

CCD Camera Scanning System Timing Signal Generator

Description

CX23047A has been developed as a CMOS type LSI to be used for the scanning system for both imagers of ICX018-K/L(NTSC), and ICX021-K/L(CCIR), and displays the following functions by using together with CX-7930A (synchronized signal generator).

- Generates imagers (ICX018-K/L and ICX021-K/L) drive pulses.
- Generates signal processing pulses for color and B & W cameras.
- Switchover of NTSC/CCIR modes is possible.
- Correction of defect of 1 picture element of every 1H of imager is possible. (external ROM is appended)

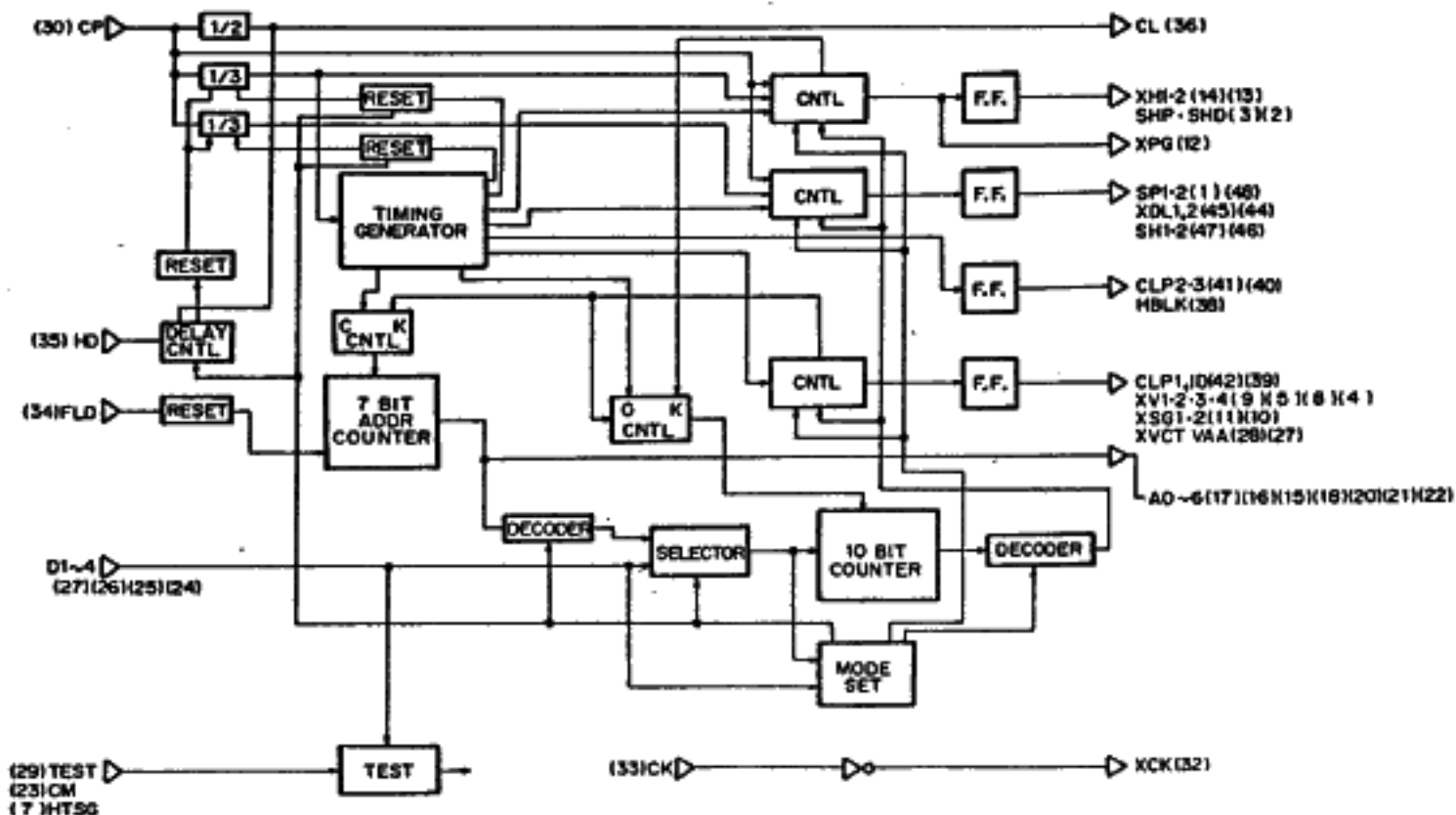
Absolute Maximum Ratings (Ta=25°C, Vss=0V)

