MN3814, MN3814S

NTSC CCD Video Signal Delay Elements

■ Overview

The MN3814 and MN3814S are 4 f_{SC} CMOS CCD signal delay elements whose wide bandwidth and low noise make them ideal for video signal processing applications.

They contain such components as a shift register clock driver, 906-stage CCD analog shift register, and resampling output amplifier.

They sample the input using the supplied clock signal with a frequency of 14.32 MHz, four times the NTSC color signal subcarrier frequency, and after adding in the attached filter delay, produce independent delays of 1 H (the horizontal scan period).

■ Features

- High-precision 1 H delay for video signal
- CMOS process for low power consumption
- Low EMI levels from clock during driving
- Low clock leakage, which allows use of simpler filters

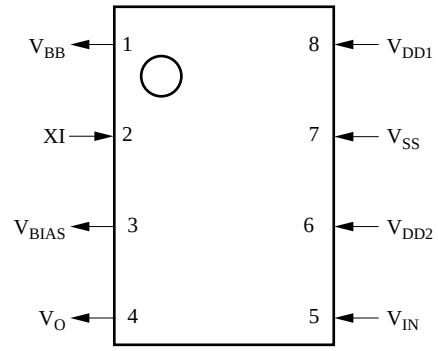
■ Applications

1 H delays of NTSC video signals, especially for:

- Comb filters
- Signal-to-noise ratio improvement
- Dropout compensation

■ Pin Assignment

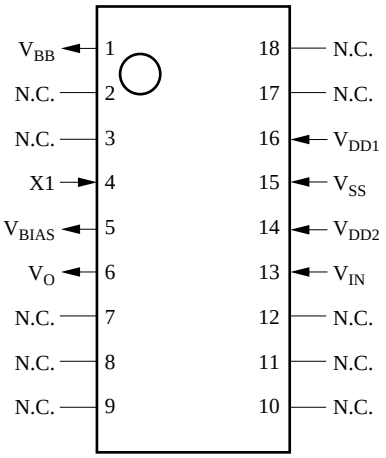
MN3814



(TOP VIEW)

DIP008-P-300

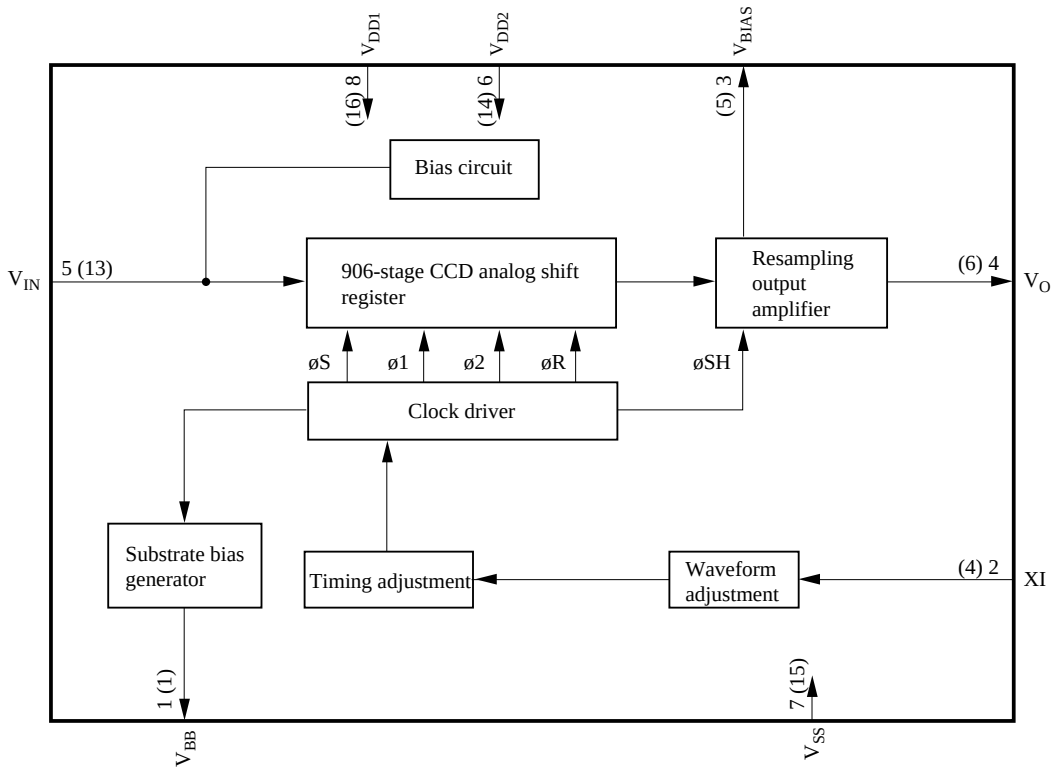
MN3814S



(TOP VIEW)

SOP018-P-0300

■ Block Diagram



The numbers in parentheses are the pin numbers for the MN3814S.

