HT82V806
CCD 6 Channel Vertical Driver

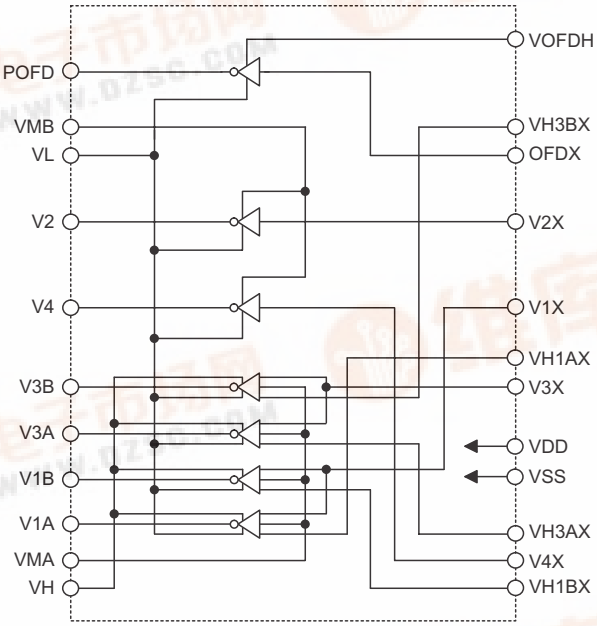
Features

- Operating voltage: 3.0V~5.5V
- Built-in seven circuits
  - 2-level output:
    2 circuits for vertical CCD clock driver
    Output voltage level (typ.) = –9V to 0V
  - 3-level output:
    4 circuits for vertical CCD clock driver
    Output voltage level (typ.) = –9V to 15V
  - 2-level output:
    1 circuit for shutter driver
    Output voltage level (typ.) = –9V to 17V
- Switchable between NTSC (EIA) and PAL (CCIR) modes
- 24-pin SSOP (150mil) package

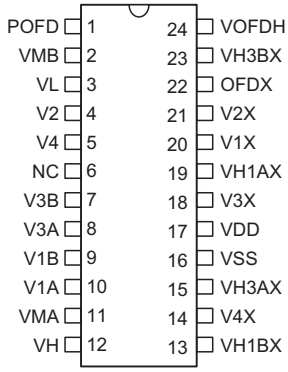
General Description

HT82V806 is a CMOS vertical clock driver and shutter driver IC for CCD area sensors. It has the capability of converting the voltage and impedance from the CMOS level.

Block Diagram



Pin Assignment



HT82V806
– 24 SSOP-A
(150mil)

Pin Description

Pin No.	Pin Name	I/O	Description
1	POFD	O	Electronic shutter pulse output (High level=V_{OFDH}, low level=V_L)
2	VMB	—	Power supply for high level V2 and V4
3	VL	—	Power supply for all low level output pulses
4	V2	O	Pulse to drive vertical CCD shift register; Connect to V2
5	V4	O	Pulse to drive vertical CCD shift register; Connect to V4
6	NC	—	No connection
7	V3B	O	Pulse to drive vertical CCD shift register; Connect to V3B
8	V3A	O	Pulse to drive vertical CCD shift register; Connect to V3A
9	V1B	O	Pulse to drive vertical CCD shift register; Connect to V1B
10	V1A	O	Pulse to drive vertical CCD shift register; Connect to V1A
11	VMA	—	Power supply for intermediate level V1A, V1B, V3A and V3B
12	VH	—	Power supply for high level V1A, V1B, V3A and V3B
13	VHIBX	I	Pulse that transfers the charge of the photo-diode to the vertical shift register.
14	V4X	I	Vertical transfer pulse input
15	VH3AX	I	Pulse that transfers the charge of the photo-diode to the vertical shift register.
16	VSS	—	Negative power supply, ground
17	VDD	—	Positive power supply
18	V3X	I	Vertical transfer pulse input
19	VH1AX	I	Pulse that transfers the charge of the photo-diode to the vertical shift register.
20	V1X	I	Vertical transfer pulse input
21	V2X	I	Vertical transfer pulse input
22	OFDX	I	Electronic shutter pulse input
23	VH3BX	I	Pulse that transfers the charge of the photo-diode to the vertical shift register.
24	VOFDH	—	Power supply for high level POFD

Absolute Maximum Ratings

Supply Voltage .....GND–0.3V to GND+6V

Input Voltage .....V_{SS}–0.3V to V_{DD}+34V

Storage Temperature .....–55°C to 150°C

Operating Temperature .....–25°C to 70°C

Note: These are stress ratings only. Stresses exceeding the range specified under "Absolute Maximum Ratings" may cause substantial damage to the device. Functional operation of this device at other conditions beyond those listed in the specification is not implied and prolonged exposure to extreme conditions may affect device reliability.