- Power supply voltage VDD Vss-0.5 to 7.0 V
- Input voltage Vi Vss-0.5 to VDD+0.5V
- Output voltage Vo Vss-0.5 to VDD+0.5V
- Operation temperature Topr -20 to +70 °C
- Storage temperature Tstg -55 to +150 °C
- Allowable power Pd 500 mW dissipation

Recommended Operating Condition

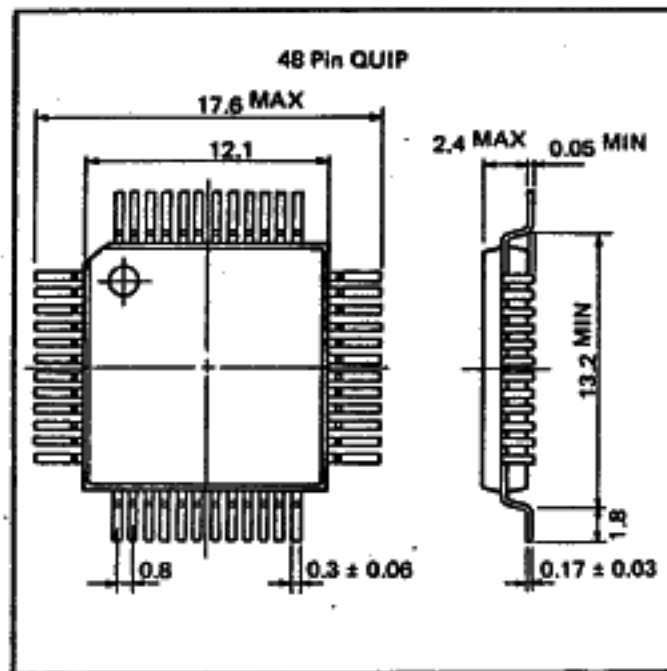
5.0 ± 0.25 V

Block Diagram

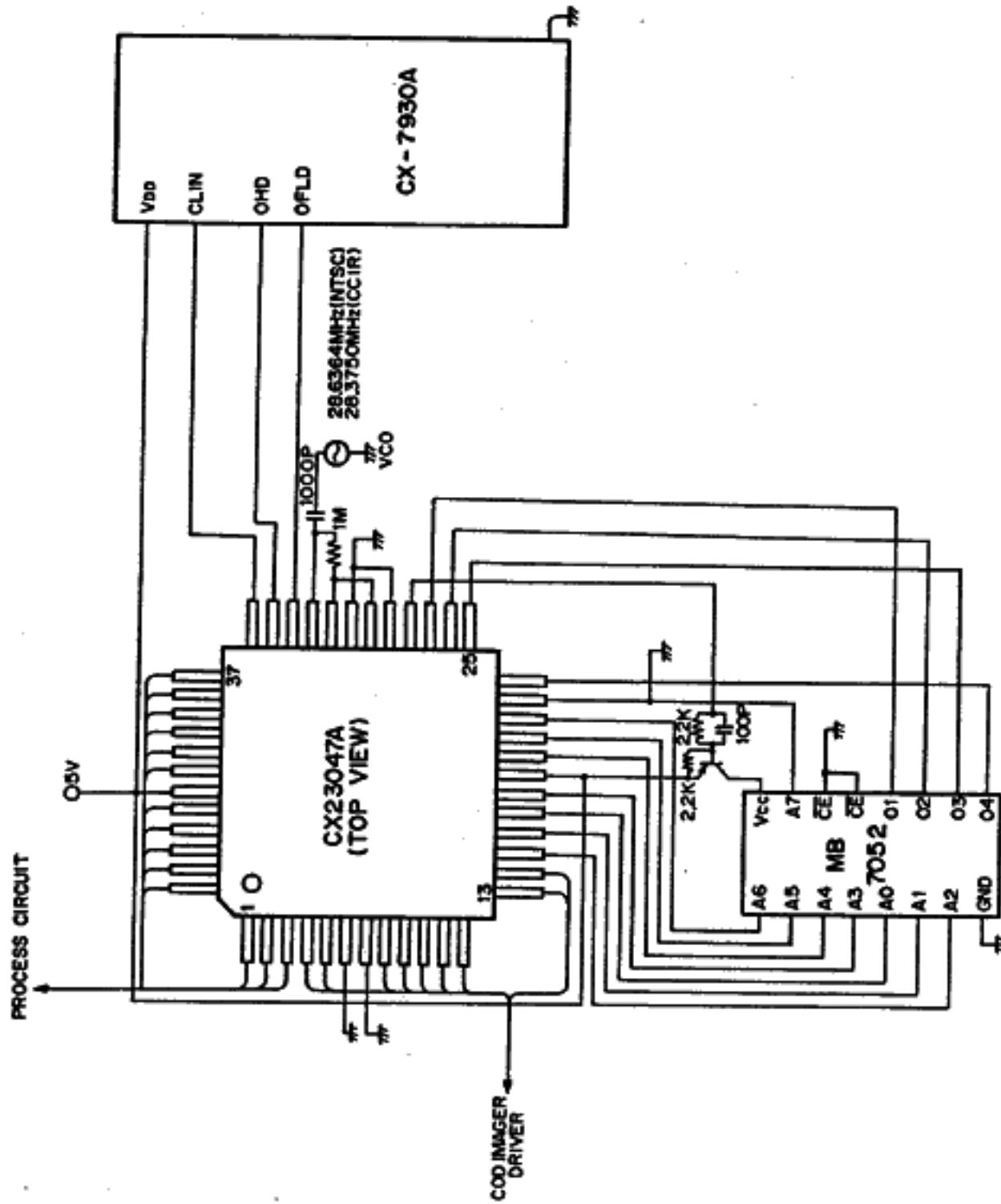


Package Outline

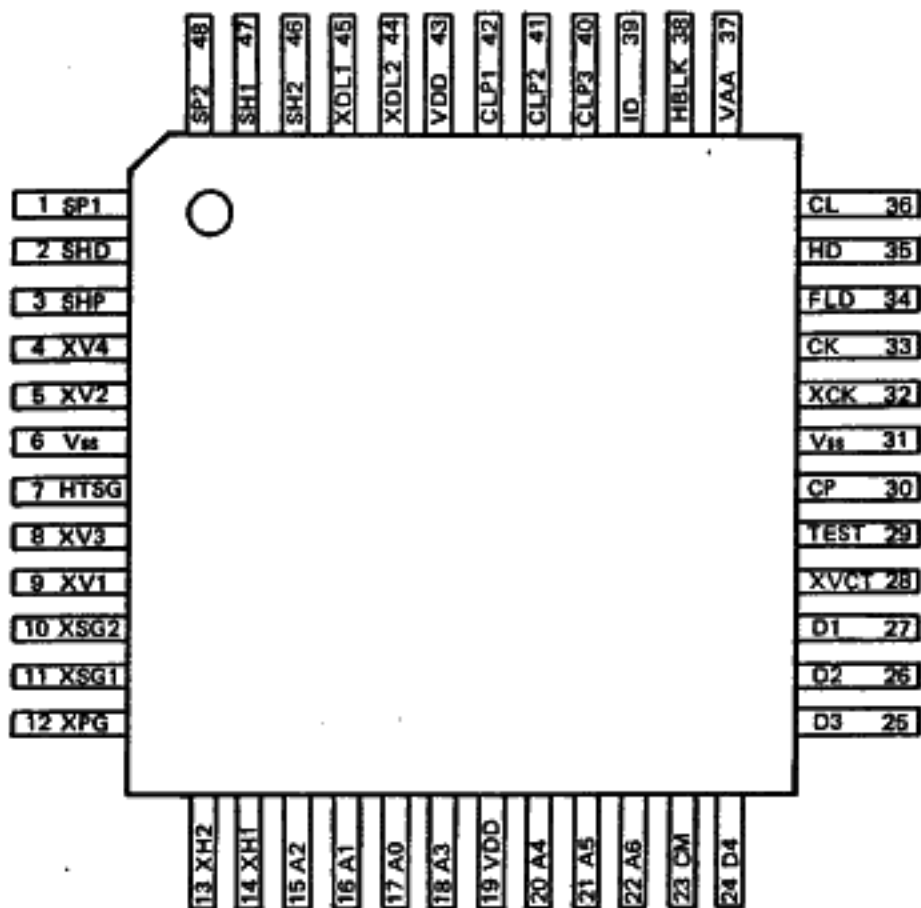
Unit: mm



Application Circuit



Terminal Alignment




(TOP VIEW)

