SHARP

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To;

PRELIMINARY
SPECIFICATIONS

Product Type Drive IC for 270K, 320K pixels B/W CCD

Model No. LR38584

※This specifications contains 31 pages including the cover and appendix.
If you have any objections, please contact us before issuing purchasing order.

CUSTOMERS ACCEPTANCE

DATE:

BY:

PRESENTED

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Dept. General Manager

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LR38584

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- ·Office electronics
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- ·Machine tools
- ·Audiovisual equipment
- ·Home appliances
- ·Communication equipment other than for trunk lines

(2) Those contemplating using the products covered herein for the following equipment which demands high reliability, should first contact a sales representative of the company and then accept responsibility for incorporating into the design fail-safe operation, redundancy, and other appropriate measures for ensuring reliability and safety of the equipment and the overall system.

- ·Control and safety devices for airplanes, trains, automobiles, and other transportation equipment
- ·Mainframe computers
- ·Traffic control systems
- ·Gas leak detectors and automatic cutoff devices
- ·Rescue and security equipment
- ·Other safety devices and safety equipment, etc.

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- ·Aerospace equipment
- ·Communications equipment for trunk lines
- ·Control equipment for the nuclear power industry
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● Please direct all queries regarding the products covered herein to a sales representative of the company.

CONTENTS

1. General

The LR38584 is a CMOS gate array LSI. It generates timing pulses for driving a Two-power operation CCD area sensor which has 270,000 or 320,000 pixels, synchronous pulse for TV signals and processing for video signals.

1-1. Features

* The package material is plastic.
* A p-type silicon circuit board is used.
* The package type is 48-pin QFP (0.5mm pin pitch)
* The process (structure) is CMOS.
* The delay time per 1 gate is 0.5ns.
* Not designed or rated as radiation hardened.

1-2. Functions

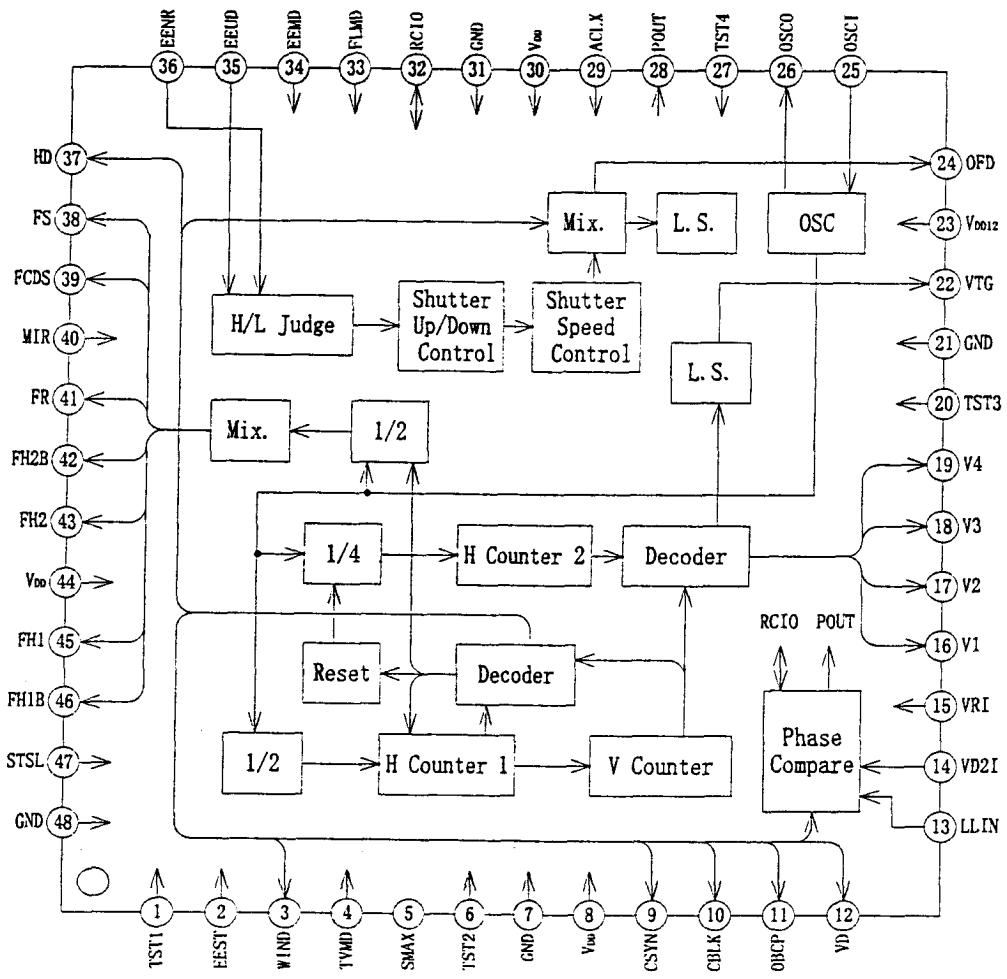
* Designed for Two-power operation CCD monochrome area sensor with 270,000 or 320,000 pixels.
* Switchable between EIA and CCIR mode.
* Included the level-shifter for Readout and Shutter pulses.
* +5V and +12.5V power supply.
* Electronic shutter and EE control is possible.
* To select the following max. shutter speed is possible about 1/100,000s , 1/50,000 and 1/30,000s.
* To select the following start shutter speed is possible about 1/100,000s and 1/1,000s.
* Mirror image control function is possible.
* Line-locked is possible.

2. Pin Assignment

PIN NO.	I/O	SIGNAL	PIN NO.	I/O	SIGNAL
1	ICD	TST1	25	OSCI	OSCI
2	ICU	EEST	26	OSC3M	OSCO
3	ON	WIND	27	ICD	TST4
4	ICU	TVMD	28	TO6M	POUT
5	ICU	SMAX	29	ICU	ACLX
6	ICD	TST2	30	-	V_{DD}
7	-	GND	31	-	GND
8	-	V_{DD}	32	IO0	RCIO
9	O	CSYN	33	ICU	FLMD
10	O	CBLK	34	ICU	EEMD
11	O	OBCP	35	IC	EEUD
12	O	VD	36	IC	EENR
13	ICSU	LLIN	37	O	HD
14	ICSU	VD2I	38	O4MA2	FS
15	ICSU	VRI	39	O4MA2	FCDS
16	O4MA2	V1	40	ICU	MIR
17	O4MA2	V2	41	O4MA3	FR
18	O4MA2	V3	42	O4MA2	FH2B
19	O4MA2	V4	43	O4MA3	FH2
20	ICD	TST3	44	-	V_{DD}
21	-	GND	45	O4MA3	FH1
22	O12MHV	VTG	46	O4MA2	FH1B
23	-	V_{DD12}	47	ICU	STSL
24	O12MHV	OFD	48	-	GND

IC : Input (CMOS level)
ICU : Input (CMOS level with pull-up resister)
ICD : Input (CMOS level with pull-down resister)
ICSU : Input (CMOS schmitt-trigger level with pull-up resister)
IO0 : Input and output (CMOS level input and output)
O : Output (V_{DD}=5V)
O4MA2 : Output (V_{DD}=5V)
O4MA3 : Output (V_{DD}=5V)
O12MHV : Output (V_{DD12}=12.5V)
ON : Output(N-ch open drain)
TO6M : Tristate output
OSCI : Input pin for oscillation
OSC3M : Output pin for oscillation

3. Block Diagram



4. Pin Description

4-1. Pin description

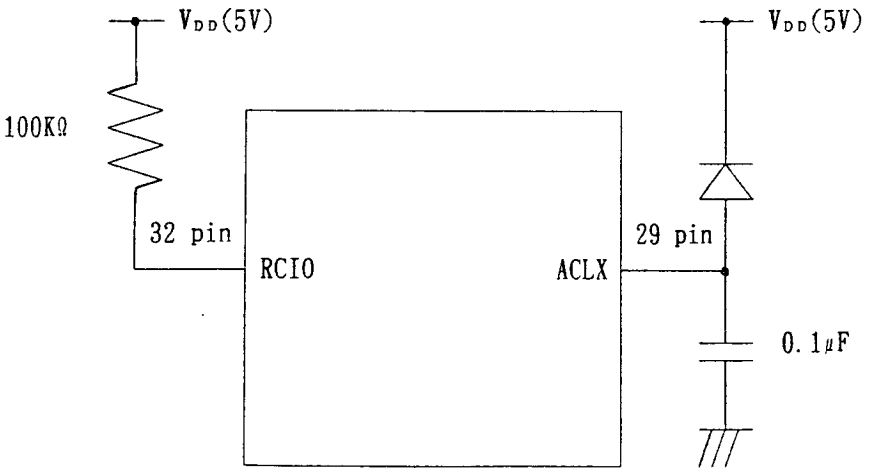
<table>
<tr><th>No.</th><th>Symbol</th><th>I/O</th><th>Pol.</th><th>Pin Name</th><th>Description</th></tr>
<tr><td>1</td><td>TST1</td><td>ICD</td><td>–</td><td>Test terminal 1</td><td>A test pin. Set open or to L level in the normal mode.</td></tr>
<tr><td>2</td><td>EEST</td><td>ICU</td><td>–</td><td>Electronic Exposure control</td><td>An input pin to control Electronic Exposure, with using EEUD(pin 35) and EENR(pin 36).
L level : Electronic Exposure is stopped.
H level or open : Electronic Exposure is operated</td></tr>
<tr><td>3</td><td>WIND</td><td>ON
N-ch Open Drain</td><td>⎍</td><td>Window pulse</td><td>An output pin for window pulse.
<table>
<tr><th>FLMD</th><th>EEMD</th><th>WIND</th></tr>
<tr><td>L</td><td>L</td><td rowspan="3">WIND1 (vertical pulse)</td></tr>
<tr><td>H</td><td>L</td></tr>
<tr><td>L</td><td>H</td></tr>
<tr><td>H</td><td>H</td><td>WIND2 (composite pulse)</td></tr>
</table>
WIND1 ; When connected to EEST(pin 2), the operation of Electronic Exposure can be stopped at the upper side of monitor.
WIND2 ; A pulse that pick out the center of CCD output.
At this time, set H level or open at EEST (pin 2). As the output circuit of WIND is N-ch open drain, to be connected to V_{DD} with R(≧47kΩ).</td></tr>
<tr><td>4</td><td>TVMD</td><td>ICU</td><td>–</td><td>TV mode select</td><td>An input pin to select TV standards.
L level ; NTSC mode
H level or open : PAL mode</td></tr>
<tr><td>5</td><td>SMAX</td><td>ICU</td><td>–</td><td>Shutter speed control input</td><td>An input pin to control max. and initial shutter speed with STSL(pin 40).
<table>
<tr><th>SMAX</th><th>STSL</th><th>max. speed</th><th>initial speed</th></tr>
<tr><td>H</td><td>H</td><td>≒1/ 32,000</td><td>≒1/ 1,000</td></tr>
<tr><td>L</td><td>H</td><td>≒1/ 56,000</td><td>≒1/ 1,000</td></tr>
<tr><td>H</td><td>L</td><td>≒1/101,000</td><td>≒1/ 1,000</td></tr>
<tr><td>L</td><td>L</td><td>≒1/101,000</td><td>≒1/101,000</td></tr>
</table></td></tr>
<tr><td>6</td><td>TST2</td><td>ICD</td><td>–</td><td>Test terminal 2</td><td>A test pin. Set open or to L level in the normal mode.</td></tr>
<tr><td>7</td><td>GND</td><td>-</td><td>–</td><td>Ground</td><td>A grounding pin.</td></tr>
<tr><td>8</td><td>V_{DD}</td><td>-</td><td>–</td><td>Power supply</td><td>Supply +5 V power.</td></tr>
<tr><td>9</td><td>CSYN</td><td>O</td><td>⎎</td><td>Composite synchronizing pulse</td><td>An output pin of composite sync. signal pulse.</td></tr>
<tr><td>10</td><td>CBLK</td><td>O</td><td>⎍</td><td>Composite blanking pulse</td><td>An output pin of composite blanking pulse.</td></tr>
<tr><td>11</td><td>OBCP</td><td>O</td><td>⎍</td><td>Optical black clamp pulse</td><td>A pulse to clamp the optical black signal.
This pulse stays low during the absence of effective pixels within the ver. blanking.</td></tr>
</table>

No.	Symbol	I/O	Pol.	Pin Name	Description
12	VD	O	⎍	Ver. drive pulse	The pulse occurs at the start of every fields.
13	LLIN	ICSU	–	Line-lock pulse input	An input pin for line-locked pulse. The priority is lower than VD2I(pin 14). The inner mono-multivibrator is operated by the falling-edge of LLIN. The width of mono-multi. output is determined by R and C, which are connected with RCIO(pin32).
14	VD2I	ICSU	–	Ext. VD pulse input	An input pin for external VD pulse. The priority is higher than LLIN(pin 13).
15	VRI	ICSU	–	Vertical reset input	An input pin for resetting internal Ver. counter. The input pulse is VSYNC. (Negative polarity)
16	V1	O4MA2	⎎	Ver. transfer pulse 1	A pulse to drive vertical CCD shiftregister. Connect to ϕV1
17	V2	O4MA2	⎎	Ver. transfer pulse 2	A pulse to drive vertical CCD shiftregister. Connect to ϕV2
18	V3	O4MA2	⎍	Ver. transfer pulse 3	A pulse to drive vertical CCD shiftregister. Connect to ϕV3
19	V4	O4MA2	⎍	Ver. transfer pulse 4	A pulse to drive vertical CCD shiftregister. Connect to ϕV4
20	TST3	ICD	–	Test terminal 3	A test pin. Set open or to L level in the normal mode.
21	GND	-	–	Ground	A grounding pin.
22	VTG	O12M HV	⎍	Read out pulse	A pulse that transfers the charge of the photo-diode to the vertical sift resister. Connect to the VTG pin of CCD.
23	V_{DD12}	-	–	Power supply	Supply +12.5 V power.
24	OFD	O12M HV	⎍	OFG pulse	A pulse that sweeps the charge of the photodiode for electronic shutter. Connect to OFD of CCD Held at L level at normal mode.
25	OSCI	OSCI	–	Clock input	An input pin for reference clock oscillation. Connect to OSCO(pin 26) with R. The frequencies are as follows : at EIA mode : 19.0699MHz (1212fH) at CCIR mode : 19.3125MHz (1236fH) fH=Hor. frequency
26	OSCO	OSC 3M	–	Clock output	An output pin for reference clock oscillation. The output is the inverse OSCI(pin 25).
27	TST4	ICD	–	Test terminal 4	A test pin. Set open or to L level in the normal mode.

