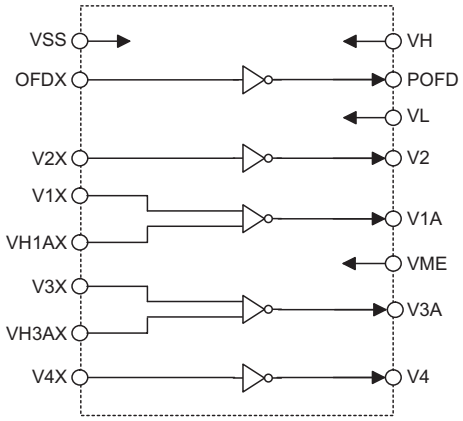
Features

- 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:
    2 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 15V
- Switchable between NTSC (EIA) and PAL (CCIR) modes
- 16-pin SSOP (150mil) package

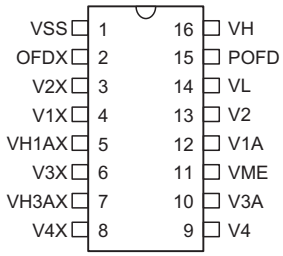
General Description

HT82V804 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



HT82V804
— 16 SSOP-A

Pin Description

Pin No.	Pin Name	I/O	Description
1	VSS	—	Negative power supply, ground
2	OFDX	I	Electronic shutter pulse input
4, 3, 6, 8	V1X, V2X, V3X, V4X	I	Vertical transfer pulse input
5, 7	VH1AX, VH3AX	I	Pulse that transfers the charge of the photo-diode to the vertical shift register.
9	V4	O	Pulse to drive vertical CCD shift register (2 level: VME, VL)
10	V3A	O	Pulse to drive vertical CCD shift register (3 level: VME, VL, VH)
11	VME	—	Power supply for intermediate level of V1A, V3A
12	V1A	O	Pulse to drive vertical CCD shift register (3 level: VME, VL, VH)
13	V2	O	Pulse to drive vertical CCD shift register (2 level: VME, VL)
14	VL	—	Power supply for all low level output pulses
15	POFD	O	Electronic shutter pulse output (2 level: VL, VH)
16	VH	—	Power supply for high level of V1A, V3A

Absolute Maximum Ratings

Supply Voltage ..... V_{SS}–0.3V to V_L+35V

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

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	Value	Unit
V_{DD}	Supply Voltage	3.0 ~ 5.5	V
V_H		–0.3 ~ V_L+35	V
V_L		0 ~ –10	V
VME		V_L–0.3 ~ 3.0	V
V1A, V2, V3A, V4, POFD	Output Voltage	V_L–0.3 ~ V_H+0.3	V

Logic Function Table

Input				Output		
V1X, V3X	VH1AX, VH3AX	V2X, V4X	OFDX	V1A, V3A	V2, V4	POFD
L	L	—	—	VH	—	—
H	L	—	—	Z	—	—
L	H	—	—	VME	—	—
H	H	—	—	VL	—	—
—	—	L	—	—	VME	—
—	—	H	—	—	VL	—
—	—	—	L	—	—	VH
—	—	—	H	—	—	VL