Terminal number and name table

Pin No.	I/O	Symbol	Pin No.	I/O	Symbol	Pin No.	I/O	Symbol	Pin No.	I/O	Symbol
1	O	SP1	13	O	XH2	25	I	D3	37	O	VAA
2	O	SHD	14	O	XH1	26	I	D2	38	O	HBLK
3	O	SHP	15	O	A2	27	I	D1	39	O	ID
4	O	XV4	16	O	A1	28	O	XVCT	40	O	CLP3
5	O	XV2	17	O	A0	29	I	TEST	41	O	CLP2
6	P*	Vss	18	O	A3	30	I	CP	42	O	CLP1
7	I	HTSG	19	P*	VDD	31	P*	Vss	43	P*	VDD
8	O	XV3	20	O	A4	32	O	XCK	44	O	XDL2
9	O	XV1	21	O	A5	33	I	CK	45	O	XDL1
10	O	XSG2	22	O	A6	34	I	FLD	46	O	SH2
11	O	XSG1	23	I	CM	35	I	HD	47	O	SH1
12	O	XPG	24	I	D4	36	O	CL	48	O	SP2

* P: power source

Terminal Description

Pin No.	Symbol	I/O	Description
4, 5, 8, 9	XV1 to XV4	O	Imager driving pulse. Add inverse shape driver and drive CCD imagers (ICX-018 and ICX-021).
10, 11	XSG1, 2	O	
12	XPG	O	
13, 14	XH1, 2	O	
15 to 18 20 to 22	A0 to A6	O	Address output for external ROM. A6 is MSB.
23	CM	I	Test pin. Normally GND.
24 to 27	D4 to D1	I	External ROM input pin. When external ROM is not used, mode setting is possible by pulling up or pulling down. When ROM is not used: D1 ... always GND D2 ... GND: monochrome mode, Vcc: color mode D3 ... always Vcc D4 ... GND: CCIR, Vcc: NTSC
28	XVCT	O	ROM (MB7052) power supply switching pulse. When performing switching, it is necessary to add PNP transistor.
29	TEST	I	Test pin. Normally GND.
30	CP	I	Clock input. NTSC: 28.6364 MHz. CCIR: 28.3750 MHz
32	XCK	O	Inverter circuit 
33	CK	I	
34, 35	FLD, HD	I	Synchronizing signal input. It is taken in by trailing of CL (Pin 36).
36	CL	O	Clock output for SYNC generator (CX-7930A). Half the frequency of CP
37	VAA	O	Vertical effective sphere of CCD imager output. Used together with CLP1 in the clamping circuit.
38	HBLK	O	Horizontal effective sphere of CCD imager output. Used for pre-blanking.
39	ID	O	R/B lines discriminating signal. B line ... "H", R line ... "L"
40, 41	CLP2, 3	O	Clamping pulse. Continuous pulse.
42	CLP1	O	Clamping pulse. CCD output optical black section clamping pulse.
44, 45	XDL1, 2	O	1H delay line (CX23039) driving pulse.
46, 47	SH1, 2	O	Sample hold pulse for 1H delay line (CX23039).
48, 1	SP1, 2	O	Sample hold pulse for color separation. Possesses defect correction function.
2	SHD	O	Sample hold pulse for imager output. Possesses defect correction function.
3	SHP	O	Pulse to sample hold the pre-charge level of imager output.
7	HTSG	I	Test pin. Normally GND.
6, 31	Vss	I	Ground pin.
19, 43	VDD	I	+5V power source pin.

Electrical Characteristics

Direct current characteristics

$V_{DD} = 5V \pm 5\%$ $V_{SS} = 0V$
 $T_{opr} = -20$ to $+75^{\circ}C$

Characteristic		Symbol	Condition	Rating			Unit
				Min.	Typ.	Max.	
Power supply Current		IDDS	Stationary state	0		0.1	mA
Output voltage	H level	VOH	$I_{OH} = -0.4$ mA	4.0		V_{DD}	V
	L level	VOL	$I_{OL} = 3.2$ mA	V_{SS}		0.4	V
Input voltage	H level	VIH		2.4			V
	L level	VIL				0.8	V
Input leakage current		ILI	$V_I = 0V$ to V_{DD}	-10		10	μA