■ Pin Descriptions

● MN3814

Pin No.	Symbol	Pin Name
1	V_{BB}	Substrate connection
2	XI	14.32 MHz clock input
3	V_{BIAS}	Output amplifier control
4	V_O	Signal output
5	V_{IN}	Signal input
6	V_{DD2}	9 volt power supply
7	V_{SS}	Ground
8	V_{DD1}	5 volt power supply

● MN3814S

Pin No.	Symbol	Pin Name
1	V_{BB}	Substrate connection
2	N.C.	No connection
3	N.C.	No connection
4	XI	14.32 MHz clock input
5	V_{BIAS}	Output amplifier control
6	V_O	Signal output
7	N.C.	No connection
8	N.C.	No connection
9	N.C.	No connection
10	N.C.	No connection
11	N.C.	No connection
12	N.C.	No connection
13	V_{IN}	Signal input
14	V_{DD2}	9 volt power supply
15	V_{SS}	Ground
16	V_{DD1}	5 volt power supply
17	N.C.	No connection
18	N.C.	No connection

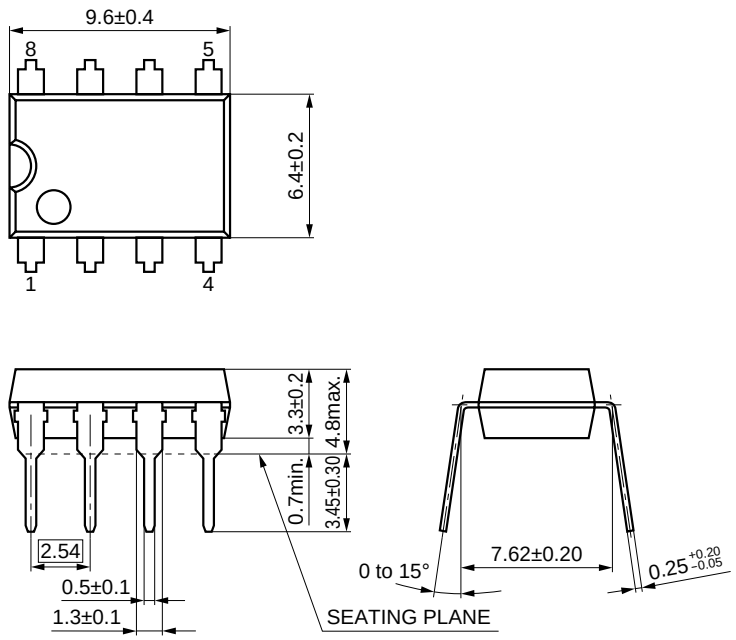
■ Electrical Characteristics

V_{DD1}=5.0V, V_{DD2}=9.0V, V_{ck}=0.3V_{P-P} (sine wave), V_{in}=0.5V_{P-P}, f_{ck}=14.31818MHz, Ta=25˚C

Parameter	Symbol	Measurement Conditions	min	typ	max	Unit
Power supply current (1)	I_{DD1}	Average current for 5 volt power supply		26	50	mA
Power supply current (2)	I_{DD2}	Average current for 9 volt power supply		10	25	mA
Signal bandwidth	B_W	–3 dB for 200 kHz value	4.0	5.5		MHz
Insertion gain	IG	f_{sig}=200kHz	4	7	10	dB
Total harmonic distortion	THD	f_{sig}=200kHz		1	3	%
Signal-to-noise ratio	S/N	Signal output (Vp-p)/noise output (rms)	50	56		dB
Clock leakage	NC	Clock fundamental component output		–30	–15	dB
Delay time	τ_D			63.33		µs
V_O pin output impedance	Z_O			250	500	Ω

■ Package Dimensions (Unit:mm)

● MN3814 DIP008-P-0300



● MN3814 SOP018-P-0300