SHARP

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To ;

REQUEST FOR CONFIRMATION

SPECIFICATIONS

Product Type Drive IC (190K/220K pixels single voltage B/W CCD)

Model No. LZ9GG32M

※This specifications contains 30 pages including the cover and appendix.
If you have any objections, please contact us before issuing purchasing order.

CUSTOMERS ACCEPTANCE

DATE:

BY:

PRESENTED

BY: Y. Kusano

Y. KUSANO
Dept. General Manager

REVIEWED BY: A. Tokino

PREPARED BY: K. Yoshizawa

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LZ9GG32M

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- When using the products covered herein, please observe the conditions written herein and the precautions outlined in the following paragraphs. In no event shall the company be liable for any damages resulting from failure to strictly adhere to these conditions and precautions.

  (1) The products covered herein are designed and manufactured for the following application areas. When using the products covered herein for the equipment listed in Paragraph (2), even for the following application areas, be sure to observe the precautions given in Paragraph (2). Never use the products for the equipment listed in Paragraph (3).
  - ·Office electronics
  - ·Instrumentation and measuring equipment
  - ·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.

  (3) Do not use the products covered herein for the following equipment which demands extremely high performance in terms of functionality, reliability, or accuracy.
  - ·Aerospace equipment
  - ·Communications equipment for trunk lines
  - ·Control equipment for the nuclear power industry
  - ·Medical equipment related to life support, etc.

  (4) Please direct all queries and comments regarding the interpretation of the above three Paragraphs to a sales representative of the company.

- Please direct all queries regarding the products covered herein to a sales representative of the company.

CONTENTS

1. General

The LZ9GG32M is a CMOS gate array LSI. It generates timing pulses for driving a CCD area sensor, and synchronous pulses for TV signals and processing pulses 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 0.9ns.
* Not designed or rated as radiation hardened.

1-2. Functions

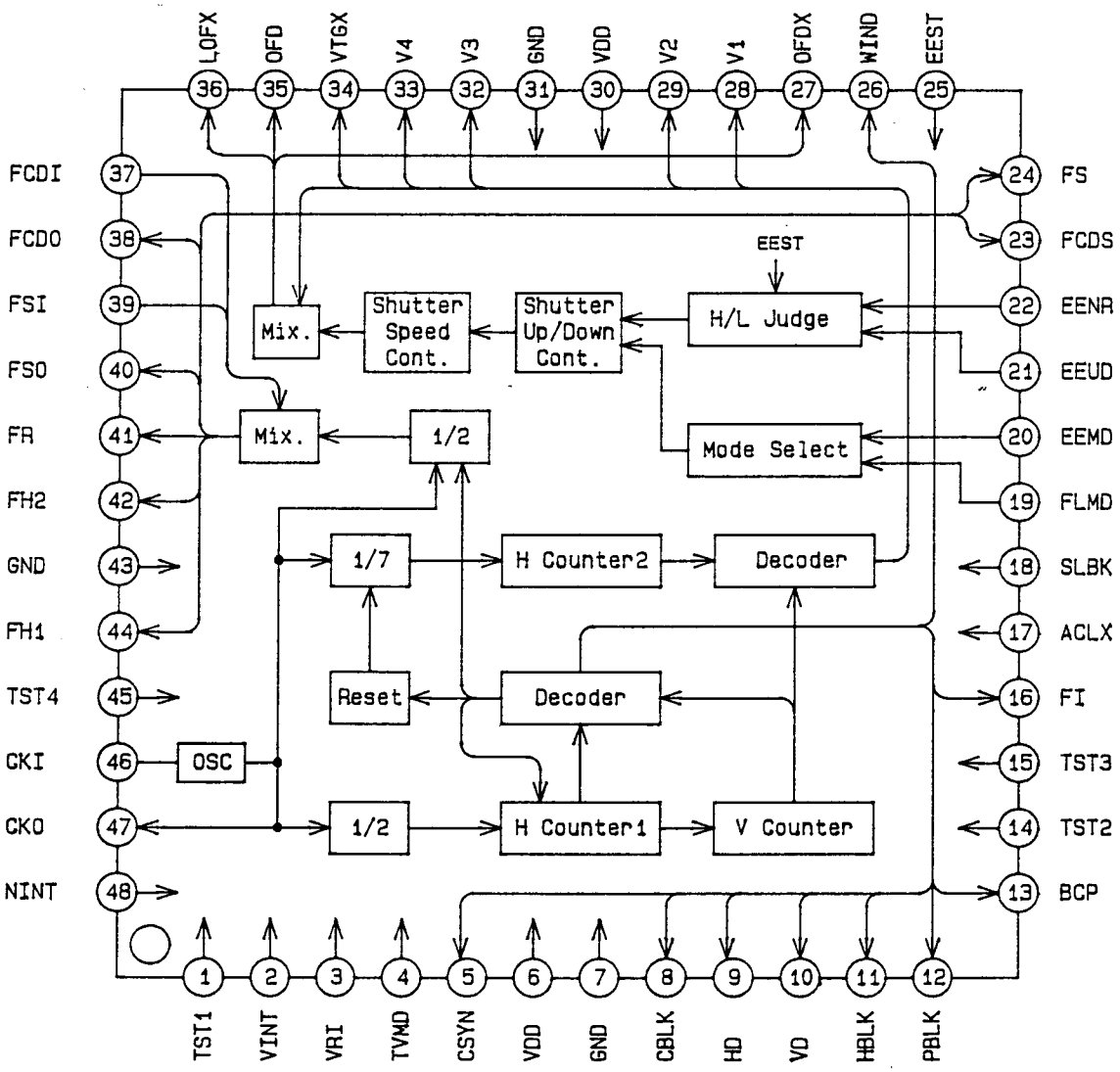
* Designed for single +5V power supply CCD monochrome area sensor with 190,000 or 220,000 pixels on 1/5 inch size.
*Switchable between EIA and CCIR mode.
*Single +5V power supply.
*Electronic shutter or EE control is possible.