D.C. Characteristics

V_H=15V, V_L=–9V, V_{ME}=0V, Ta=25°C

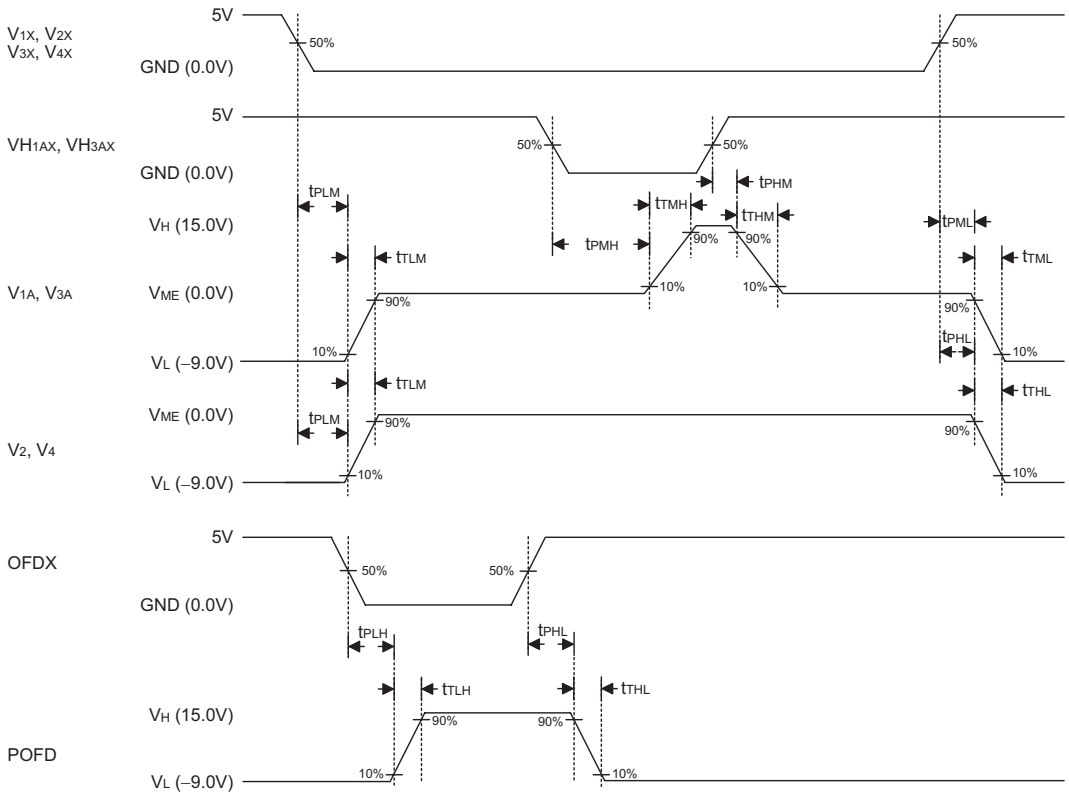
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V_{DD}	Logic Supply Voltage	—	3.0	3.3	5.5	V
V_H	Supply Voltage	—	14.5	15	15.5	V
V_L	Supply Voltage	—	–9.5	–8.5	–7.5	V
V_{IH}	High Level Input Voltage	—	2.3	—	—	V
V_{IL}	Low Level Input Voltage	—	—	—	1.2	V
I_{VH}	Operating Current	Shutter speed=100kHz	—	2.0	3.5	mA
I_{VL}			—	4.5	5.0	mA
I_{VME}			—	–6.5	—	mA
I_{OL}	Output Current	V1A, V2, V3A, V4=–9.0V	—	37	—	mA
I_{OM1}		V1A, V2, V3A, V4=–0.5V	—	–15	–10	mA
I_{OM2}		V1A, V3A=0.5V	—	13.5	—	mA
I_{OH}		V1A, V3A=14.5V	—	–18	–12	mA
I_{OSL}		OFDX=–8.0V	—	18	—	mA
I_{OSH}		OFDX=14.5V	—	–10.5	–7	mA

