3kΩ GND	6.6	7.3	8.0	V
	AN5635NS	V_{20-15}					
Limiter amp. output voltage 1		e_{lim-1}	Sine wave 4.4MHz 100mV_{P-P} (0dB)	2.1	2.6	3.1	V_{P-P}
Limiter amp. output voltage 2		e_{lim-2}	Sine wave 4.4MHz 5mV_{P-P} (−26dB)	0.55	1.05	1.55	V_{P-P}
PAL amp. gain		A_{vPAL}	Sine wave 4.4MHz 300mV_{P-P}	0.75	1.0	1.25	—
SECAM output R−Y		e_{01R-Y}	Color bar input standard 100mV_{P-P}	4.1	5.2	6.2	V_{P-P}
SECAM output G−Y		e_{01G-Y}		1.7	2.2	2.6	V_{P-P}
SECAM output B−Y		e_{01B-Y}		3.7	4.6	5.5	V_{P-P}
Color control TYP		e_{01typ}	6V radio for eol B-Y Pin㉔ 12V	0.18	0.28	0.38	times
Color killer level		e_k	Input at killer operating time (100mV_{P-P}=0dB)	−46	−39	−32	dB
System discrimination 1	AN5635N	V_{8-13}	Color-bar input −52dB	1.1	1.3	1.5	V
	AN5635NS	V_{9-15}					
System discrimination 2	AN5635N	V_{8-13}	Color-bar input −26dB	0	0.15	0.3	V
	AN5635NS	V_{9-15}					
System discrimination 3	AN5635N	V_{8-13}	PAL input-burst 100mV_{P-P}	1.1	1.3	1.5	V
	AN5635NS	V_{9-15}					
PAL R-Y/B-Y amp. gain		$A_{vR-Y,B-Y}$	Sine wave 10kHz 500mV_{P-P}	7.2	9.0	10.8	times
Residual color difference output		e_{04}	Color-bar input standard Pin㉔=1.5V	—	—	60	mV_{P-P}
Demodulation DC output voltage		$E_{O(DC)}$	Non-input signal	6.7	7.1	7.6	V
E_O (DC) supply voltage dependency		$\Delta E_{O(DC)}/V_{CC}$	V_{CC}=12V±20%	0.4	0.55	0.7	| V/V |
ΔE_{x-y} supply voltage dependency		ΔE_{x-y}	Non-input signal	—	—	±300	mV
Output DC differential voltage ΔE_{x-y}		$\Delta E_{x-y(Vcc)}$	V_{CC}=12V±20%	—	—	±100	mV
ΔE_{x-y} color change		$\Delta E_{x-y(C)}$	Color min. to max.	—	—	±70	mV
E_{x-y} system SW change		$\Delta E_{x-y(SW)}$	System SW change from PAL to SECAM	—	—	±50	mV
System discrimination sampling pulse voltage range		V_{SIG}	Sampling pulse voltage for system discrimination operation	1.5	—	2.4	V
F. F. gate voltage range		V_{F-F}	F. F. reverse pulse voltage	5.5	—	10	V
Blanking voltage range		V_{BLK}	Blanking operating pulse voltage	1.5	—	4.5	V

Application Circuit



□shows the Pin No. of AN5635NS (Pin No. 4, 11, 19, 25 are NC)