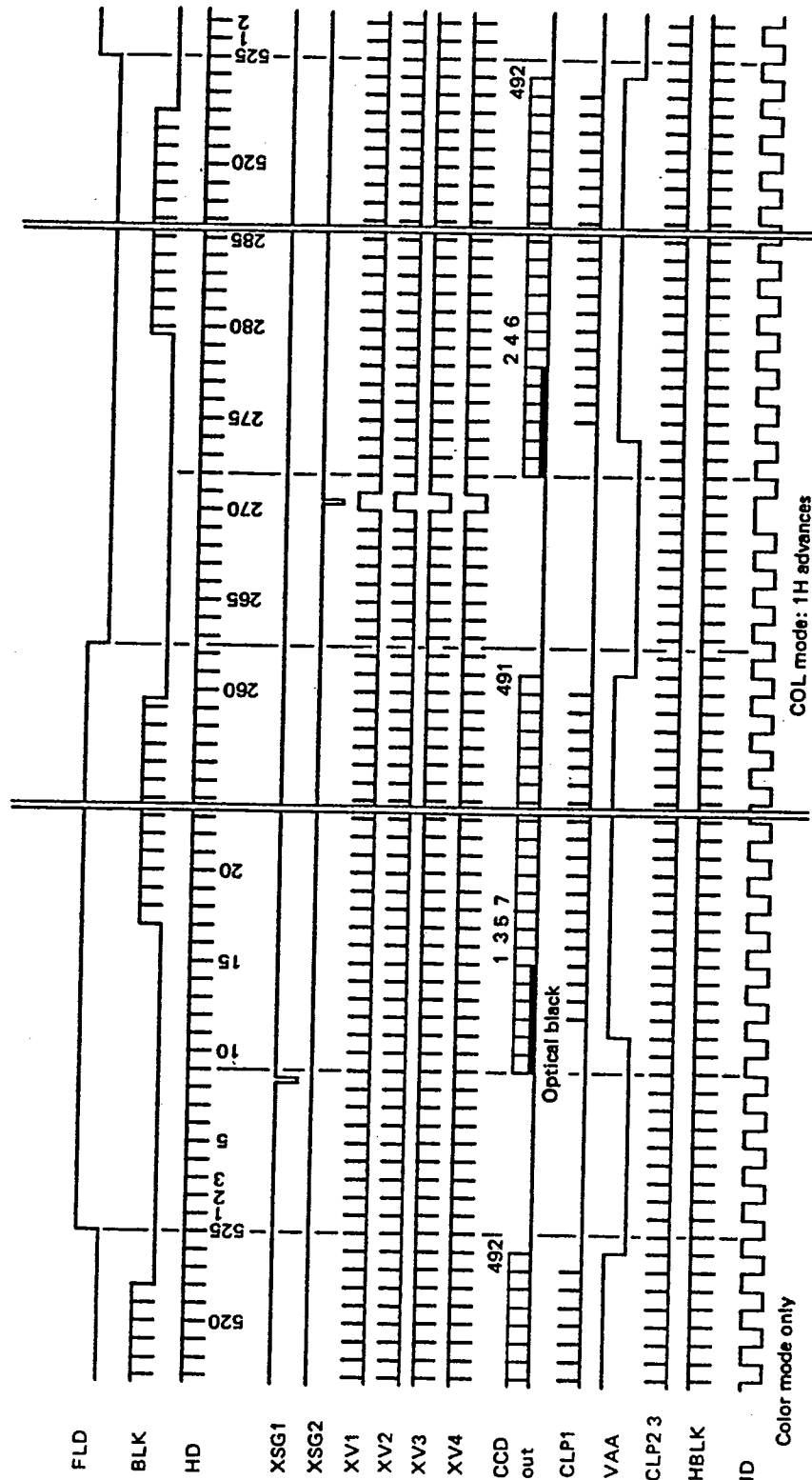
Note 2; $V_{IH} = V_{DD}$, $V_{IL} = V_{SS}$

Input/Output capacity

Characteristic	Symbol	Rating			Unit
		Min.	Typ.	Max.	
Input pin	CIN			9	pF
Output pin	COUT			9	pF

