AN5790N, AN5792

Horizontal Signal Processing ICs for CRT Display

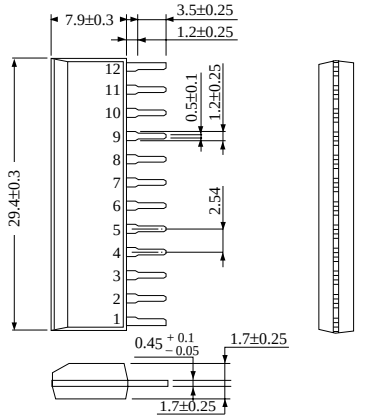
■ Overview

The AN5790N and AN5792 are the intergrated circuits designed for CRT display horizontal signal processing circuits.

■ Features

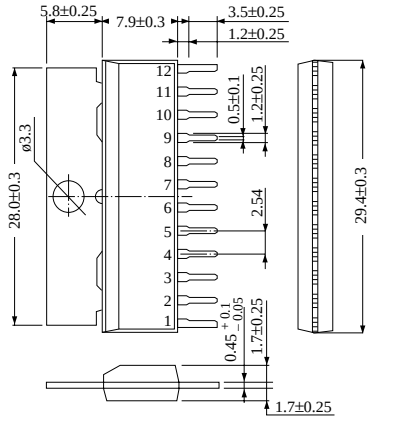
- Horizontal synchronous signal is available in both polarities.
- Wide range of horizontal osciallation frequency : 14kHz to 60kHz.
- Output pulse width : 2µs to 40µs
- Package
  AN5790N...NF-12S(12-Pin SIL plastic package)
  AN5792...F-12S (12-Pin SIL plastic package with fin)

AN5790N Unit : mm



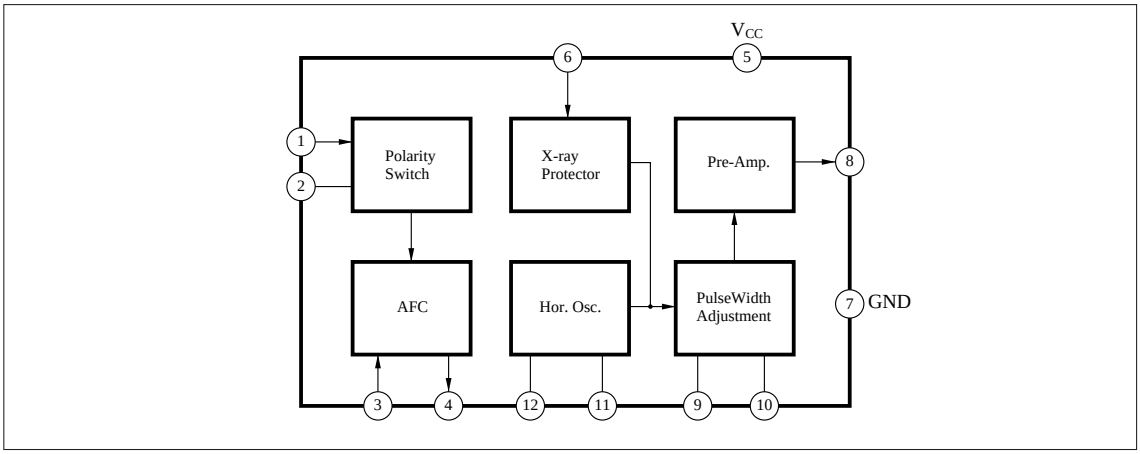
12-Pin SIL Plastic Package (12-SIP)

AN5792 Unit : mm



12-Pin SIL Plastic Package with Fin (12-SIF (f))

■ Block Diagram



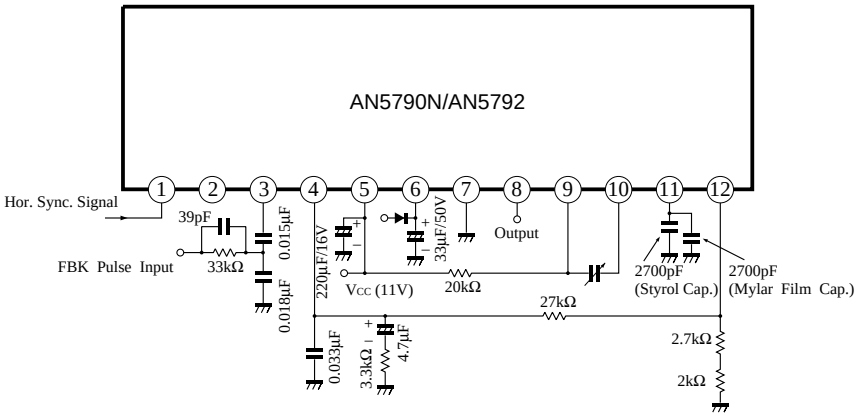
■ Absolute Maximum Ratings (Ta= 25˚C)

Parameter		Symbol	Rating	Unit
Supply voltage		V_{CC}	13.2	V
Supply current		I_{CC}	50	mA
Power dissipation		P_D	1140	mW
Temperature	Operating ambient temperature	T_{opr}	– 20 to +70	˚C
	Storage temperature	T_{stg}	– 40 to +150	˚C