No.	Symbol	I/O	Pol.	Pin Name	Description
28	POUT	TO6M	–	Phase comp. output	An output pin for phase comparator. The pulse is generated by compared inner VSYNC pulse with the falling edge of mono-multi output, which is generated by falling edge of LLIN(pin 13) or the falling edge of VD2I (pin 14). The output is following. The phase of the falling edge of the mono-multi. output or VD2I is following compared with inner VSYNC. Advanced: H level Delayed: L level Same: Hi-impedance
29	ACLX	ICU	–	All clear input	An input pin for resetting all internal circuit at power on.
30	V_{DD}	-	–	Power supply	Supply +5 V power.
31	GND	-	–	Ground	A grounding pin.
32	RCIO	IO	–	Pulse width control output/input	The pin for determined the width of the mono-multi pulse to use LLIN(Line-locked circuit). To be connected R to V_{DD}, and C to GND. To be connected R to V_{DD} (=100kΩ) for input protection, when no use LLIN(Line-locked).
33	FLMD	ICU	–	Electronic Exposure and WIND pulse control 1	An input pin to control Electronic Exposure mode, Flickerless mode and WIND(pin3) pulse output. FLMD / EEMD / Electronic Shutter mode / WIND L / L / OFF;1/ 60s (CCIR:1/ 50s) / WIND1 H / L / 1/100s (CCIR;1/120s) / WIND1 L / H / E/E operation / WIND1 H / H / E/E operation / WIND2
34	EEMD	ICU	–	Electronic Exposure and WIND pulse control 2	An input pin to control Electronic Exposure mode, Flickerless mode and WIND(pin3) pulse output using with FLMD(pin13).
35	EEUD	IC	–	Electronic Exposure control 1	An input pin to control Electronic Exposure. EEUD / EENR / Shutter speed H / L / up H / H / control stopped L / H / down
36	EENR	IC	–	Electronic Exposure control 2	
37	HD	O	⎍	Hor. drive pulse	The pulse occurs at the start of every lines.
38	FS	O4MA2	⎍	CDS pulse 2	A pulse to sample-hold the signal from CCD.
39	FCDS	O4MA2	⎍	CDS pulse 1	A pulse to clamp the feed-through level from CCD.

<table>
<tr><th>No.</th><th>Symbol</th><th>I/O</th><th>Pol.</th><th>Pin Name</th><th>Description</th></tr>
<tr><td>40</td><td>MIR</td><td>ICU</td><td>−</td><td>Mirror mode select</td><td>An input pin to select Mirror image mode or Normal
L level : Normal image mode
H level or open : Mirror image mode
<table>
<tr><th>MIR</th><th>L</th><th>H or open</th></tr>
<tr><td></td><td>(Normal mode)</td><td>(Mirror mode)</td></tr>
<tr><td>FH1B</td><td>≒FH1</td><td>≒FH2</td></tr>
<tr><td>FH2B</td><td>≒FH2</td><td>≒FH1</td></tr>
</table></td></tr>
<tr><td>41</td><td>FR</td><td>04MA3</td><td>⎍</td><td>Reset pulse</td><td>A pulse to reset the charge of output circuit. Connect to φR of CCD through the D.C. offset circuit.</td></tr>
<tr><td>42</td><td>FH2B</td><td>04MA2</td><td>⎍</td><td>Hor. transfer pulse 2B</td><td>A pulse to drive horizontal CCD shiftregister. Connect to φH2B of CCD.</td></tr>
<tr><td>43</td><td>FH2</td><td>04MA3</td><td>⎍</td><td>Hor. transfer pulse 2</td><td>A pulse to drive horizontal CCD shiftregister. Connect to φH2 of CCD.</td></tr>
<tr><td>44</td><td>V_{DD}</td><td>−</td><td>−</td><td>Power supply</td><td>Supply +5 V power.</td></tr>
<tr><td>45</td><td>FH1</td><td>04MA3</td><td>⎍</td><td>Hor. transfer pulse 1</td><td>A pulse to drive horizontal CCD shiftregister. Connect to φH1 of CCD.</td></tr>
<tr><td>46</td><td>FH1B</td><td>04MA2</td><td>⎍</td><td>Hor. transfer pulse 1B</td><td>A pulse to drive horizontal CCD shiftregister. Connect to φH1B of CCD.</td></tr>
<tr><td>47</td><td>STSL</td><td>ICU</td><td>−</td><td>Shutter speed control input</td><td>An input pin to control max. and initial shutter speed with SMAX(pin 37).
<table>
<tr><th>SMAX</th><th>STSL</th><th>max. speed</th><th>initial speed</th></tr>
<tr><td>H</td><td>H</td><td>≒1/ 32,000</td><td>≒1/ 1,000</td></tr>
<tr><td>L</td><td>H</td><td>≒1/ 56,000</td><td>≒1/ 1,000</td></tr>
<tr><td>H</td><td>L</td><td>≒1/101,000</td><td>≒1/ 1,000</td></tr>
<tr><td>L</td><td>L</td><td>≒1/101,000</td><td>≒1/101,000</td></tr>
</table></td></tr>
<tr><td>48</td><td>GND</td><td>-</td><td>−</td><td>Ground</td><td>A grounding pin.</td></tr>
</table>

Note How to use ACLX pin (29 pin).
And how to use RCIO pin (32 pin), when the LLIN pin (Line-locked) is not used.



4-2. Supplementary explanation

4-2-1. Shutter speed changes at Electronic Exposure control mode.

EIA				CCIR			
No.	Charge time	shutter speed	Ratio	No.	Charge time	shutter speed	Ratio
0	262H or 263H	≒1/ 60秒		0	312H or 313H	≒1/ 50秒	
1	259H+α	≒1/ 61秒	2.8~	1	309H+β	≒1/ 51秒	3.3~
・	(7Hステップ)		3.4%	・	(10Hステップ)		3.9%
9	203H+α	≒1/ 77秒		6	259H+β	≒1/ 60秒	
10	198H+α	≒1/ 79秒	2.5~	7	252H+β	≒1/ 62秒	2.8~
・	(5Hステップ)		3.0%	・	(7Hステップ)		3.4%
15	173H+α	≒1/ 91秒		14	203H+β	≒1/ 77秒	
16	168H+α	≒1/ 93秒		15	198H+β	≒1/ 79秒	2.5~
17	164H+α	≒1/ 96秒	2.4~	・	(5Hステップ)		3.0%
・	(4Hステップ)		3.0%	21	168H+β	≒1/ 93秒	
24	136H+α	≒1/ 115秒		22	164H+β	≒1/ 95秒	2.4~
25	132H+α	≒1/ 119秒		・	(4Hステップ)		3.0%
26	129H+α	≒1/ 122秒	2.3~	30	132H+β	≒1/ 118秒	
・	(3Hステップ)		3.1%	31	129H+β	≒1/ 121秒	2.3~
36	99H+α	≒1/ 158秒		・	(3Hステップ)		3.1%
37	96H+α	≒1/ 163秒		42	96H+β	≒1/ 162秒	
38	94H+α	≒1/ 167秒	2.1~	43	94H+β	≒1/ 166秒	2.1~
・	(2Hステップ)		3.3%	・	(2Hステップ)		3.3%
55	60H+α	≒1/ 261秒		60	60H+β	≒1/ 259秒	
56	59H+α	≒1/ 265秒		61	59H+β	≒1/ 263秒	
・	(1Hステップ)			・	(1Hステップ)		
99	16H+α	≒1/ 960秒	1.7~	104	16H+β	≒1/ 955秒	1.7~
100	15H+α	≒1/ 1,020秒	9.6%	105	15H+β	≒1/ 1,020秒	9.6%
・	(1Hステップ)			・	(1Hステップ)		
105	10H+α	≒1/ 1,520秒		110	10H+β	≒1/ 1,510秒	
106	t106n	≒1/ 1,540秒	1.6~	111	t111p	≒1/ 1,530秒	1.6~
・			5%	・			5%
230	t230n	≒1/ 29,000秒		237	t237p	≒1/ 29,100秒	
231	t231n	≒1/ 29,800秒	2.9~	238	t238p	≒1/ 29,900秒	2.9~
・			4.6%	・			4.6%
244	t244n	≒1/ 47,000秒		251	t251p	≒1/ 46,900秒	
245	t245n	≒1/ 49,150秒		252	t252p	≒1/ 49,020秒	
・				・			
255	t255n	≒1/ 91,680秒	5~9%	262	t262p	≒1/ 90,250秒	5~9%
256	t256n	≒1/100,370秒		263	t263p	≒1/ 98,600秒	

4-2-2. Select max. shutter speed and initial shutter speed.

SMAX	STSL	max. shutter speed (s)				initial shutter speed (s)			
pin 5	pin47	Step	EIA	Step	CCIR	Step	EIA	Step	CCIR
H	H	231	≒1/ 29,800	238	≒1/ 29,900	100	≒1/ 1,020	105	≒1/ 1,020
L	H	245	≒1/ 49,150	252	≒1/ 49,020	100	≒1/ 1,020	105	≒1/ 1,020
H	L	256	≒1/100,370	263	≒1/ 98,600	100	≒1/ 1,020	105	≒1/ 1,020
L	L	256	≒1/100,370	263	≒1/ 98,600	256	≒1/100,370	263	≒1/ 98,600

5. Electrical Characteristics

5-1. Absolute Maximum Ratings

Parameter	Symbol	Rating	Unit
Supply voltage	V_{DD}	−0.3 ~ 6.0	V
Supply voltage	V_{DD12}	−0.3 ~ 15.0	V
Input voltage	V_I	−0.3 ~ V_{DDn}+0.3	V
Output voltage	V_O	−0.3 ~ V_{DDn}+0.3	V
Operation temperature	T_{opr}	−20 ~ +70	℃
Storage temperature	T_{stg}	−55 ~ +150	℃

5-2. DC Characteristics (V_{DD}=+5V±10%, V_{DD12}=+12.5V±0.5V, T_{opr}=−20~+70℃)

Parameter	Symbol	Condition	MIN.	TYP.	MAX.	Unit	Note
Input "Low" voltage	V_{IL}				1.5	V	1
Input "High" voltage	V_{IH}		3.5			V	
Input "Low" voltage	V_{T+}				3.7	V	2
Input "High" voltage	V_{T-}		1.0			V	
Hysteresis voltage	$V_{T+}-V_{T-}$		0.2			V	
Input "Low" current	$\|I_{IL1}\|$	V_I = 0 V			2.0	μA	3
Input "High" current	$\|I_{IH1}\|$	V_I = V_{DD}			2.0	μA	
Input "Low" current	$\|I_{IL2}\|$	V_I = 0 V			2.0	μA	4
Input "High" current	$\|I_{IH2}\|$	V_I = V_{DD}	8.0		60	μA	
Input "Low" current	$\|I_{IL3}\|$	V_I = 0 V	8.0		60	μA	5
Input "High" current	$\|I_{IH3}\|$	V_I = V_{DD}			2.0	μA	
Output "High" voltage	V_{OH1}	I_{OH} = −2mA	4.0			V	6,
Output "Low" voltage	V_{OL1}	I_{OL} = 4mA			0.4	V	12
Output "High" voltage	V_{OH2}	I_{OH} = −3mA	4.0			V	7
Output "Low" voltage	V_{OL2}	I_{OL} = 3mA			0.4	V	
Output "High" voltage	V_{OH3}	I_{OH} = −6mA	4.0			V	8
Output "Low" voltage	V_{OL3}	I_{OL} = 8mA			0.4	V	
Output "High" voltage	V_{OH4}	I_{OH} = −9mA	4.0			V	9
Output "Low" voltage	V_{OL4}	I_{OL} = 12mA			0.4	V	
Output "High" voltage	V_{OH5}	I_{OH} = −12mA	11.5			V	10
Output "Low" voltage	V_{OL5}	I_{OL} = 12mA			0.5	V	
Output "Low" voltage	V_{OL6}	I_{OL} = 4mA			0.4	V	11
Output "High" voltage	V_{OH7}	I_{OH} = −3mA	4.0			V	12
Output "Low" voltage	V_{OL7}	I_{OL} = 6mA			0.4	V	
Leak output current	$\|I_{OZ}\|$	High-Z			1.0	μA	11, 12

Note 1 : Applied to Inputs(IC, ICD, ICSU, OSCI).
Note 2 : Applied to Input (ICSU)
Note 3 : Applied to Inputs(IC, OSCI, IO0).
Note 4 : Applied to Inputs(ICD).
Note 5 : Applied to Inputs(ICU, ICSU).
Note 6 : Applied to (O, IO0).
Note 7 : Applied to (OSC3M).
(Output(OSC3M) measures on conditions that input(OSCI) level is 0V or V_{DD}.)
Note 8 : Applied to Output(O4MA2).
Note 9 : Applied to Output(O4MA3).
Note 10 : Applied to Output(O12MHV).
Note 11 : Applied to Output(ON).
Note 12 : Applied to Output(TO6M).