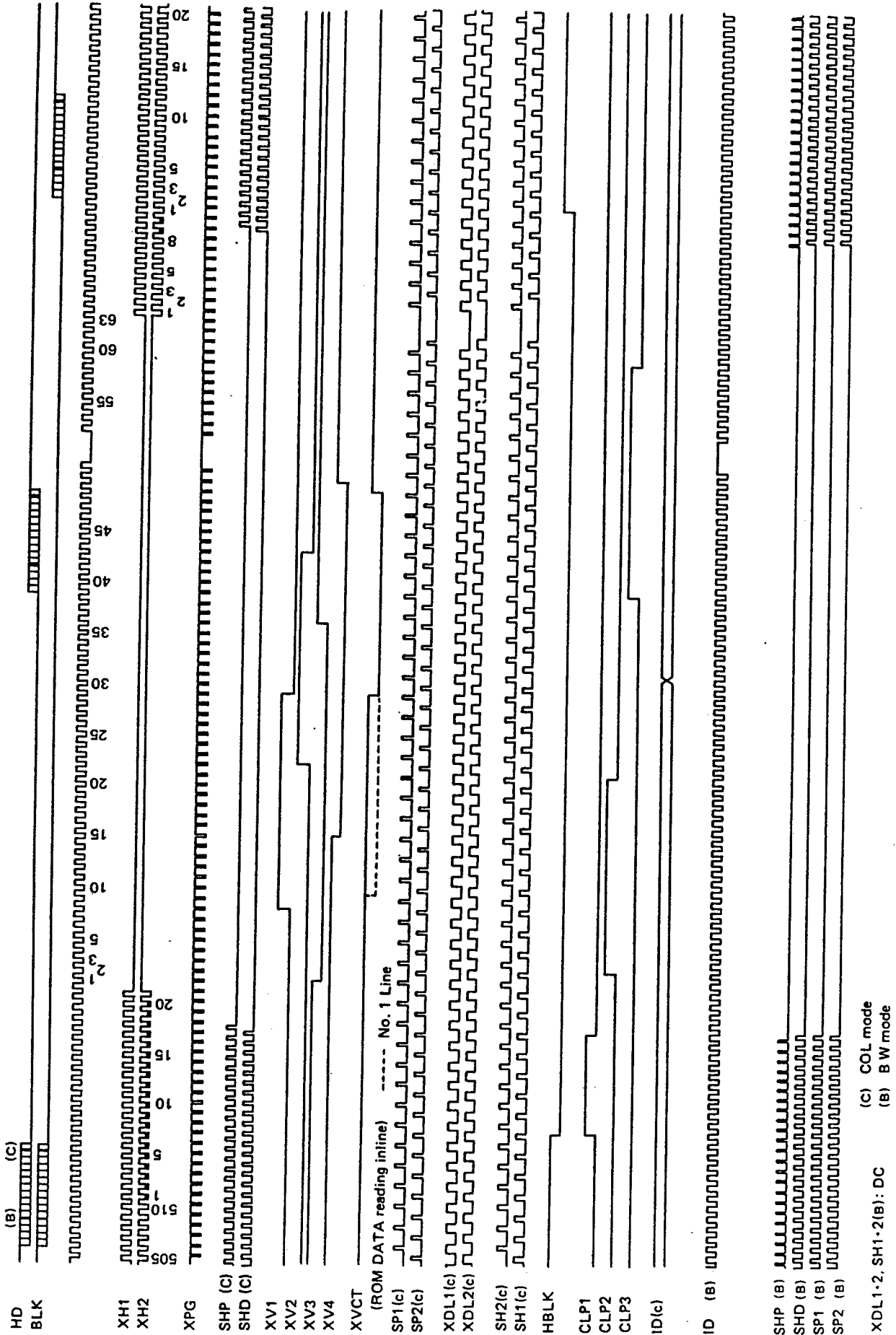
Measuring condition: $V_{DD}=V_I=0V$, $f_M=1$ MHz