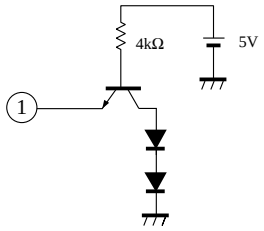
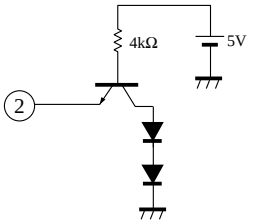
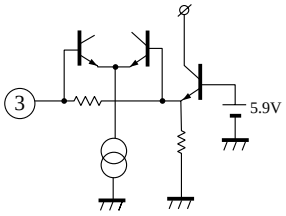
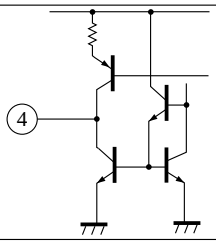
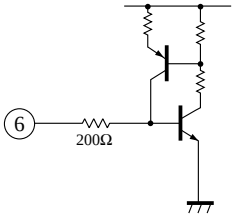
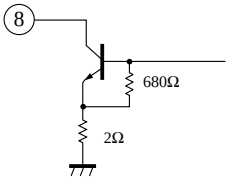
■ Electrical Characteristics (Ta= 25˚C)

Parameter	Symbol	Condition	min	typ	max	Unit
Total circuit current	I_{tot}	V_{CC}=11V	30	45	60	mA
Polarity switching voltage (1)	V_{2-7}	Positive polarity signal input	0	—	0.4	V
Polarity switching voltage (2)	V_{2-7}	Negative polarity signal input	2.5	—	5.5	V
Horizonal oscillation start voltage	$V_{OSC-S\ (H)}$	f_{HO}=12kHz to 19kHz	7.5	—	—	V
Horizonal oscillation frequency	$f_{HO\ (1)}$	V_{CC}=11V, C= 4400pF	15	15.75	16.5	kHz
Horizonal oscillation frequency	$f_{HO\ (2)}$	V_{CC}=11V, C= 820pF, 5600pF	14	—	60	kHz
f_{HO} supply voltage dependency	$\Delta f_{HO}/V_{CC}$	f_{HO}=15.75kHz, f_{HO} | 9.9V– f_{HC} | 12.1V	—	40	130	Hz
f_{HO} ambient temperature dependency	Δf_{HO}/Ta	f_{HO}=15.75kHz, f_{HO} | –20˚C – f_{HC} | 60˚C	—	—	260	Hz
Oscillation frequency control sensitivity	β	ΔI_O= ±25μA	16	17.6	19.3	Hz/μA
DC loop gain	f_{DC}	μ × β	—	700	—	Hz/μs
Output pulse width	$\tau_{HO\ (1)}$	V_{CC}=11V, R= 20kΩ, C= 6800pF	17.8	19.4	21.2	μs
Output pulse width	$\tau_{HO\ (2)}$	V_{CC}=11V, R=20kΩ, C=330pF, 18000pF	2	—	40	μs
Output pulse width variation to supply voltage change	$\Delta\tau_{HO}/V_{CC}$	V_{CC}= 9.9V to 12.1V	—	—	5	%
Output pulse width variation to temeprature change	$\Delta\tau_{HO}$/Ta	V_{CC}=11V, Ta= – 20˚C to + 60˚C	—	—	5	%
Oscillation output saturation voltage	V_{8-7}	V_{CC}=11V, V_{10-7}=1V	—	—	2	V
Oscillation output drive current	I_{8-7}	V_{CC}=11V, V_{10-7}=1V	300	—	—	mA
X-ray protecting circuit operation start voltage	V_{6-7}	V_{CC}=11V	0.5	0.64	0.75	V

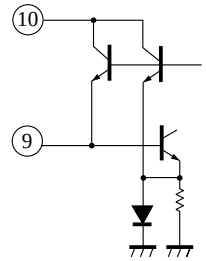
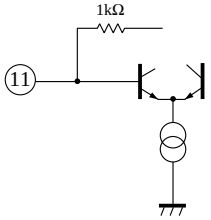
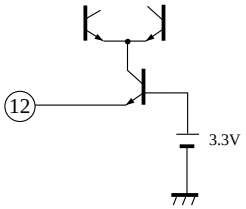
■ Application Circuit



■ Pin Descriptions

Pin No.	Pin name	Typ. waveform	Description	Equivalent circuit
1	Horizontal synchronous signal input pin	5V 0V	Pin for inputting a horizontal synchronous signal.	
2	Polarity discrimination switching pin	DC	Both polarities of an input signal of Pin1are made available by connecting this pin to GND or setting it to OPEN	
3	Flyback pulse input pin		Flyback feedback pin. The standard value of amplitude is 1.5Vpp.	
4	AFC output pin	DC	Result of AFC detection.	
5	Supply voltage	DC	———	———
6	X-ray protecting circuit input pin	DC	When a voltage of 0.75V or more is applied, no horizonal output will not be generated.	
7	GND	DC	———	———
8	Horizontal drive output pin		Current when turned ON should be used at 300mA or less.	

■ Pin Descriptions (cont.)

Pin No.	Pin name	Typ. waveform	Description	Equivalent circuit
9	Trigger input pin		The output pulse width can be changed by the capacitance between Pins9 and 10 and resistance berween Pin10 and V_{CC}.	
10	Pulse width adjusting pin			
11	Sawtooth wave generating pin		Oscillation frequency can be changed by the capacitor to be connected to this pin.	
12	Horizontal oscillation circuit reference voltage	DC	Oscillation frequency is changed by the resistor between this pin and GND.	

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