Recommended Operating Conditions

Symbol	Parameter	Min.	Typ.	Max.	Unit
V_{DD}	Supply Voltage	3.0	3.3	5.5	V
V_H		—	15	—	
V_L		—	–9	—	
V_{MA}, V_{MB}		—	0	—	
V_{OFDH}		—	17	—	
V_{IN} (LOW)	Input Voltage	0	—	$0.3V_{DD}$	V
V_{IN} (HIGH)		$0.7V_{DD}$	—	V_{DD}	
NTSC	Operating Frequency	—	15.734	—	kHz
PAL		—	15.625	—	
T_{OPR}	Operating Temperature	–20	—	+70	°C

D.C. Characteristics

V_H=15V, V_L=–9V, V_{MA}=0V, V_{MB}=0V, V_{OFDH}=15V, Ta=25°C

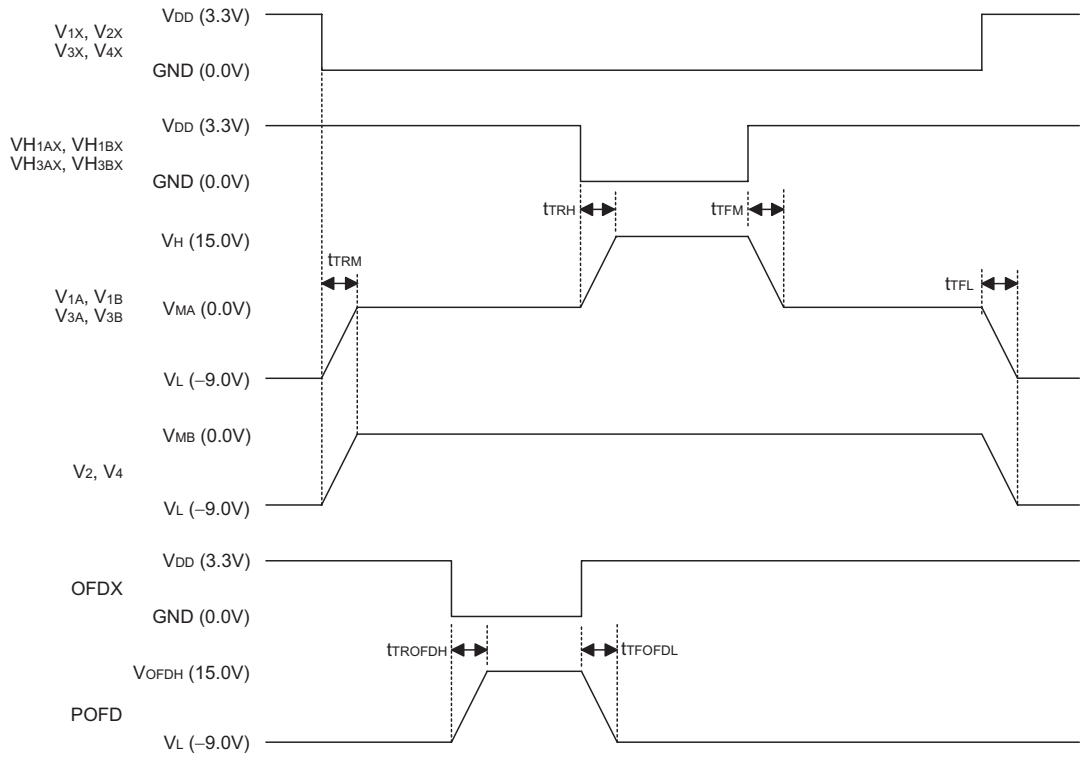
Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
		V_{DD}	Conditions				
V_{IL}	Input Low Voltage	3.3V	—	0	—	$0.3V_{DD}$	V
V_{IH}	Input High Voltage	3.3V	—	$0.7V_{DD}$	—	V_{DD}	V
V_{IL1}	Input Low Current	3.3V	V_{IL}=0V	—	—	200	μA
V_{IH1}	Input High Current	3.3V	V_{IH}=3.3V	—	—	1	μA
V_{OL}	Output Low Voltage	3.3V	I_{OL}<1μA	—	—	–8.9	V
V_{OMLa}	Output Intermediate Voltage	3.3V	I_{OMLa}<1μA		—	0.1	V
V_{OMHa}			I_{OMHa}<1μA		—	0.1	V
V_{OMLb}			I_{OMLb}<1μA		—	0.1	V
V_{OMHb}			I_{OMHb}<1μA		—	0.1	V
R_{ONH}	Output ON Resistance	3.3V	I_{OH}=20mA	—	30	—	Ω
R_{ONOFH}			I_{OFDH}=20mA	—	20	—	Ω
R_{ONM}			I_{OM}=20mA	—	25	—	Ω
R_{ONL}			I_{OL}=20mA	—	20	—	Ω
I_{DD}	Static Current	3.3V	—	—	—	2.0	μA
I_H				—	—	200	μA
I_{OFDH}				—	—	200	μA
I_M				—	—	200	μA
I_L				—	—	200	μA