6. Pulse timing

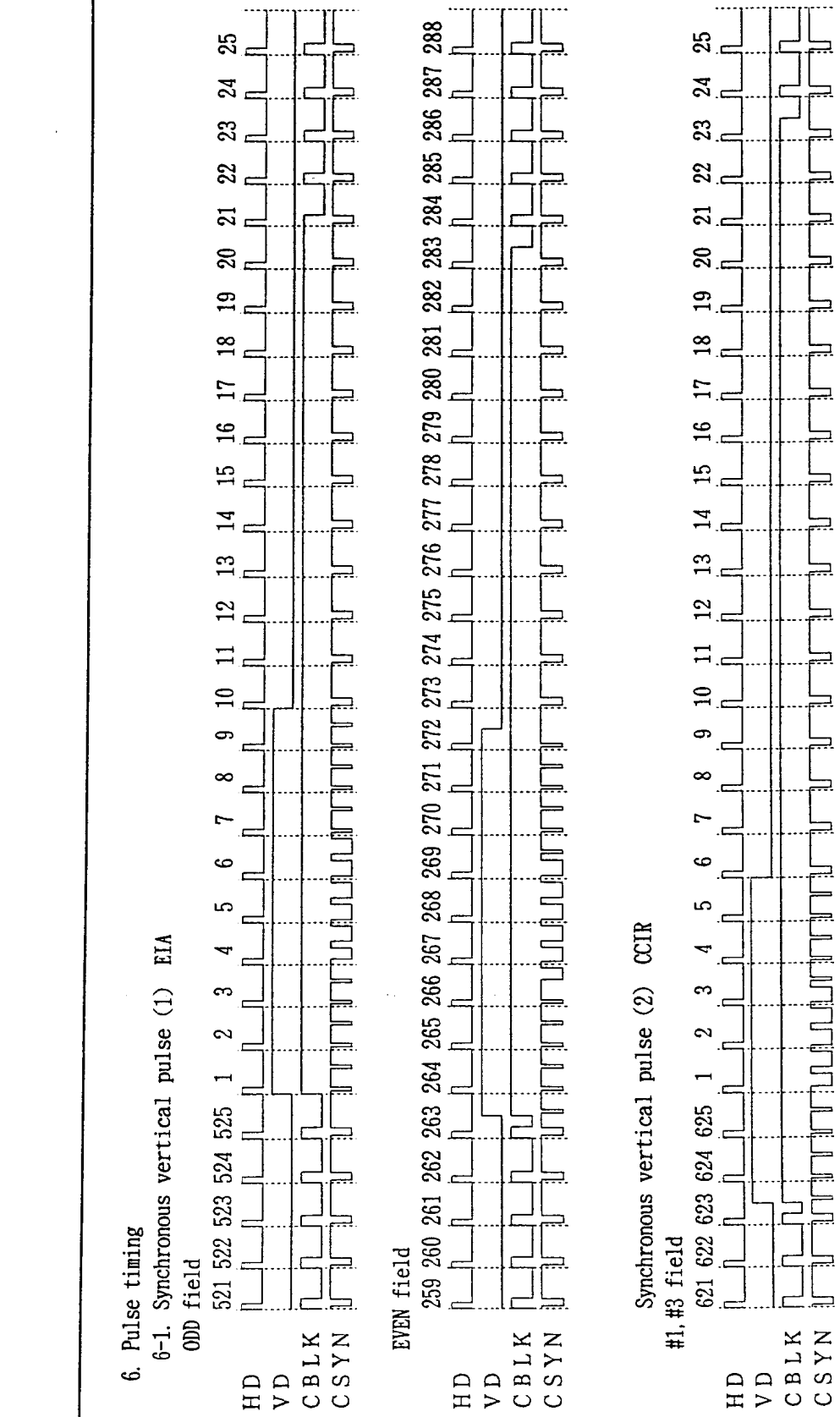
6-1. Synchronous vertical pulse (1) EIA

ODD field

EVEN field

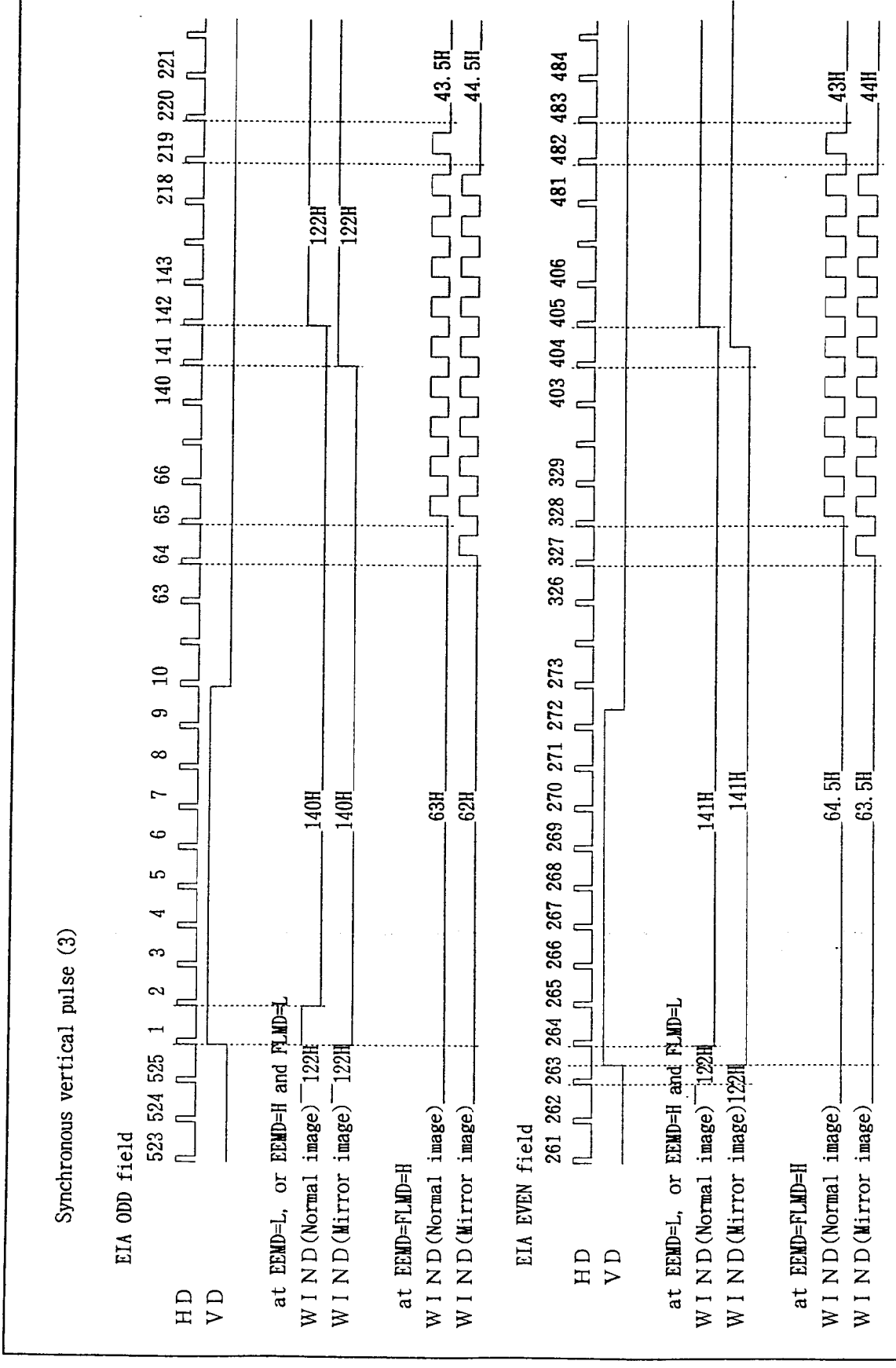
Synchronous vertical pulse (2) CCIR

#1, #3 field

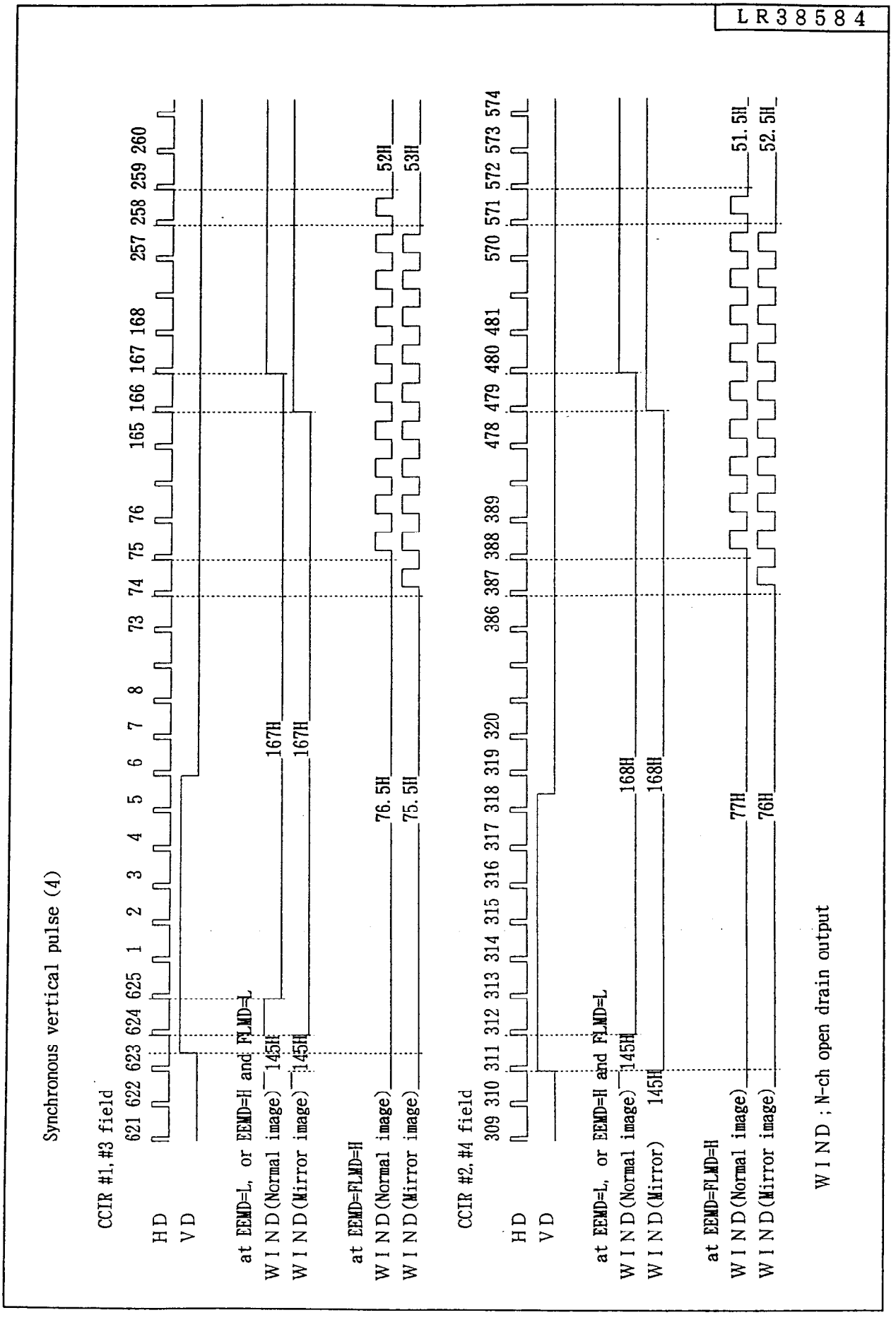


#2, #4 field

Synchronous vertical pulse (3)