2. Pin Assignment

PIN NO.	I/O	SIGNAL	PIN NO.	I/O	SIGNAL
1	ICD	TST1	25	ICU	EEST
2	ICSU	VINT	26	O	WIND
3	ICSU	VRI	27	O	OFDX
4	ICU	TVMD	28	O6MA2	V 1
5	O	CSYN	29	O6MA2	V 2
6	–	VDD	30	–	VDD
7	–	GND	31	–	GND
8	O	CBLK	32	O6MA2	V 3
9	O	H D	33	O6MA2	V 4
10	O	V D	34	O6MA	VTGX
11	O	HBLK	35	O6MA	OFD
12	O	PBLK	36	O6MA	LOFX
13	O	BCP	37	IC	FCDI
14	ICD	TST2	38	O6MA2	FCDO
15	ICD	TST3	39	IC	FSI
16	O	F I	40	O6MA2	FSO
17	ICU	ACLX	41	O6MA3	F R
18	ICU	SLBK	42	O6MA3	FH2
19	ICU	FLMD	43	–	GND
20	ICU	EEMD	44	O6MA3	FH1
21	IC	EEUD	45	ICD	TST4
22	IC	EENR	46	OSCI	CKI
23	O6MA2	FCDS	47	OSCO	CKO
24	O6MA2	F S	48	ICU	NINT

IC : Input (CMOS level)
ICU : Input (CMOS level with pull-up resister)
ICSU : Schmitt-trigger Input (CMOS level with pull-up resister)
ICD : Input (CMOS level with pull-down resister)
O : Output
O6MA : Output
O6MA2 : Output
O6MA3 : Output
OSCI : Input pin for oscillation
OSCO : Output pin for oscillation

3. Block Diagram



4. Pin Description

No.	Symbol	I/O	Pol.	Pin Name	Description
1	TST1	ICD	–	Test terminal 1	A test pin. Set open or to L level in the normal mode.
2	VINT	ICSU	–	Initialize input	An input pin for initializing circuit. It can be used Field-reset input, and the circuit is initialized with the 1/2 dividing pulse of VINT. The frequency of VINT is 60Hz in EIA or 50Hz in CCIR. It may be occured jitter because of catching VINT pulse with the 1/2 dividing pulse of CKI(pin 46). The point of resetting is following, the trailing edge of VINT is advanced, at EIA mode, 0~148ns from the start of ODD field at CCIR mode, 0~148ns from the start of 1st field Set open or H level when internal sync. mode or no intilizing.
3	VRI	ICSU	–	Vertical reset input	An input pin for resetting internal Ver. counter. The input pulse ic necessary 1/2 Hor. max delay from ver. sync. start point, because VRI is counted 2 times Hor. frequency. The point of resetting is following, at EIA mode, 3.5H from the start of VD, at CCIR mode, 3H from the start of VD. Set open or H level when internal sync. or using VINT(pin 2).
4	TVMD	ICU	–	TV mode select	An input pin to select TV standards. L level ; EIA mode H level or open ; CCIR mode
5	CSYN	O	⎍	Composite syncronizing pulse	Composite sync. signal output pin.
6	VDD	-	–	Power supply	Supply +5 V power.
7	GND	-	–	Ground	A grounding pin.
8	CBLK	O	⎍	Composite blanking pulse	Composite blanking pulse. When SLBK(pin 18) is L level, at EIA mode ; H:10.52ns, V:20H period, at CCIR mode ; H:11.26ns, V:25H period. When SLBK(pin 18) is H level, at EIA mode ; H:10.81ns, V:20H period, at CCIR mode ; H:12.15ns, V:25H period.
9	HD	O	⎍	Hor. drive pulse	The pulse occurs at the start of lines.
10	VD	O	⎍	Ver. drive pulse	The pulse occurs at the start of every fields.