A.C. Characteristics

V_H=15V, V_L=–9V, V_{MA}=0V, V_{MB}=0V, V_{OFDH}=15V, Ta=25°C

Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
		V_{DD}	Conditions				
t_{TRM} ($V_L \rightarrow V_M$)	Sequential Delay	3.3V	V_{IN} to V_M (V_{1A}, V_{1B}, V_2, V_{3A}, V_{3B}, V_4)	—	430	900	ns
t_{TFL} ($V_M \rightarrow V_L$)		3.3V	V_{IN} to V_L (V_{1A}, V_{1B}, V_2, V_{3A}, V_{3B}, V_4)	—	370	800	ns
t_{TRH} ($V_M \rightarrow V_H$)		3.3V	V_{IN} to V_H (V_{1A}, V_{1B}, V_{3A}, V_{3B})	—	550	1100	ns
t_{TFM} ($V_H \rightarrow V_M$)		3.3V	V_{IN} to V_M (V_{1A}, V_{1B}, V_{3A}, V_{3B})	—	630	1300	ns
t_{TROFDH} ($V_L \rightarrow V_{OFDH}$)		3.3V	V_{IN} to V_{OFDH} (POFD)	—	70	140	ns
t_{TFOFDL} ($V_{OFDH} \rightarrow V_L$)		3.3V	V_{IN} to V_L (POFD)	—	60	120	ns

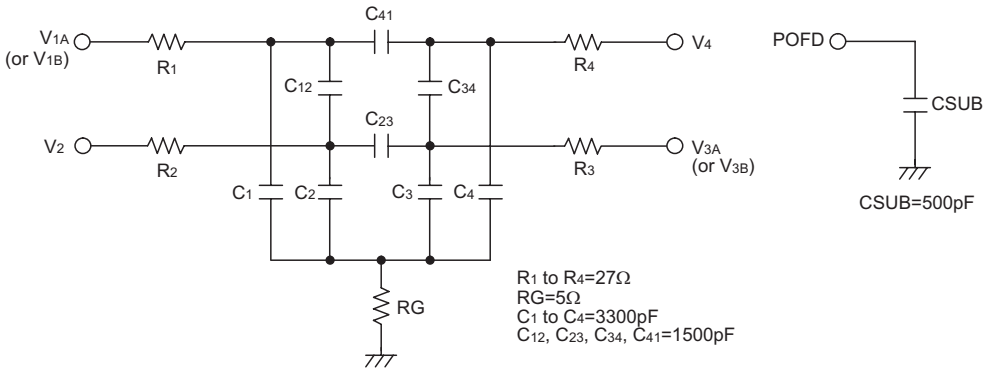
Timing Diagrams



Application Circuits

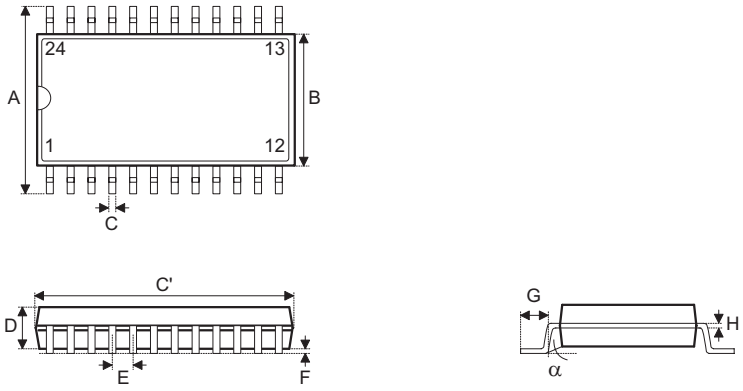
Equivalent Circuits

While V_{1A} and V_{3A} (or V_{1B} and V_{3B}) are measured, V_{1B} and V_{3B} (or V_{1A} and V_{3A}) are open.