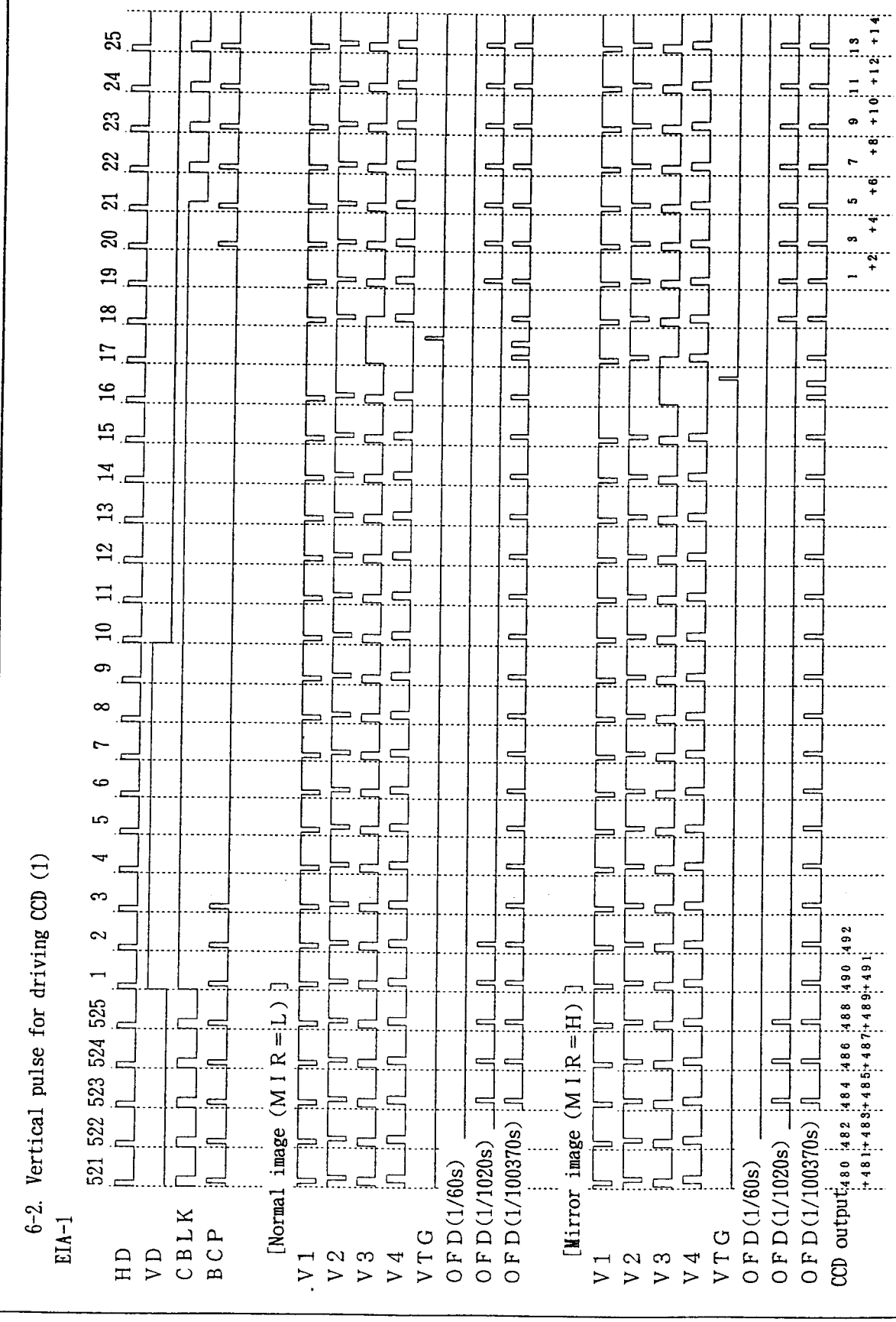


WIND ; N-ch open drain output


Synchronous vertical pulse (4)
CCIR #1, #3 field
621 622 623 624 625 1 2 3 4 5 6 7 8 73 74 75 76 165 166 167 168 257 258 259 260
HD
VD
at EEMD=L, or EEMD=H and FLMD=L
WIND(Normal image)
145H
167H
WIND(Mirror image)
145H
167H
at EEMD=FLMD=H
WIND(Normal image)
76.5H
52H
WIND(Mirror image)
75.5H
53H
CCIR #2, #4 field
309 310 311 312 313 314 315 316 317 318 319 320 386 387 388 389 478 479 480 481 570 571 572 573 574
HD
VD
at EEMD=L, or EEMD=H and FLMD=L
WIND(Normal image)
145H
168H
WIND(Mirror)
145H
168H
at EEMD=FLMD=H
WIND(Normal image)
77H
51.5H
WIND(Mirror image)
76H
52.5H
WIND ; N-ch open drain output

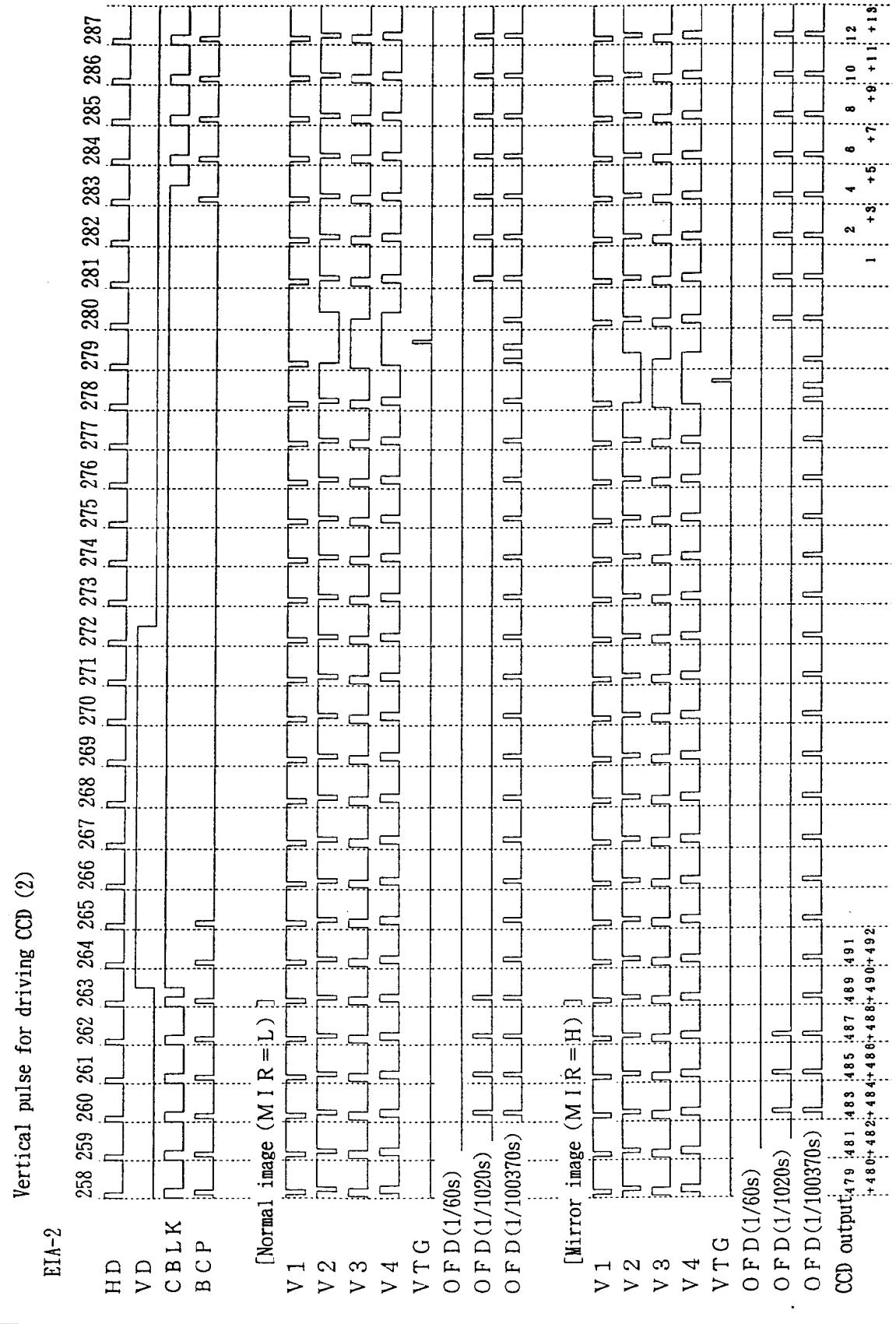
6-2. Vertical pulse for driving CCD (1)

EIA-1



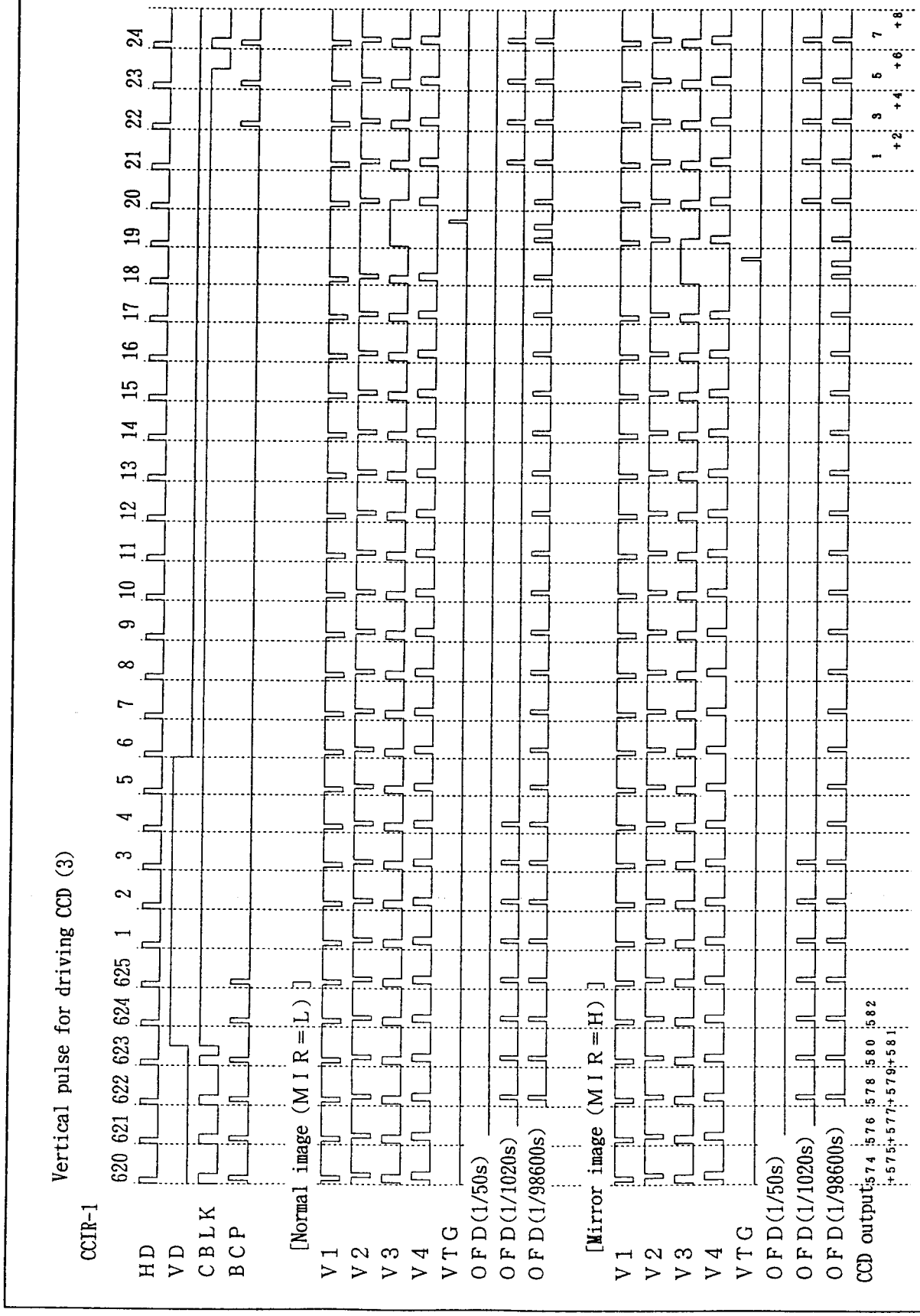
Vertical pulse for driving CCD (2)