A.C. Characteristics

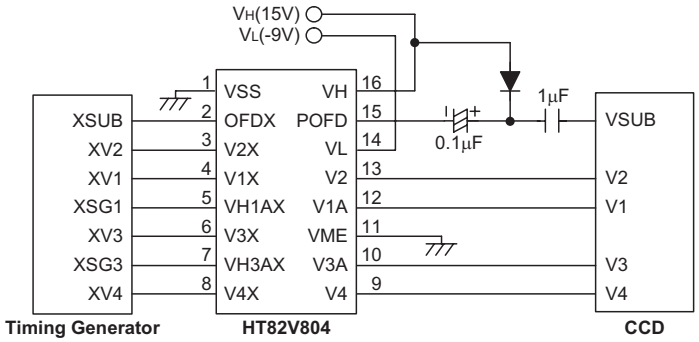
Ta=25°C

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
t_{PLM}	Delay Time	V_H=15V, V_L=–8.5V, V_{ME}=0V	—	40	80	ns
t_{PMH}		V_H=15V, V_L=–8.5V, V_{ME}=0V	—	30	80	ns
t_{PLH}		V_H=15V, V_L=–8.5V, V_{ME}=0V	—	40	120	ns
t_{PML}		V_H=15V, V_L=–8.5V, V_{ME}=0V	—	100	240	ns
t_{PHM}		V_H=15V, V_L=–8.5V, V_{ME}=0V	—	100	210	ns
t_{PHL}		V_H=15V, V_L=–8.5V, V_{ME}=0V	—	60	120	ns
t_{TLM}	Rising Time	V_H=15V, V_L=–8.5V, V_{ME}=0V	—	700	1110	ns
t_{TMH}		V_H=15V, V_L=–8.5V, V_{ME}=0V	—	650	1110	ns
t_{TLH}		V_H=15V, V_L=–8.5V, V_{ME}=0V	—	50	120	ns
t_{TML}		V_H=15V, V_L=–8.5V, V_{ME}=0V	—	300	600	ns
t_{THM}		V_H=15V, V_L=–8.5V, V_{ME}=0V	—	600	980	ns
t_{THL}		V_H=15V, V_L=–8.5V, V_{ME}=0V	—	50	120	ns