NTSC BW ROM OFF

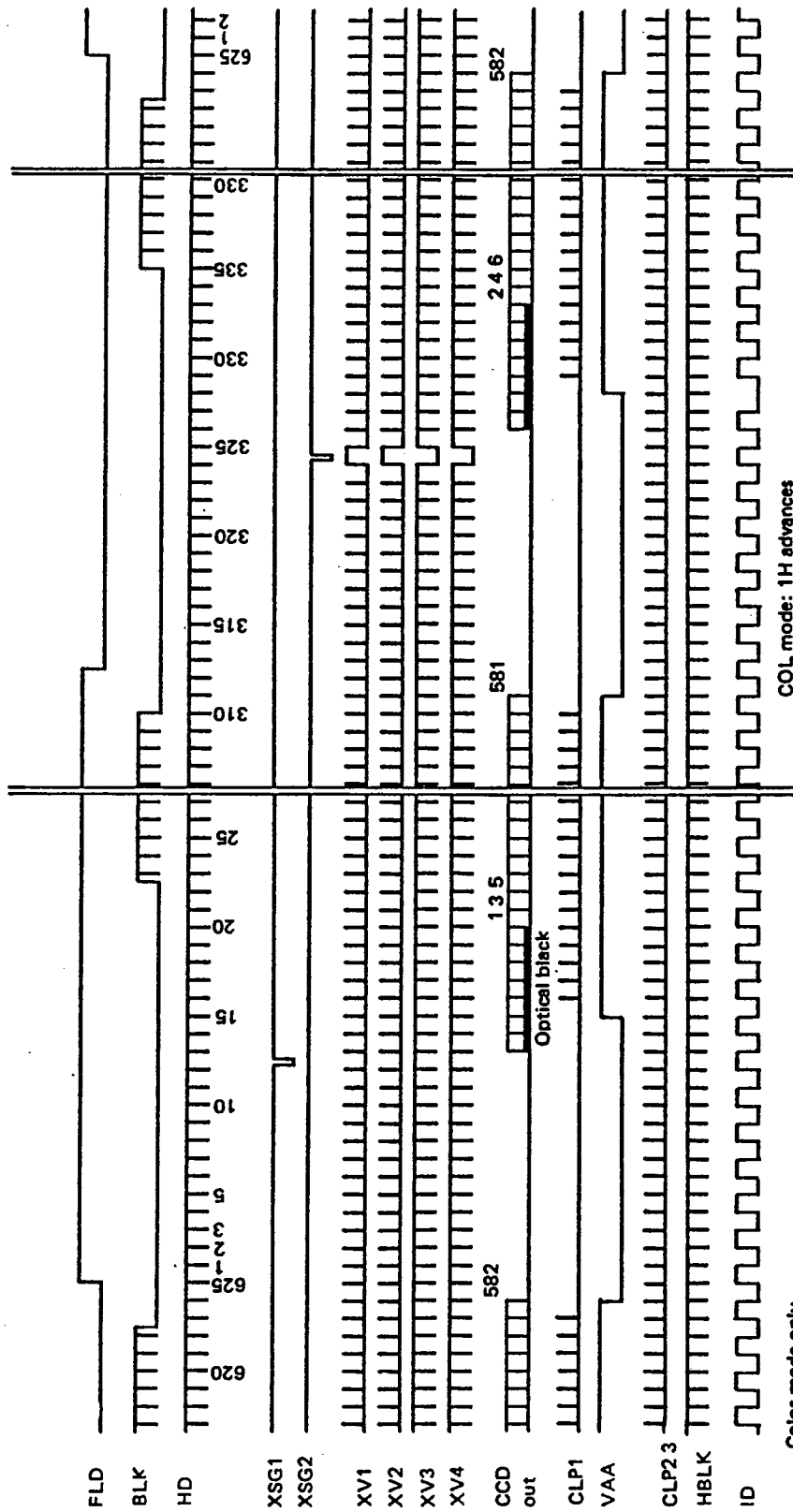


CX23047A

CX23047A (NTSC) (ROM OFF)