EIA-2



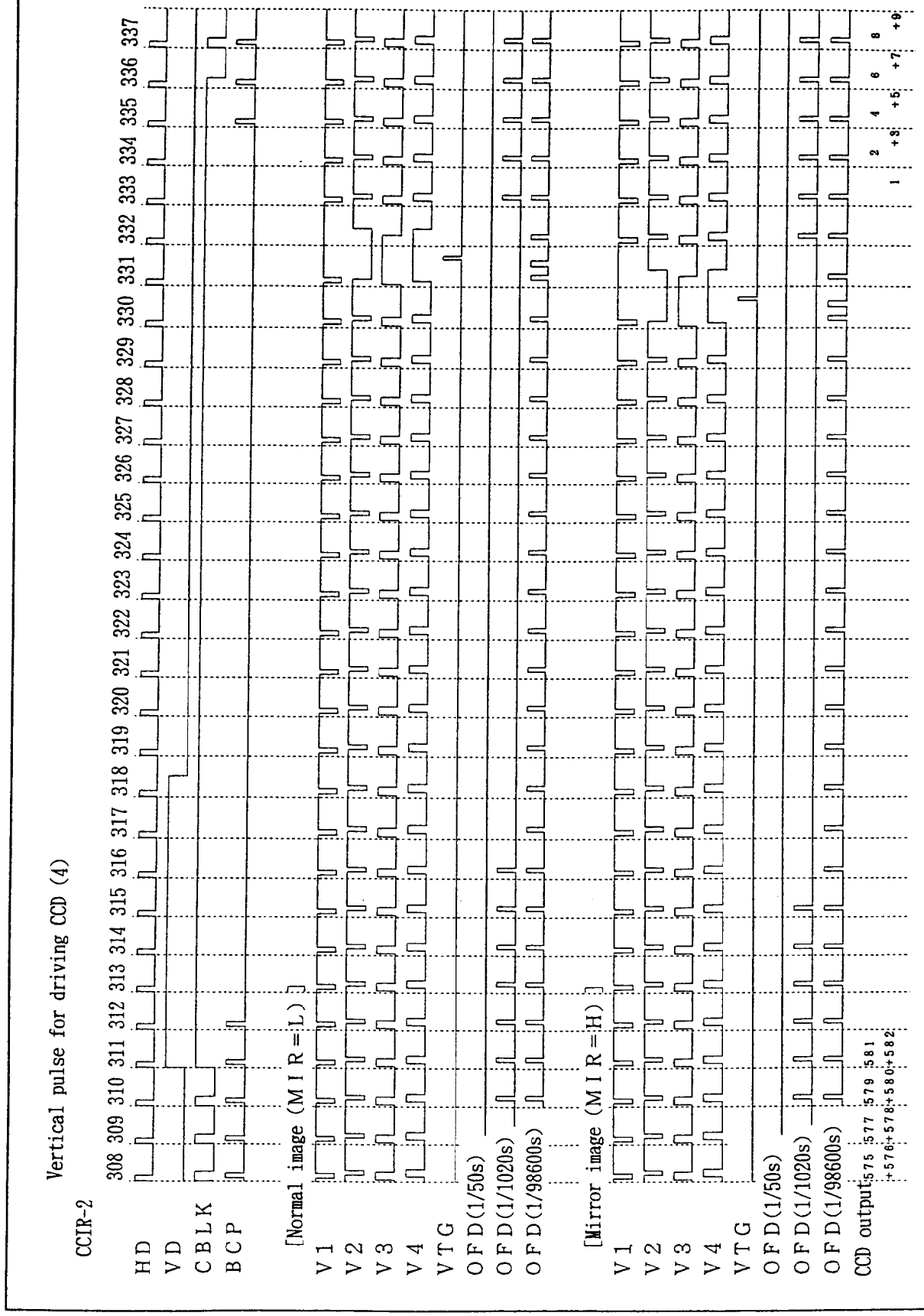
Vertical pulse for driving CCD (3)

CCIR-1



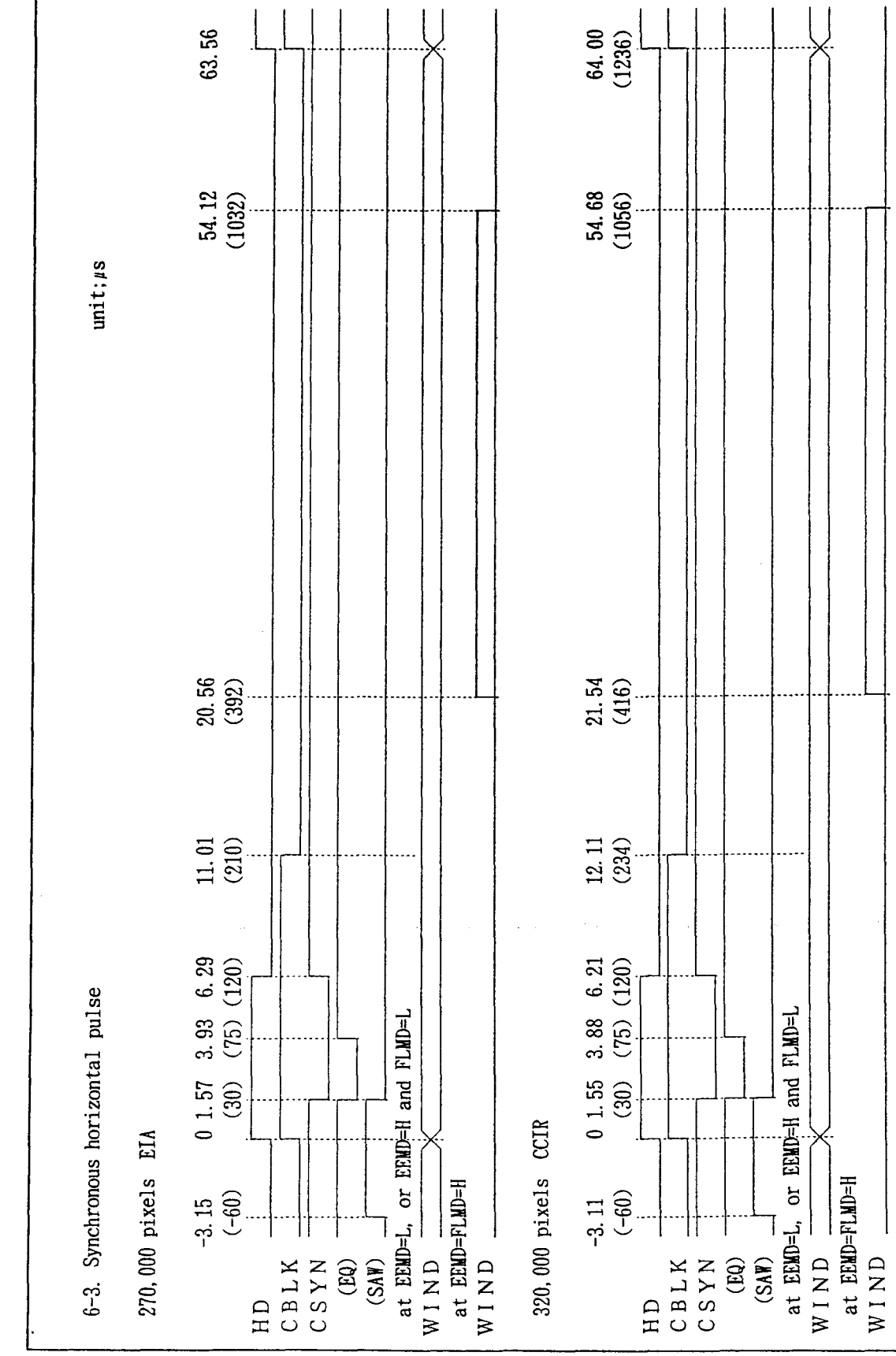
Vertical pulse for driving CCD (4)