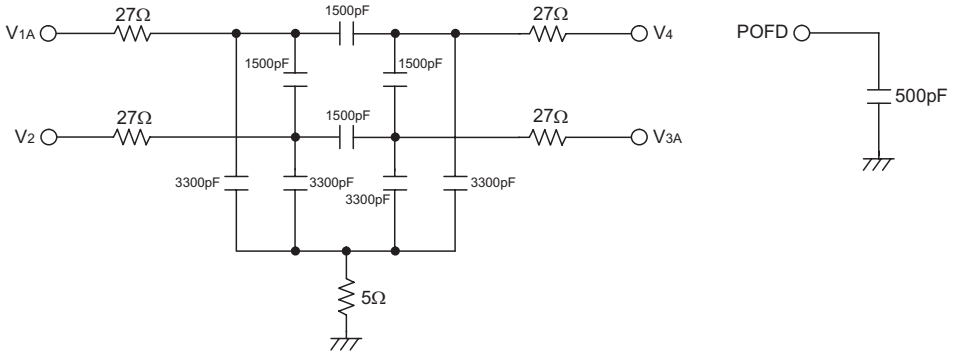
Timing Diagrams



Application Circuits

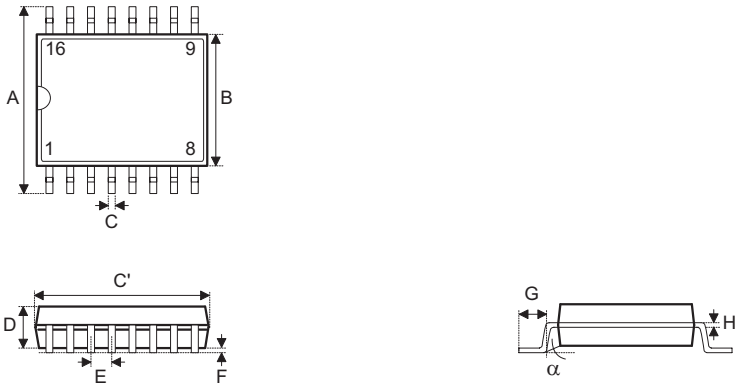


Equivalent Circuits



Package Information

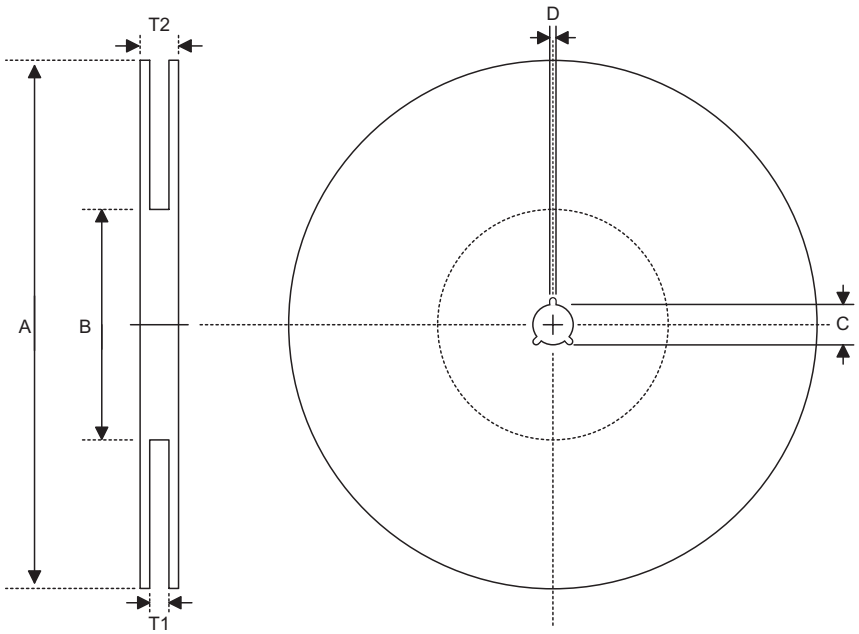
16-pin SSOP (150mil) Outline Dimensions



Symbol	Dimensions in mil		
	Min.	Nom.	Max.
A	228	—	244
B	150	—	157
C	8	—	12
C′	189	—	197
D	54	—	60
E	—	25	—
F	4	—	10
G	22	—	28
H	7	—	10
α	0°	—	8°

Product Tape and Reel Specifications

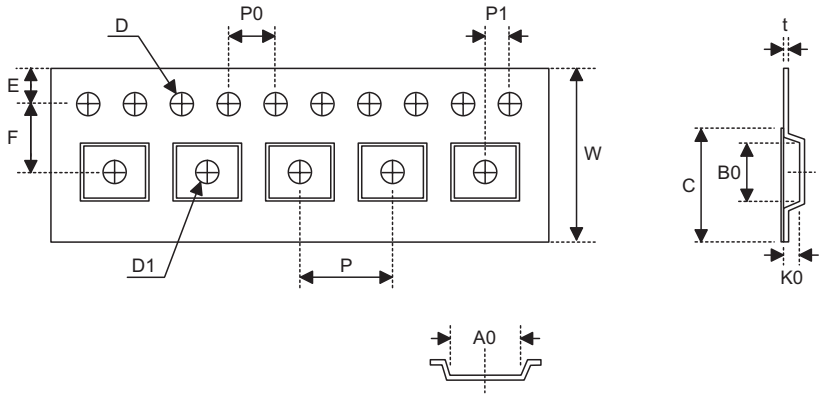
Reel Dimensions



SSOP 16S

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	12.8+0.3 −0.2
T2	Reel Thickness	18.2±0.2

Carrier Tape Dimensions



SSOP 16S

Symbol	Description	Dimensions in mm
W	Carrier Tape Width	12.0+0.3 −0.1
P	Cavity Pitch	8.0±0.1
E	Perforation Position	1.75±0.1
F	Cavity to Perforation (Width Direction)	5.5±0.1
D	Perforation Diameter	1.55±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	6.4±0.1
B0	Cavity Width	5.2±0.1
K0	Cavity Depth	2.1±0.1
t	Carrier Tape Thickness	0.30±0.05
C	Cover Tape Width	9.3

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