Package Information

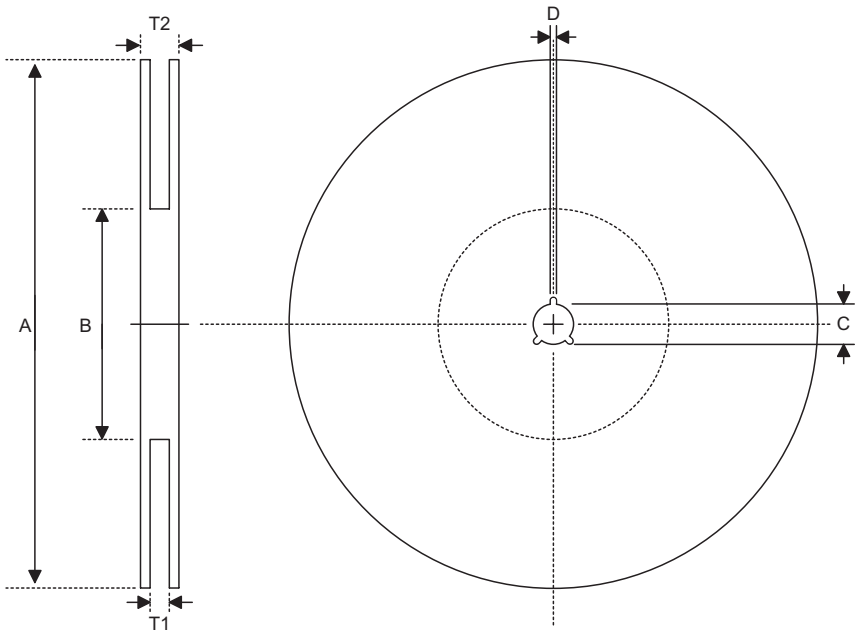
24-pin SSOP (150mil) Outline Dimensions



Symbol	Dimensions in mil		
	Min.	Nom.	Max.
A	228	—	244
B	150	—	157
C	8	—	12
C′	335	—	346
D	54	—	60
E	—	25	—
F	4	—	10
G	22	—	28
H	7	—	10
α	0°	—	8°

Product Tape and Reel Specifications

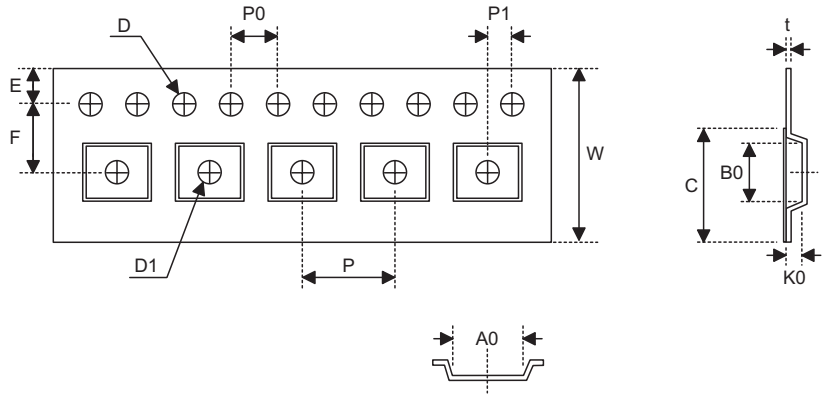
Reel Dimensions



SSOP 24N (150mil)

Symbol	Description	Dimensions in mm
A	Reel Outer Diameter	330±1.0
B	Reel Inner Diameter	62±1.5
C	Spindle Hole Diameter	13.0+0.5 −0.2
D	Key Slit Width	2.0±0.5
T1	Space Between Flange	16.8+0.3 −0.2
T2	Reel Thickness	22.2±0.2

Carrier Tape Dimensions



SSOP 24N (150mil)

Symbol	Description	Dimensions in mm
W	Carrier Tape Width	16.0+0.3 −0.1
P	Cavity Pitch	12.0±0.1
E	Perforation Position	1.75±0.1
F	Cavity to Perforation (Width Direction)	7.5±0.1
D	Perforation Diameter	1.5+0.1
D1	Cavity Hole Diameter	1.5+0.25
P0	Perforation Pitch	4.0±0.1
P1	Cavity to Perforation (Length Direction)	2.0±0.1
A0	Cavity Length	8.2±0.1
B0	Cavity Width	8.6±0.1
K0	Cavity Depth	3.0±0.1
t	Carrier Tape Thickness	0.35±0.05
C	Cover Tape Width	13.3

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