CCIR-2



6-3. Synchronous horizontal pulse

unit; μs



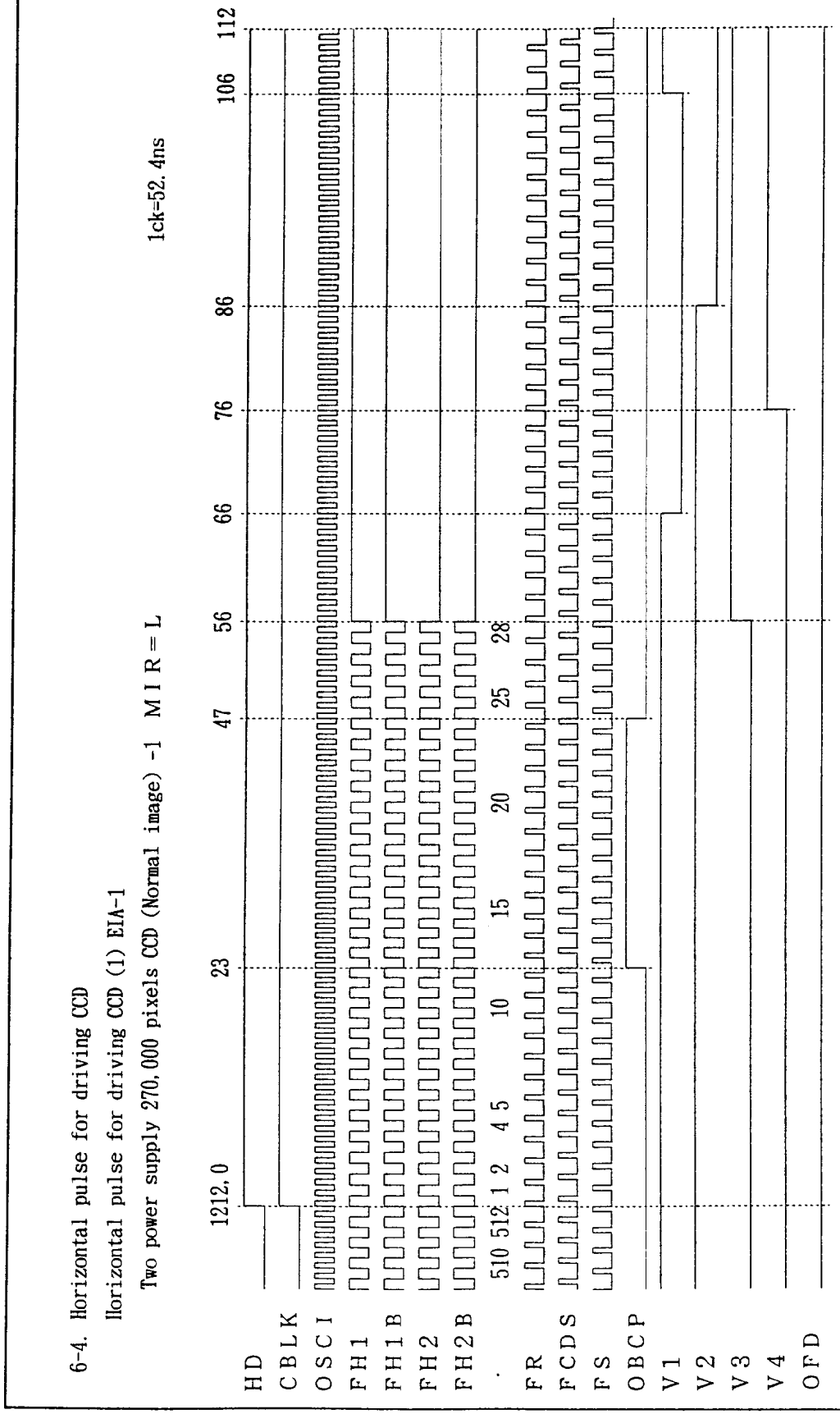
WIND; N-ch open drain output

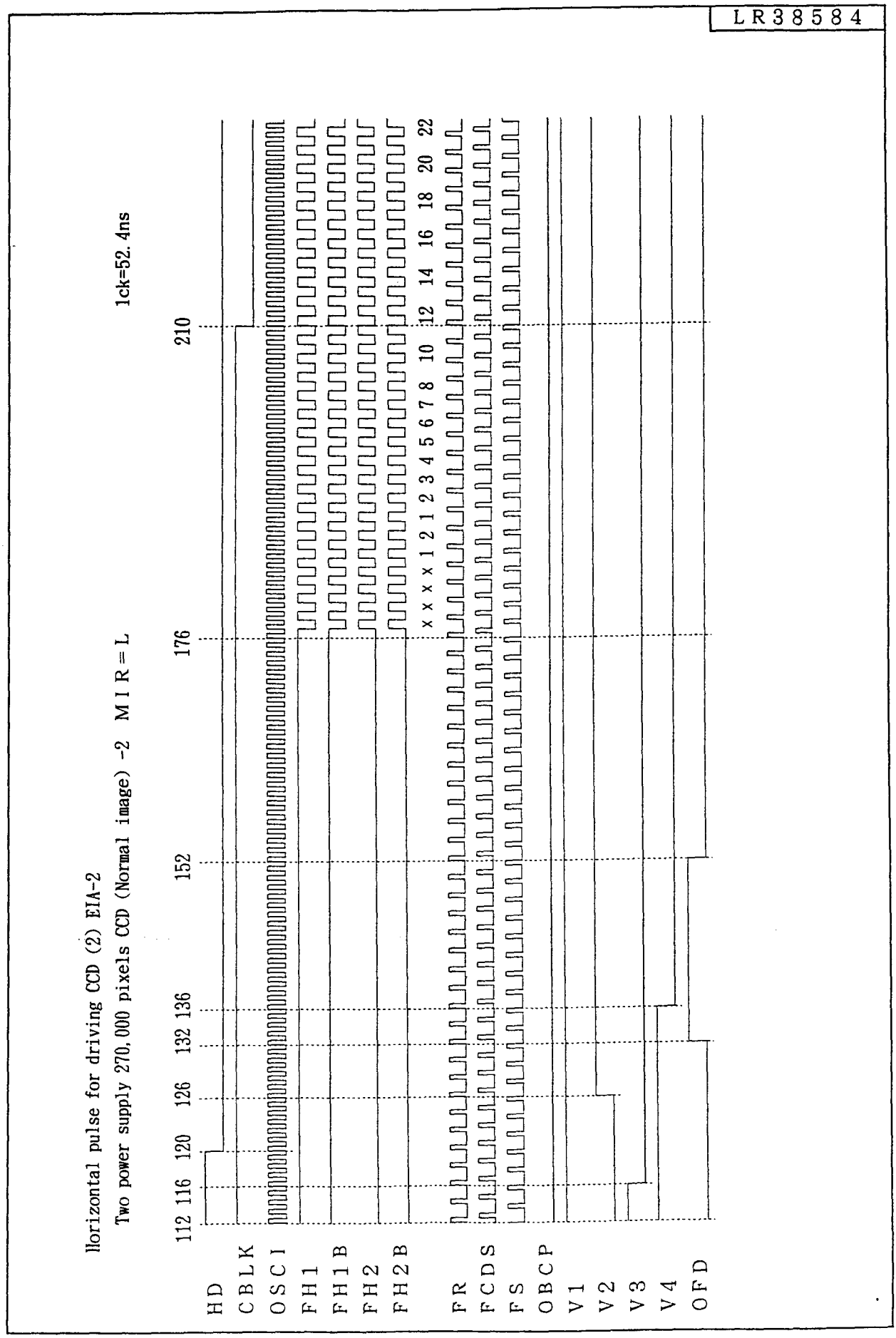
6-4. Horizontal pulse for driving CCD

Horizontal pulse for driving CCD (1) EIA-1

Two power supply 270,000 pixels CCD (Normal image) -1 M I R = L

1ck=52.4ns



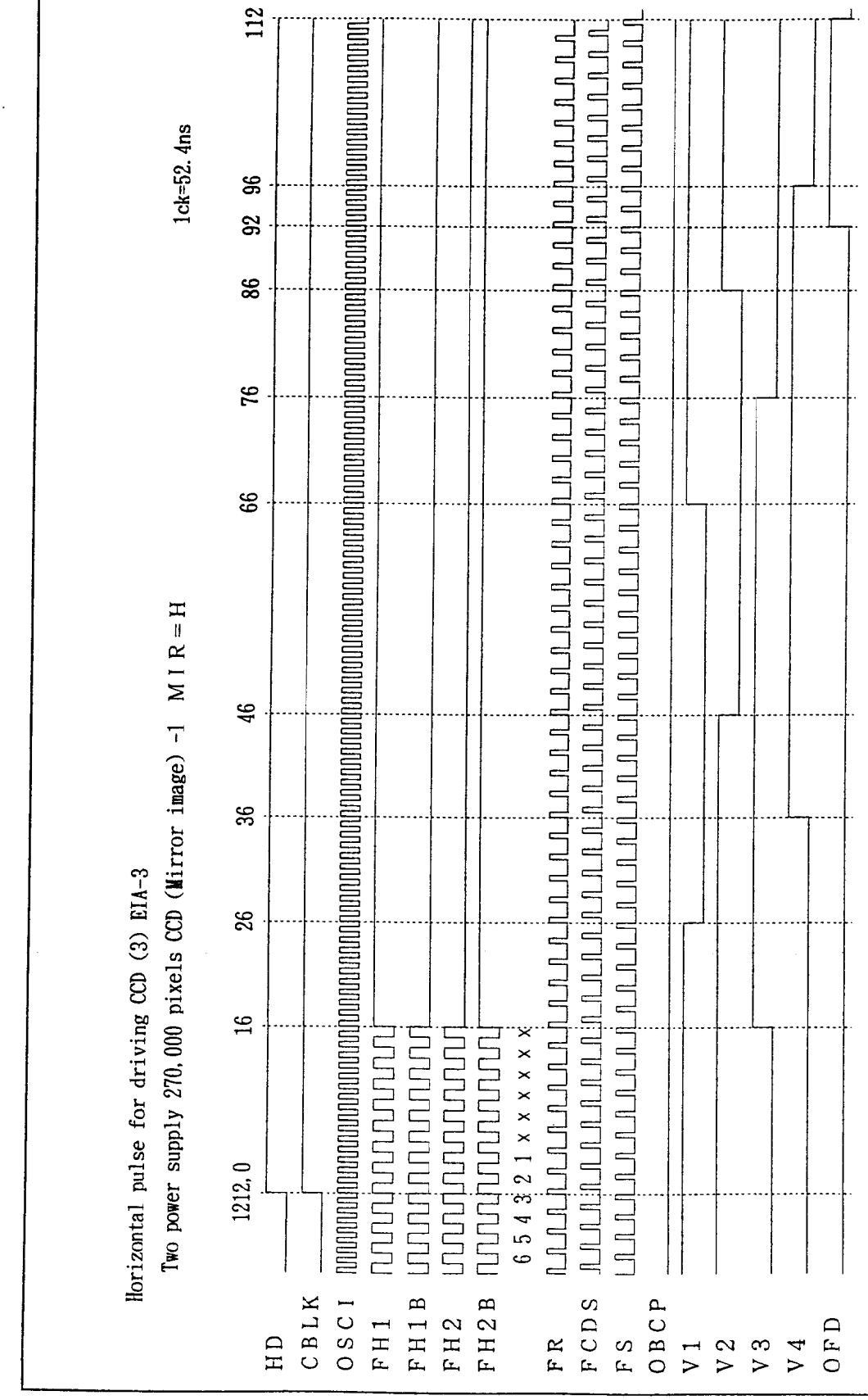

Horizontal pulse for driving CCD (2) EIA-2
Two power supply 270,000 pixels CCD (Normal image) -2 MIR=L
1ck=52.4ns
112 116 120 126 132 136 152 176 210
x x x 1 2 1 2 3 4 5 6 7 8 10 12 14 16 18 20 22
HD
CBLK
OSCI
FH1
FH1B
FH2
FH2B
FR
FCDS
FS
OBCP
V1
V2
V3
V4
OFD

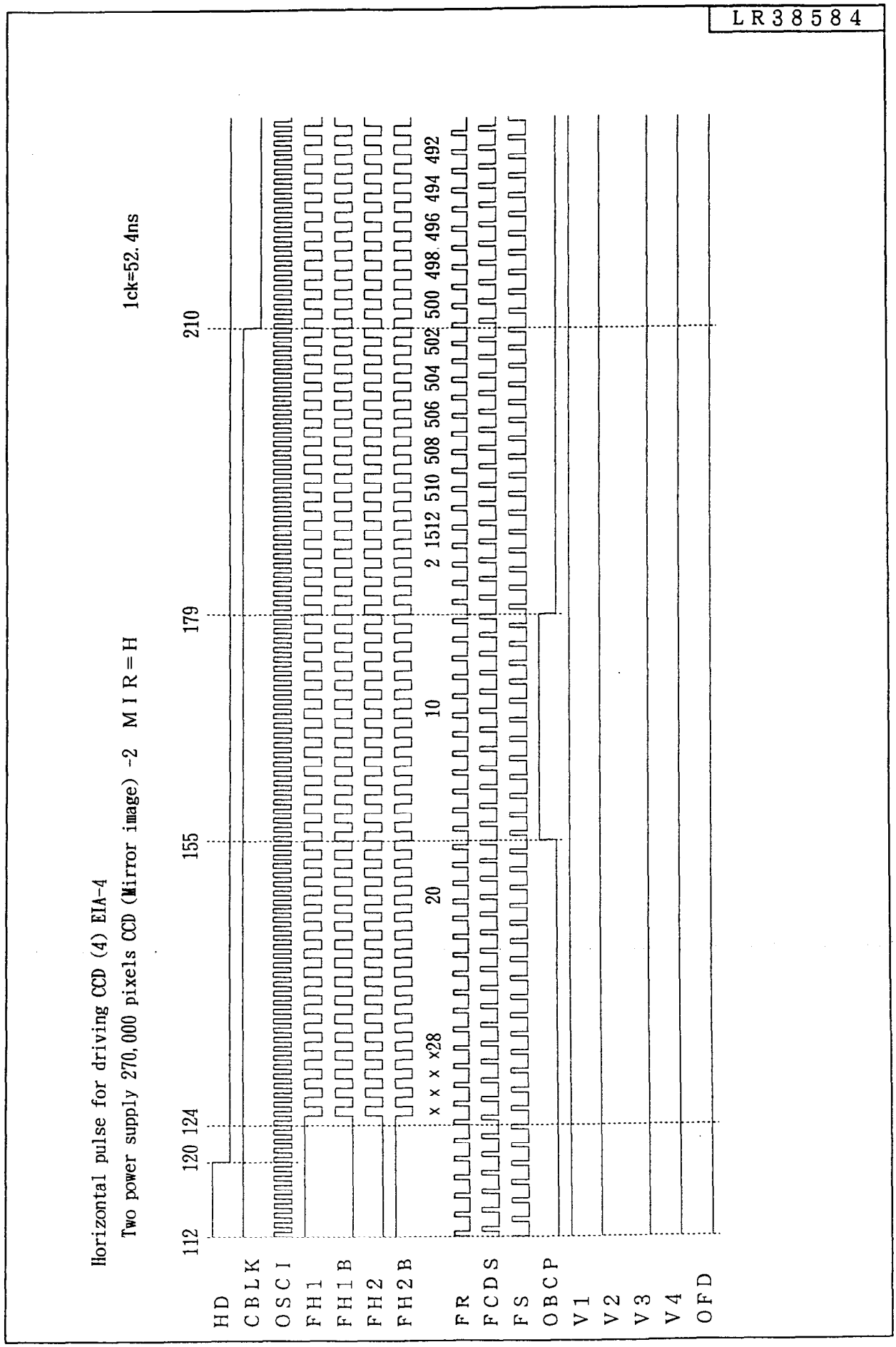
LR38584

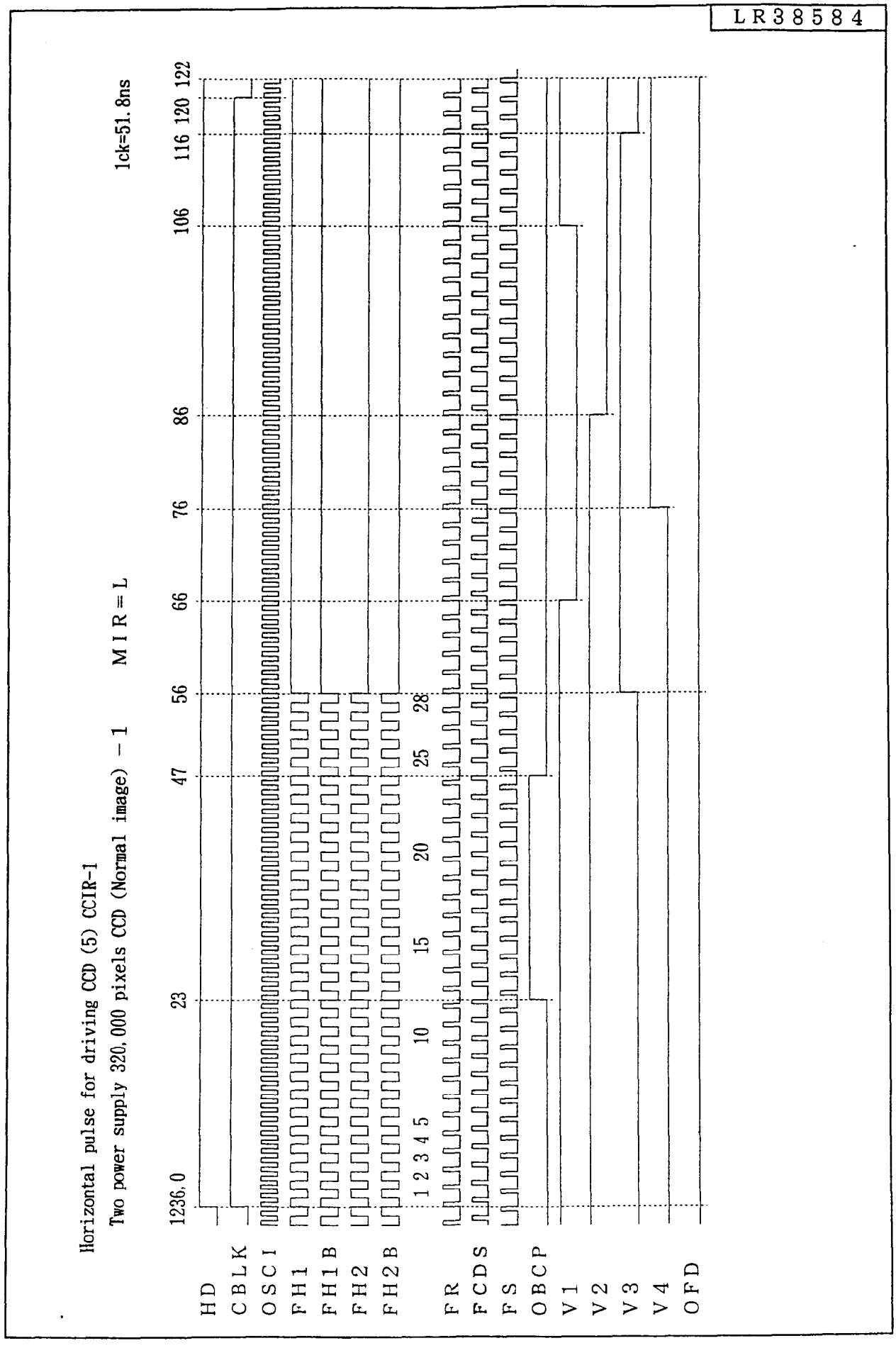
Horizontal pulse for driving CCD (3) EIA-3

