AN5795NK

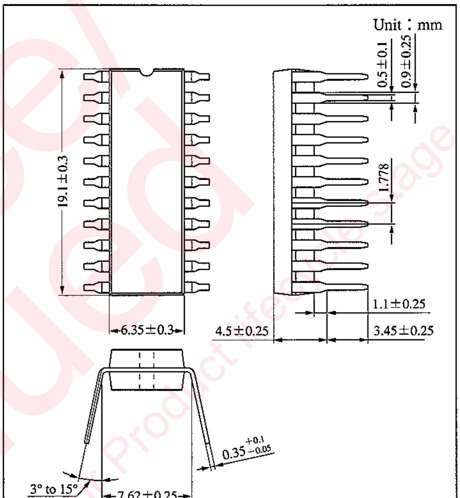
Deflection Signal Processor IC for CRT

■ Overview

The AN5795NK is a deflection signal processor IC for CRT. It can support up to 130kHz horizontal oscillation frequency. It incorporates horizontal position adjustment and duty-cycle adjustment functions.

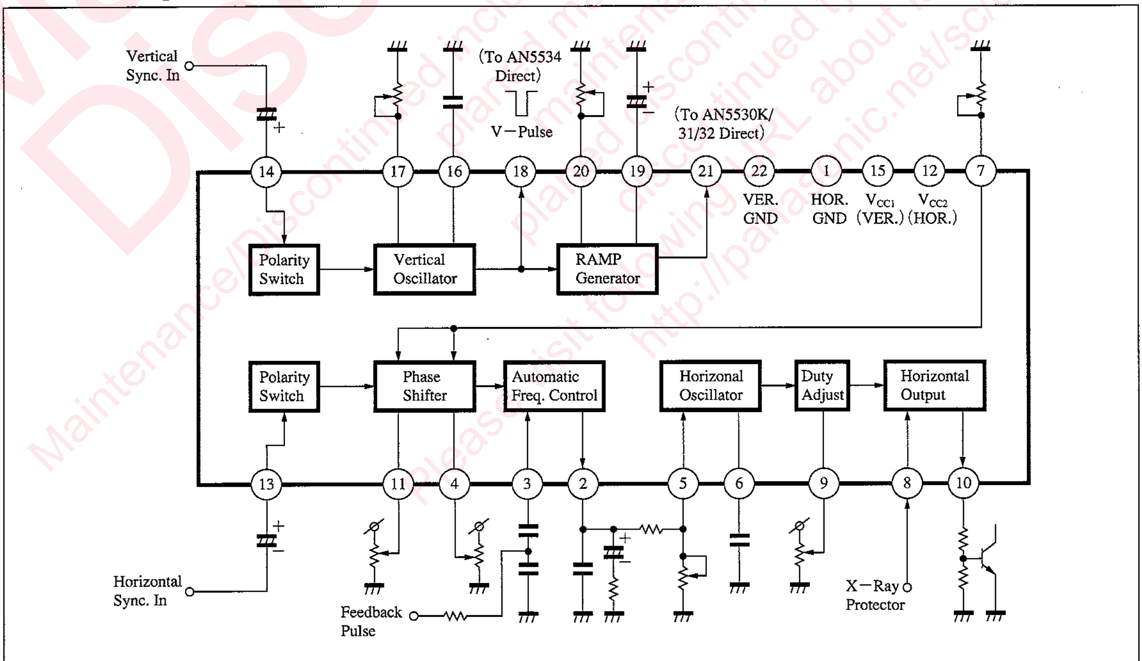
■ Features

- Supporting horizontal and vertical synchronization inputs for either polarity
- Horizontal oscillation frequency : f_H max.=130kHz
- Built-in vertical saw-tooth wave generator
- Vertical oscillation pulse width : 600μs



22−Pin SDIP Package (SDIP022-P-0300A)

■ Block Diagram



■ Absolute Maximum Ratings

Parameter	Symbol	Rating	Unit
Supply voltage	V_{CC}	13.2	V
Supply current	I_{CC}	40.0	mA
Power dissipation Note 2)	P_D	530	mW
Operating ambient temperature Note 1)	T_{opr}	−20 to +70	℃
Storage temperature Note 1)	T_{stg}	−55 to +150	℃

Note 1) Ta=25℃ except operating ambient temperature and storage temperature.
Note 2) Allowable power dissipation of the package at Ta=70℃.

■ Recommended Operating Range (Ta=25℃)

Parameter	Symbol	Range
Operating supply voltage range	V_{CC}	9.8V to 13.0V

■ Electrical Characteristics (Ta=25±2℃)