CCIR.BW.ROM OFF

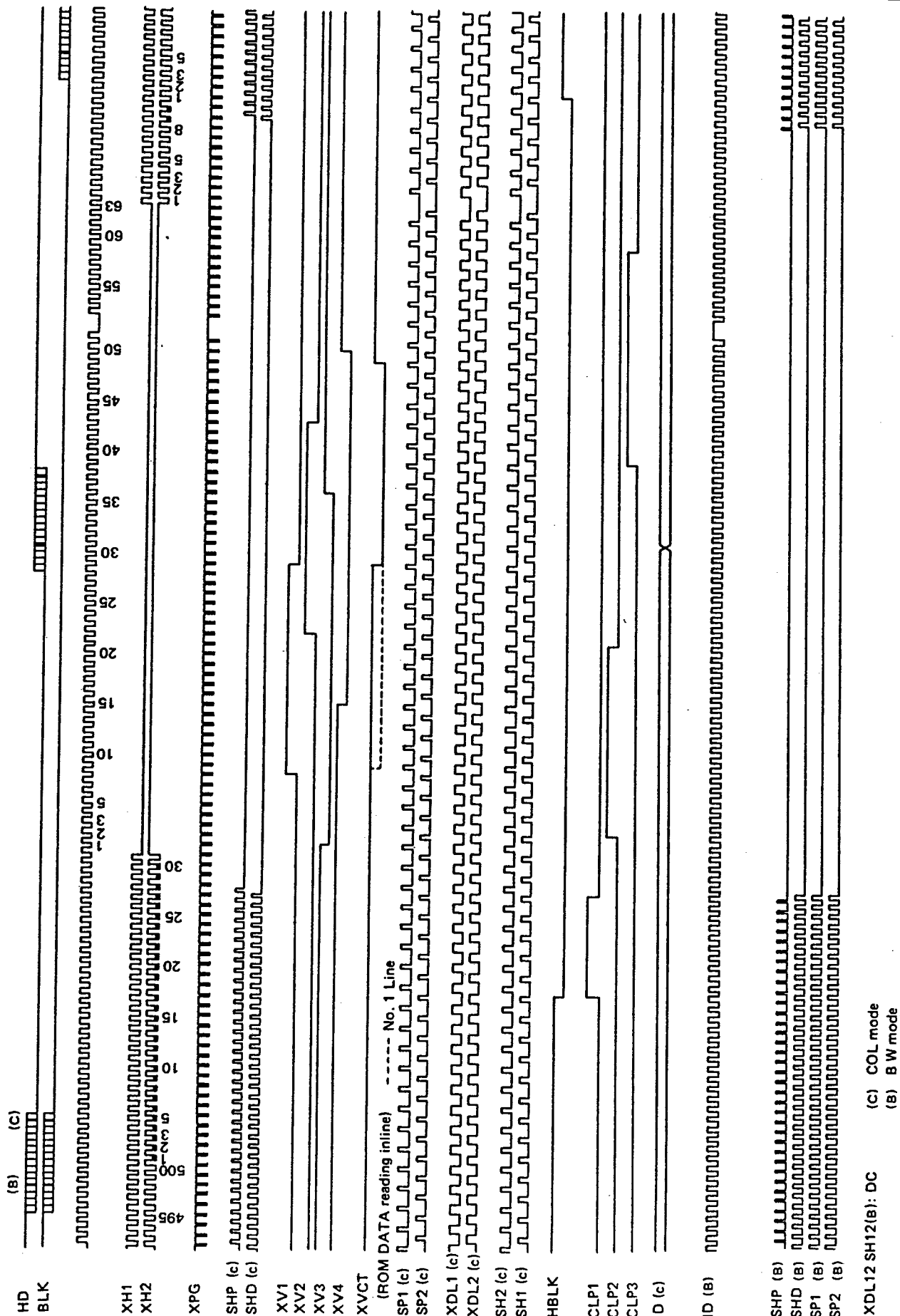


Color mode only

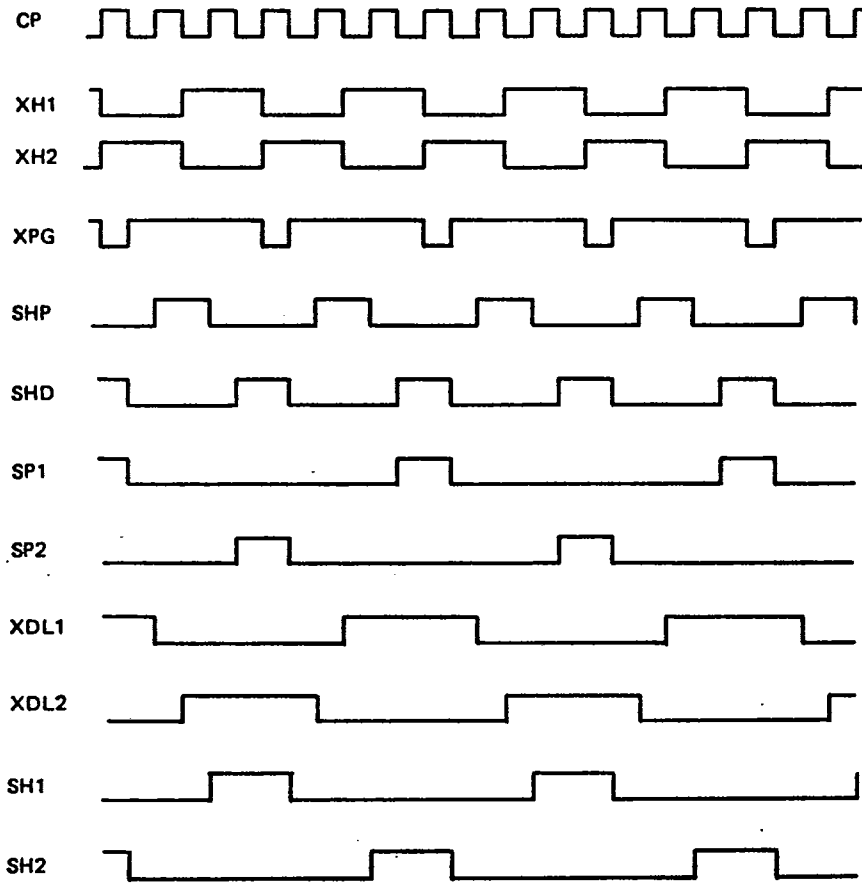
CX23047A

SONY®

CX23047A (CCIR) (ROM OFF)



COL.ROM OFF



BW.ROM OFF