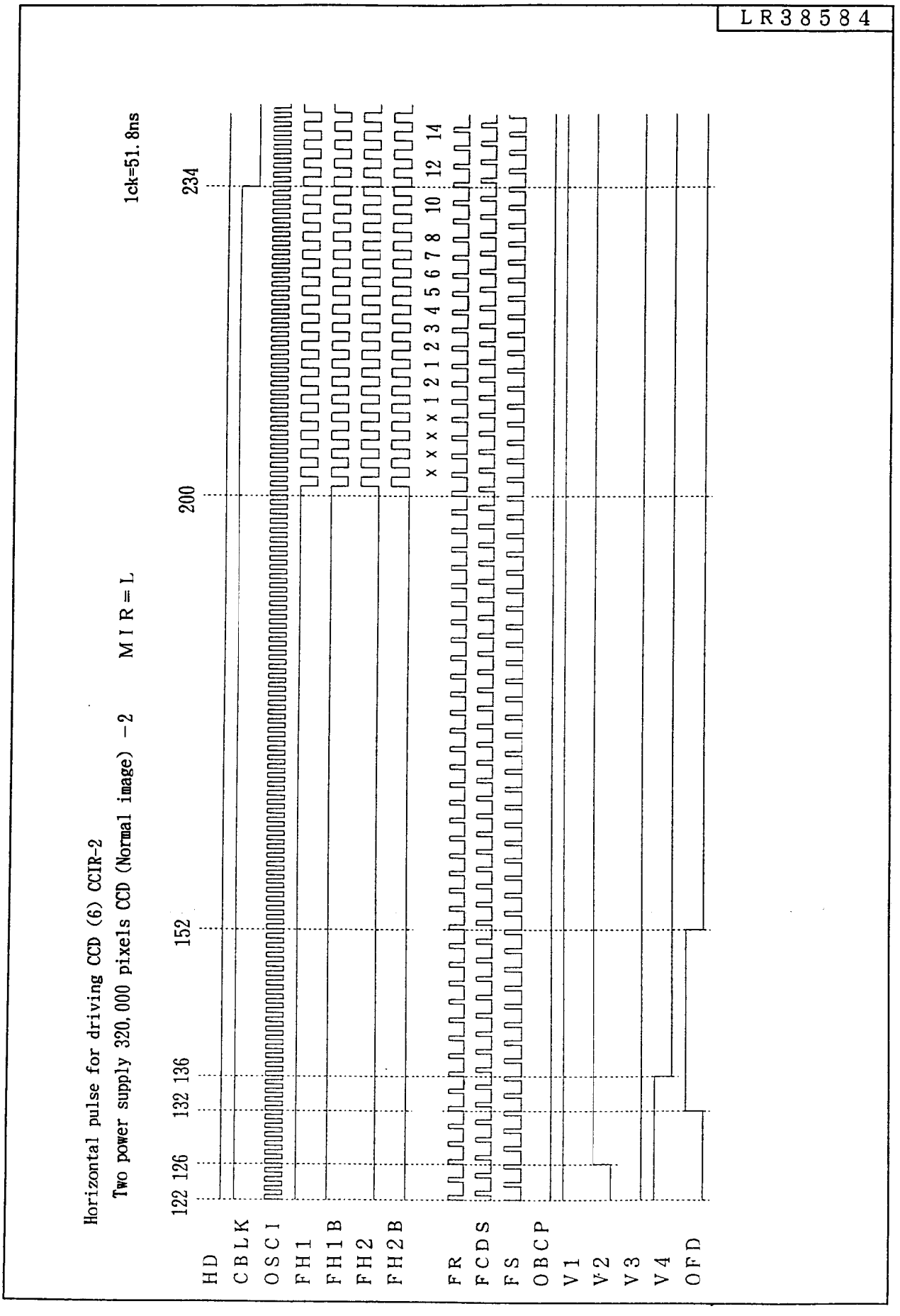
Two power supply 270,000 pixels CCD (Mirror image) -1 MIR = H

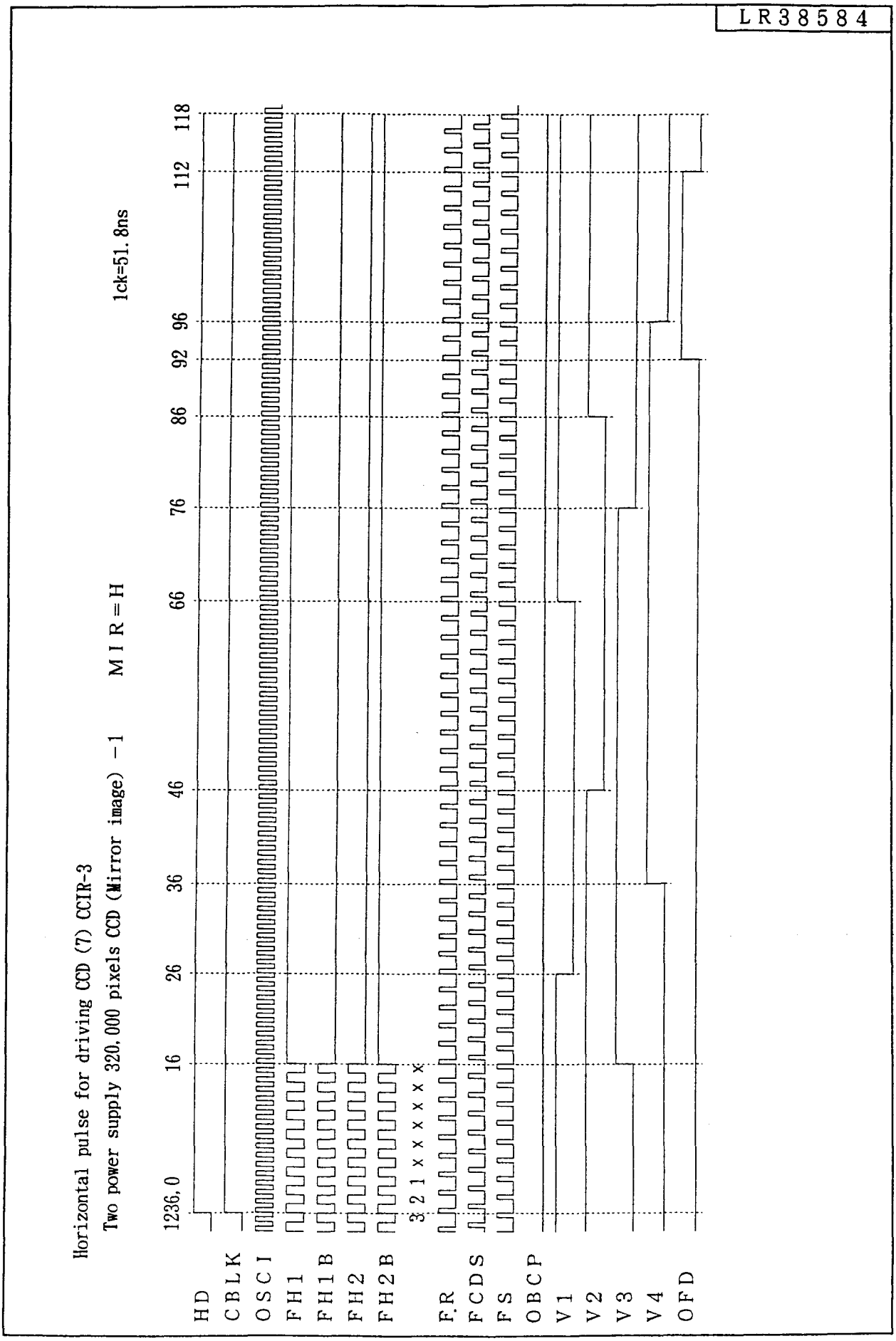
1ck=52.4ns




LR38584
Horizontal pulse for driving CCD (4) EIA-4
Two power supply 270,000 pixels CCD (Mirror image) -2 M I R = H
1ck=52.4ns
112 120 124 155 179 210
HD
CBLK
OSCI
FH1
FH1B
FH2
FH2B
FR
FCDS
FS
OBCP
V1
V2
V3
V4
OFD
x x x x28 20 10 2 1512 510 508 506 504 502 500 498 496 494 492

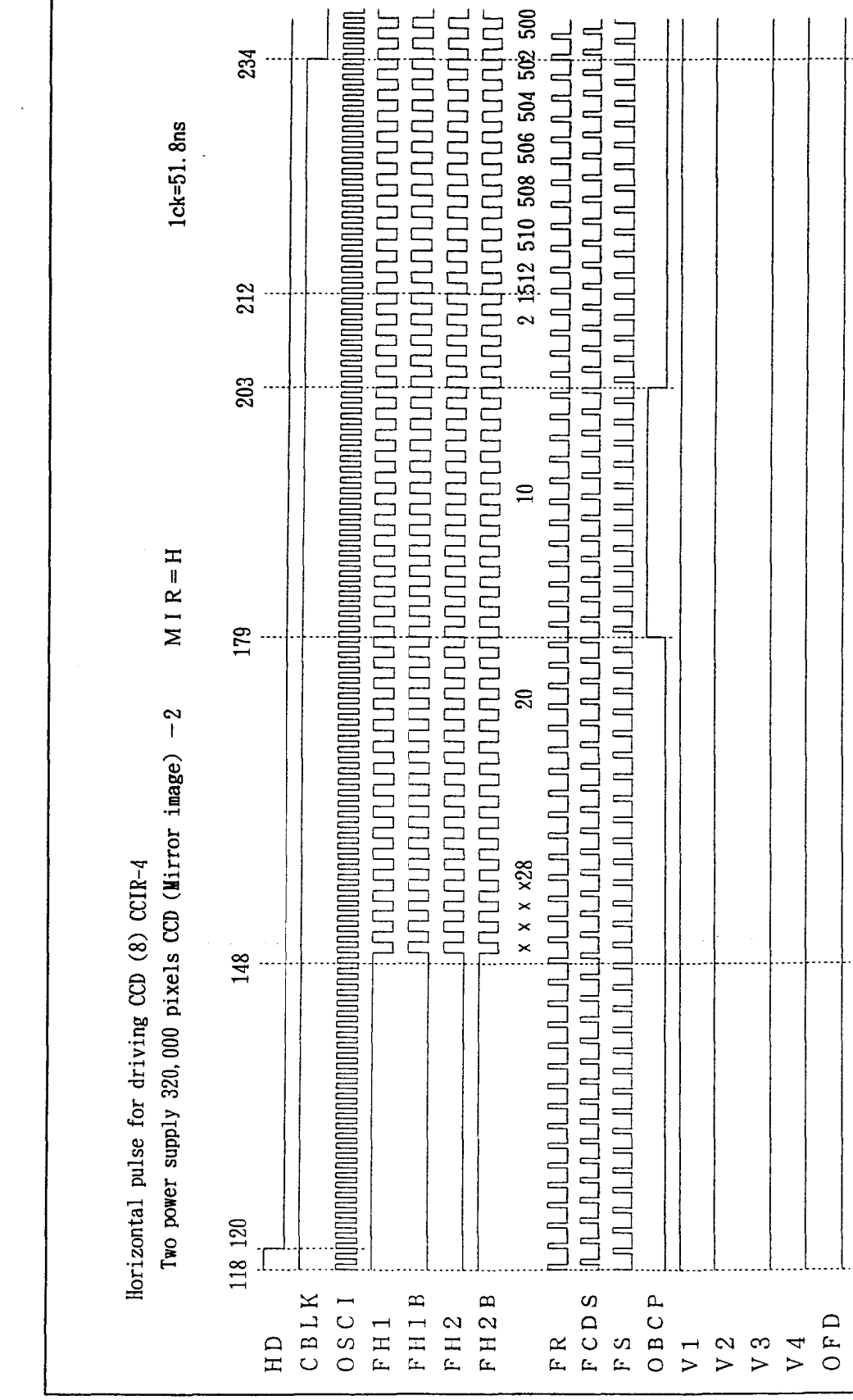

LR38584
Horizontal pulse for driving CCD (5) CCIR-1
Two power supply 320,000 pixels CCD (Normal image) - 1
MIR = L
1ck=51.8ns
1236.0
23
47
56
66
76
86
106
116 120 122
1 2 3 4 5
10
15
20
25
28
HD
CBLK
OSCI
FH1
FH1B
FH2
FH2B
FR
FCDS
FS
OBCP
V1
V2
V3
V4
OFD