Parameter	Symbol	Condition	min	typ	max	Unit
Circuit voltage	I_{15}		6.9	8.5	10.1	mA
	I_{12}		9.4	10.8	12.0	mA
	V_3		6.2	7.0	7.8	V
	V_5		6.3	7.1	7.9	V
	V_7		6.4	7.4	8.2	V
	V_{13}		2.4	2.9	3.4	V
	V_{14}		2.4	2.9	3.4	V
	V_{17}		6.4	7.4	8.2	V
	V_{20}		4.9	5.9	6.8	V
Horizontal output voltage (H)	$V_{10-1\,(H)}$		3.8	4.3	4.9	V
Horizontal output voltage (L)	$V_{10-1\,(L)}$		−0.2	0.1	0.2	V
X-ray protective circuit operation voltage	V_{8-1}		0.75	0.86	0.97	V
Horizontal oscillation starting supply voltage	Vfh, s	f_{ho}=15.5kHz	—	—	9.7	V
Horizontal oscillation frequency (free-run)	f_{ho} (1)	Pin⑤=39kΩ, Pin⑥=1200pF	15.0	15.75	16.5	kHz
Horizontal oscillation frequency (max.)	f_{ho} (2)	Pin⑤=18kΩ, Pin⑥=270pF	100	115	130	kHz
Oscillation frequency control sensitivity	β	ΔI =±80μA	75.0	82.0	90.0	Hz/μA
Horizontal output duty (min.)	t_d (1)	Pin⑨=7.3V	7.0	9.9	12.5	%
Horizontal output duty (max.)	t_d (2)	Pin⑨=9.4V	90.5	94.5	97.5	%
Horizontal phase adjustment (min.)	t_p (1)	Pin⑪=1.2V, Pin⑦=24kΩ	0.5	1.0	1.5	μs
Horizontal phase adjustment (max.)	t_p (2)	Pin⑦=24kΩ, Pin⑪=5V	3.2	3.7	4.2	μs
Horizontal phase adjustment quantity	t_p (3)	Pin⑦=83kΩ, Pin⑪=5V	11.5	12.4	13.3	μs
Horizontal phase pulse width (min.)	t_{pw} (1)	Pin④=1.5V, Pin⑦=24kΩ	0.5	1.0	1.5	μs
Horizontal phase pulse width (max.)	t_{pw} (2)	Pin⑦=83kΩ, Pin④=5V	11.1	12.2	13.2	μs
Hsync input amplitude (min.)	V_{13-1}	V_{CC}=12V	—	—	2.9	V_{P-P}
Vertical oscillation start supply voltage	$V_{fv,s}$	fvo=54Hz	—	—	7.8	V
Vertical oscillation frequency (free-run)	fvo (1)	Pin⑰=49kΩ, Pin⑯=0.039μF	45	50	55	Hz
Vertical oscillation frequency (max.)	fvo (2)	Pin⑰=13.9kΩ Pin⑯=0.039μF	140	150	160	Hz
Vertical pulse output width	tvo	fvin=60Hz, fvo=50Hz	0.45	0.50	0.55	ms
Vertical pull-in range	f_{pv}	fvin=140Hz, fvo=50Hz	89	90	91	Hz
Vsync input amplitude (min.)	V_{14-22}	fvin=60Hz, fvo=50Hz	—	—	2.9	V_{P-P}

■ Electrical Characteristics [Reference Value] (Ta=25±2℃)

Parameter	Symbol	Condition	Reference value	Unit
Horizontal oscillation supply fluctuation	$\Delta fho/\Delta V_{CC}$	V_{CC2}=10.8 to 13.2V fho=31.5kHz	141	Hz/V
Horizontal oscillation temperature fluctuation	$\Delta fho/\Delta t$	V_{CC2}=12V fho=31.5kHz	2.7	Hz/℃
Phase detection sensitivity	μ	V_{CC2}=12V	67	$\mu A/\mu s$
Horizontal output duty supply fluctuation	$\Delta td/\Delta V_{CC}$	V_{CC2}=10.8 to 13.2V td=32%, fho=31.5kHz	0.7	%/V
Horizontal output duty temperature fluctuation	$\Delta td/\Delta t$	td=32%, fho=31.5kHz	0.023	%/℃
Horizontal output drive current	I_{10}	V_{CC2}=12V	5 (max.)	mA
Horizontal phase supply fluctuation	$\frac{\Delta tp/\Delta tpref}{\Delta V_{CC}}$	V_{CC2}=10.8 to 13.2V tpref=6 μs	0.16	%/V
Horizontal phase temperature fluctuation	$\frac{\Delta tp/\Delta tpref}{\Delta t}$	tpref=6 μs	0.03	%/℃
Horizontal phase pulse supply fluctuation	$\Delta tpw/\Delta V_{CC}$	V_{CC2}=10.8 to 13.2V tpwref=6 μs	0.48	%/V
Horizontal phase pulse temperature fluctuation	$\Delta tpw/\Delta t$	tpwref=6 μs	0.03	%/℃
Vertical oscillation supply fluctuation	$\Delta fvo/\Delta V_{CC}$	V_{CC1}=10.8 to 13.2V fvo=50Hz	0.59	Hz/V
Vertical oscillation temperature change	$\Delta fvo/\Delta t$	fvo=50Hz	0.01	Hz/℃

Note) The above characteristics are only theoretical values on design, and are not entirely guaranteed by the inspection.

ICs for TV

■ Pin Descriptions

Pin No.	Pin name	Pin No.	Pin name
1	Horizontal system GND	12	V_{CC2} (Hor. system power supply)
2	AFC output	13	Hor. sync. signal input
3	FBP input for AFC	14	Ver. sync. signal input
4	Hor. phase pulse width control	15	V_{CC1} (Ver. system power supply)
5	Resistor pin for hor. oscillation	16	Capacitor pin for ver. oscillation
6	Capacitor pin for hor. oscillation	17	Resistor pin for ver. oscillation
7	Current control for phase adj.	18	Vertical pulse output
8	X-RAY protector	19	Capacitor pin for RAMP generation
9	DUTY control	20	Resistor pin for RAMP generation
10	Horizontal output	21	RAMP waveform output
11	Hor. phase adj.	22	Vertical system GND

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