

AN5795NK

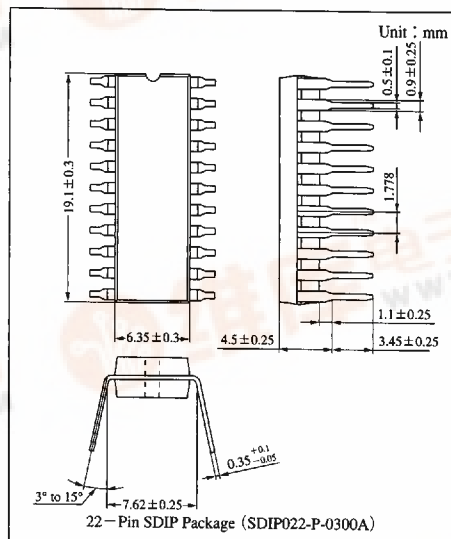
Deflection Signal Processor IC for CRT

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.

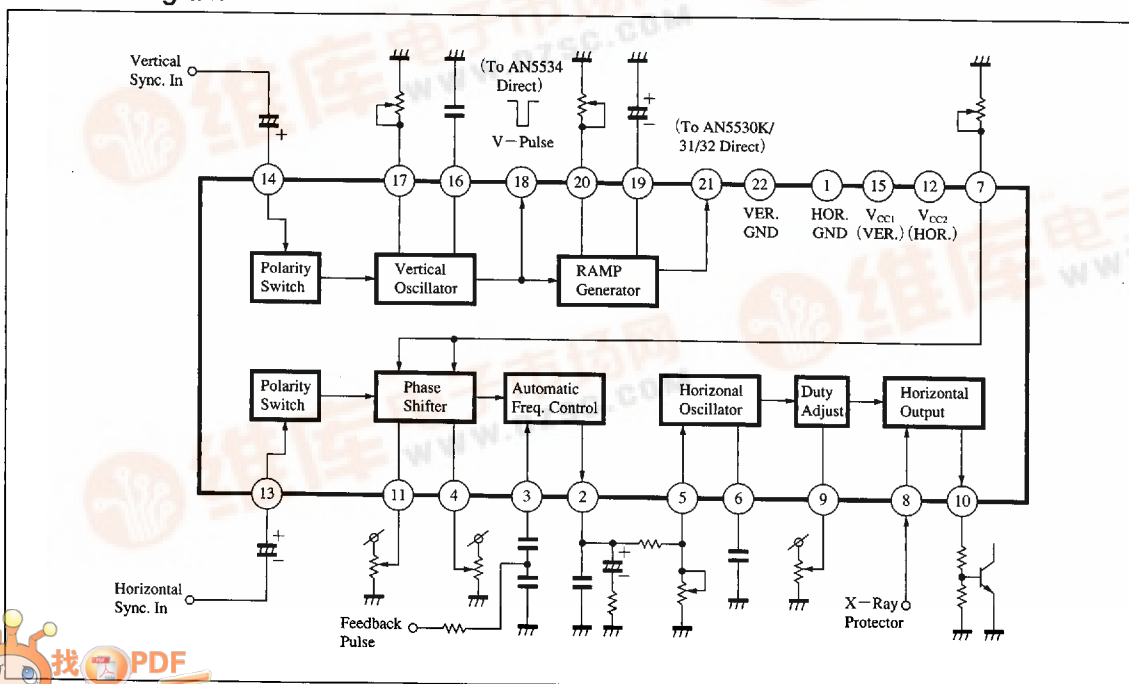
Features

- 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 : 600 μ s



ICs for TV

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	°C
Storage temperature ^{Note 1)}	T _{stg}	-55 to +150	°C

Note 1) Ta = 25°C except operating ambient temperature and storage temperature.

Note 2) Allowable power dissipation of the package at Ta = 70°C.

■ Recommended Operating Range (Ta = 25°C)

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

■ Electrical Characteristics (Ta = 25 ± 2°C)

Parameter	Symbol	Condition	min	typ	max	Unit
Circuit voltage	I _{I5}		6.9	8.5	10.1	mA
	I _{I2}		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	V _{fH, 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}	f _{vo} = 54Hz	—	—	7.8	V
Vertical oscillation frequency (free-run)	f _{vo} (1)	Pin⑰ = 49kΩ, Pin⑱ = 0.039μF	45	50	55	Hz
Vertical oscillation frequency (max.)	f _{vo} (2)	Pin⑰ = 13.9kΩ Pin⑱ = 0.039μF	140	150	160	Hz
Vertical pulse output width	t _{vo}	f _{vin} = 60Hz, f _{vo} = 50Hz	0.45	0.50	0.55	ms
Vertical pull-in range	f _{pv}	f _{vin} = 140Hz, f _{vo} = 50Hz	89	90	91	Hz
Vsync input amplitude (min.)	V ₁₄₋₂₂	f _{vin} = 60Hz, f _{vo} = 50Hz	—	—	2.9	V _{P-P}

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

Parameter	Symbol	Condition	Reference value	Unit
Horizontal oscillation supply fluctuation	$\Delta f_{ho}/\Delta V_{CC}$	$V_{CC2}=10.8$ to $13.2V$ $f_{ho}=31.5kHz$	141	Hz/V
Horizontal oscillation temperature fluctuation	$\Delta f_{ho}/\Delta t$	$V_{CC2}=12V$ $f_{ho}=31.5kHz$	2.7	Hz/℃
Phase detection sensitivity	μ	$V_{CC2}=12V$	67	$\mu A/\mu s$
Horizontal output duty supply fluctuation	$\Delta t_d/\Delta V_{CC}$	$V_{CC2}=10.8$ to $13.2V$ $t_d=32\%$, $f_{ho}=31.5kHz$	0.7	%/V
Horizontal output duty temperature fluctuation	$\Delta t_d/\Delta t$	$t_d=32\%$, $f_{ho}=31.5kHz$	0.023	%/℃
Horizontal output drive current	I_{I0}	$V_{CC2}=12V$	5 (max.)	mA
Horizontal phase supply fluctuation	$\frac{\Delta t_p/\Delta t_{pref}}{\Delta V_{CC}}$	$V_{CC2}=10.8$ to $13.2V$ $t_{pref}=6\mu s$	0.16	%/V
Horizontal phase temperature fluctuation	$\frac{\Delta t_p/\Delta t_{pref}}{\Delta t}$	$t_{pref}=6\mu s$	0.03	%/℃
Horizontal phase pulse supply fluctuation	$\Delta t_{pw}/\Delta V_{CC}$	$V_{CC2}=10.8$ to $13.2V$ $t_{pwref}=6\mu s$	0.48	%/V
Horizontal phase pulse temperature fluctuation	$\Delta t_{pw}/\Delta t$	$t_{pwref}=6\mu s$	0.03	%/℃
Vertical oscillation supply fluctuation	$\Delta f_{vo}/\Delta V_{CC}$	$V_{CC1}=10.8$ to $13.2V$ $f_{vo}=50Hz$	0.59	Hz/V
Vertical oscillation temperature change	$\Delta f_{vo}/\Delta t$	$f_{vo}=50Hz$	0.01	Hz/℃

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

■ 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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