Horizontal pulse for driving CCD (6) CCIR-2
Two power supply 320,000 pixels CCD (Normal image) -2
MIR=L
1ck=51.8ns
122 126 132 136 152 200 234
x x x 1 2 1 2 3 4 5 6 7 8 10 12 14
HD
CBLK
OSCI
FH1
FH1B
FH2
FH2B
FR
FCDS
FS
OBCP
V1
V2
V3
V4
OFD


Horizontal pulse for driving CCD (7) CCIR-3
Two power supply 320,000 pixels CCD (Mirror image) -1
MIR=H
1ck=51.8ns
1236,0
16
26
36
46
66
76
86
92
96
112
118
HD
CBLK
OSCI
FH1
FH1B
FH2
FH2B
3 2 1 x x x x x x
F.R
FCDS
FS
OBCP
V1
V2
V3
V4
OFD

Horizontal pulse for driving CCD (8) CCIR-4

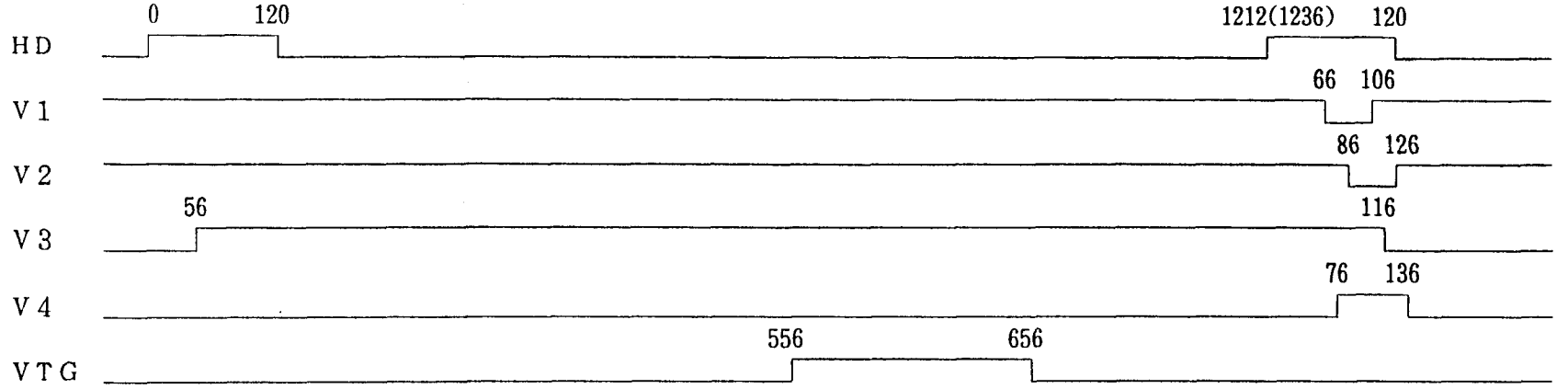
Two power supply 320,000 pixels CCD (Mirror image) −2 MIR=H 1ck=51.8ns



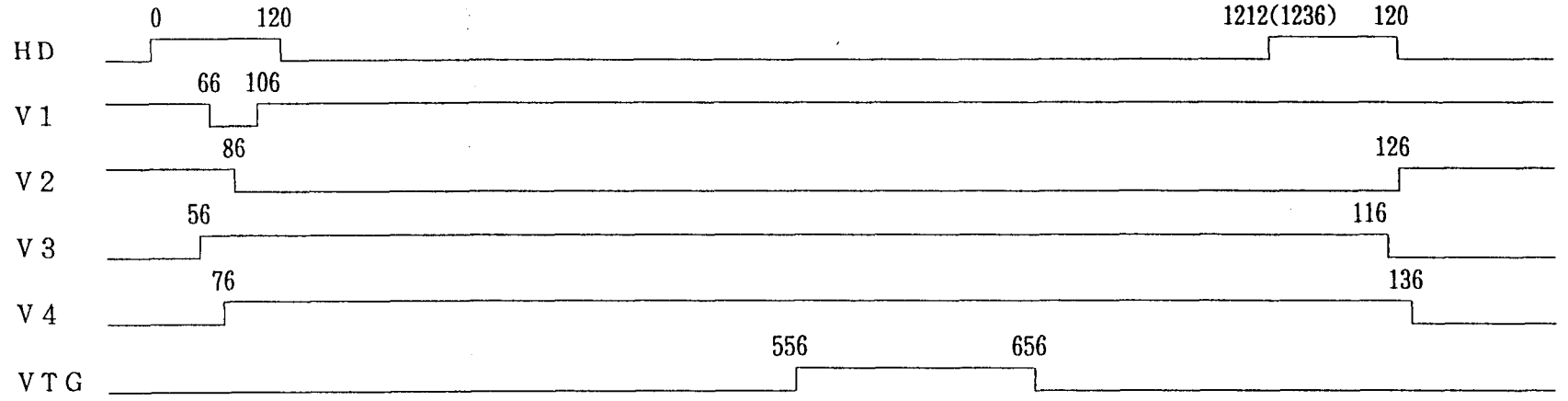
6-5. Readout pulse

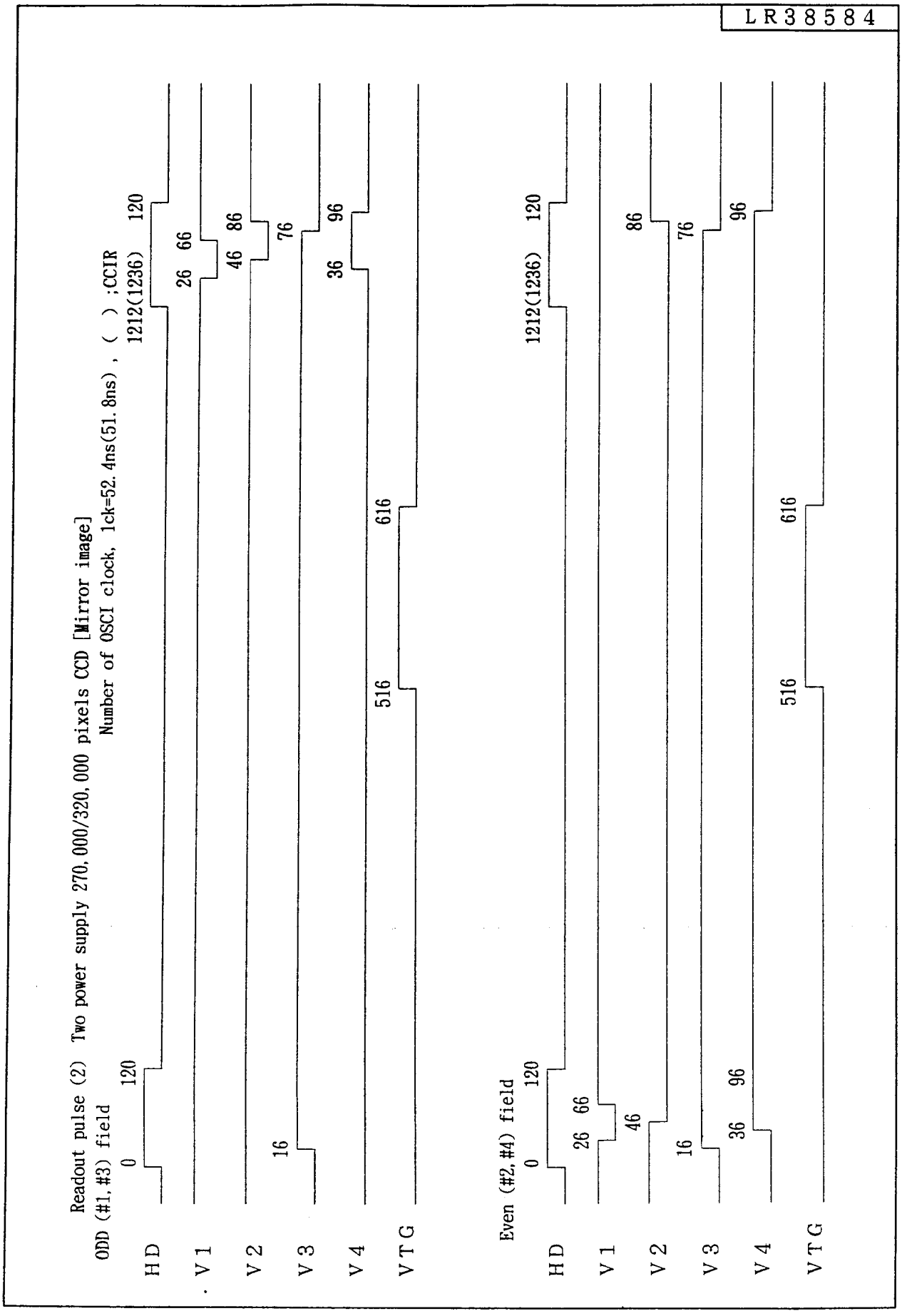
Readout pulse (1) Two power supply 270,000/320,000 pixels CCD [Normal image]

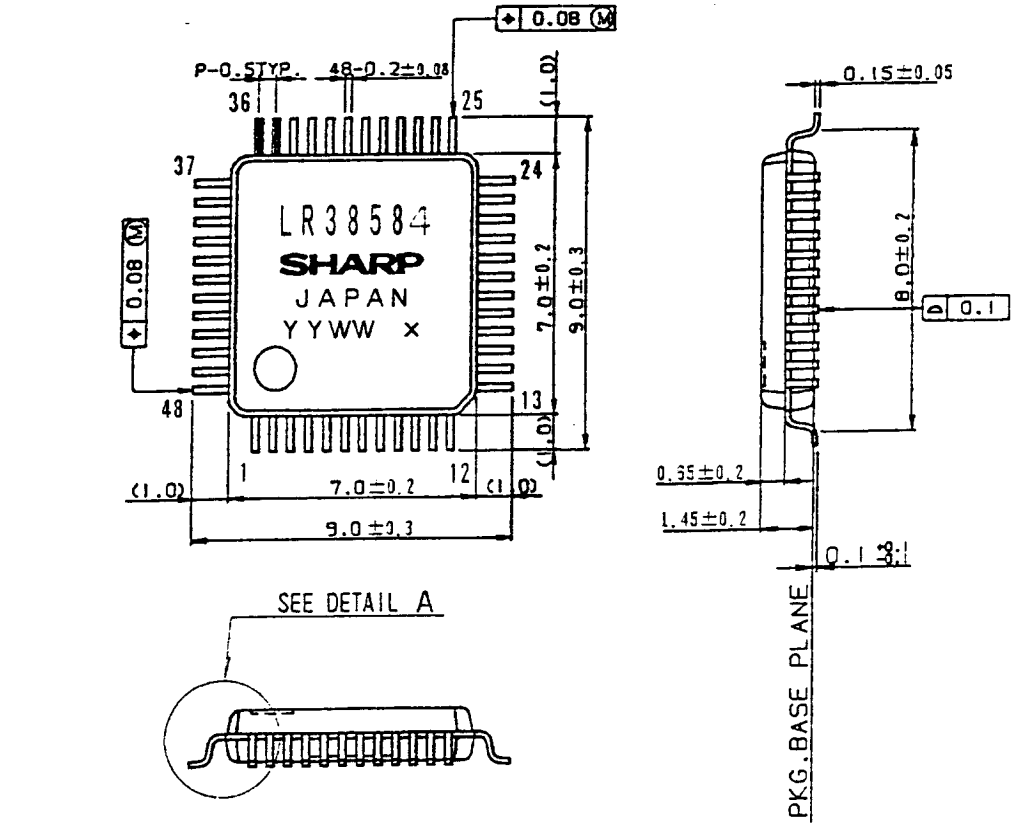
ODD (#1,#3) field Number of OSCI clock, 1ck=52.4ns(51.8ns) , ( ) ;CCIR

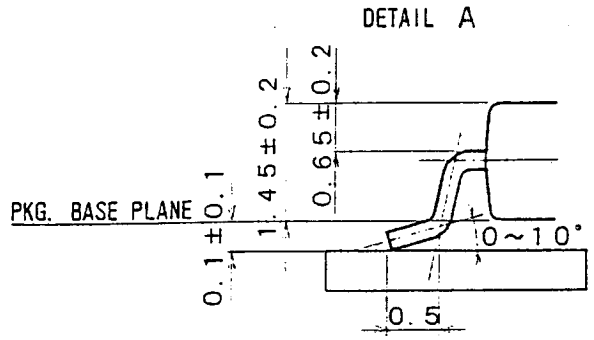


Even (#2,#4) field




LR38584
Readout pulse (2) Two power supply 270,000/320,000 pixels CCD [Mirror image]
Number of OSCI clock, 1ck=52.4ns(51.8ns) , ( ) ;CCIR
ODD (#1,#3) field
HD
V1
V2
V3
V4
VTG
0
120
1212(1236)
26
66
46
86
16
76
36
96
516
616
Even (#2,#4) field
HD
V1
V2
V3
V4
VTG
0
120
1212(1236)
26
66
46
86
16
76
36
96
516
616





名称 NAME	QFP48-P-0707	リード仕上 LEAD FINISH	TIN-LEAD PLATING	備考 NOTE プラスチックパッケージ外形寸法は、バリを含まないものとする。 Plastic body dimensions do not include burr of resin.
DRAWING NO.	AA1035	単位 UNIT	mm	