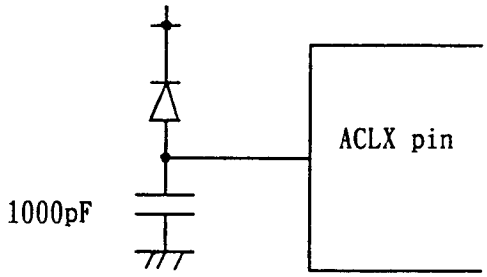
No.	Symbol	I/O	Pol.	Pin Name	Description
11	HBLK	O	⊓	Hor. blanking pulse	A pulse that correspondes to the cease period of the Hor. transfer pulse.
12	PBLK	O	⊓	Pre-blanking pulse	Equivalent to CBLK(pin 8) pulse except for shorter pulse width with cut-off trailing edge.
13	BCP	O	⊓	Optical black clamp pulse	A pulse to clamp the optical black signal. This pulse stays low during the absence of effective pixels within the ver. blanking.
14	TST2	ICD	–	Test terminal 2	A test pin. Set open or to L level in the normal mode.
15	TST3	ICD	–	Test terminal 3	A test pin. Set open or to L level in the normal mode.
16	FI	O	⊓	Field index	The pulse is used for detecting field. at EIA mode ; ODD field : LOW EVEN field : HIGH at CCIR mode ; 1st and 3rd fields : LOW 2nd and 4th fields : HIGH
17	ACLX	ICU	–	All clear input	An input pin for resetting all internal circuit.
18	SLBK	ICU	–	CBLK width select	An input pin to select the Hor. period of CBLK. L level; at EIA mode ; H:10.52ns, V:20H period at CCIR mode ; H:11.26ns, V:25H period H level; at EIA mode ; H:10.81ns, V:20H period or open at CCIR mode ; H:12.15ns, V:25H period at power on.
19	FLMD	ICU	–	Flickerless select	An input pin to select Flickerless shutter mode, with using EEMD(pin 20).
20	EEMD	ICU	–	Electronic Exposure select	An input pin to select Electronic Exposure mode, with using FLMD(pin 19).
21	EEUD	IC	–	Electronic Exposure control 1	An input pin to control Electronic Exposure, with using EENR(pin 22).
22	EENR	IC	–	Electronic Exposure control 2	An input pin to control Electronic Exposure, with using EEUD(pin 21).
23	FCDS	06MA2	⊓	CDS pulse 1	A pulse to clamp the feed-through level from CCD.
24	FS	06MA2	⊓	CDS pulse 2	A pulse to sample-hold the signal from CCD.
25	EEST	ICU	–	Electronic Exposure control 3	An input pin to control Electronic Exposure, with using EEUD(pin 21) and EENR(pin 22). L level : Electronic Exposure is stopped. H level or open : Electronic Exposure is operated

FLMD	EEMD	Shutter speed(s)	
		EIA	CCIR
L	L	1/60	1/50
H	L	1/100	1/120
L	H	1/31,320max	1/30,890max
H	H	1/109,890max	1/109,890max

No.	Symbol	I/O	Pol.	Pin Name	Description
26	WIND	O	⊓	Wind pulse	A pulse for wind pulse. When connected to EEST(pin 38), the operation of Electronic Exposure can be stopped at the upper side of monitor.
27	OFDX	O6MA	⊓	Inverse OFD PULSE output	A pulse that is used for pulse additinal circuit of electronic shutter.
28	V1	O6MA2	⊓	Ver. transfer pulse 1	A vertical transfer pulse for CCD. Connect to ϕV1 pin of CCD.
29	V2	O6MA2	⊓	Ver. transfer pulse 2	A vertical transfer pulse for CCD. Connect to ϕV2 pin of CCD.
30	VDD	-	—	Power supply	Supply +5 V power.
31	GND	-	—	Ground	A grounding pin.
32	V3	O6MA2	⊓	Ver. transfer pulse 3	A vertical transfer pulse for CCD. Connect to ϕV3 pin of CCD.
33	V4	O6MA2	⊓	Ver. transfer pulse 4	A vertical transfer pulse for CCD. Connect to ϕV4 pin of CCD.
34	VTGX	O6MA	⊓	Read out pulse	A pulse that transfers the charge of the photodiode to the vertical shift resister. Connect to ϕTG pin of CCD.
35	OFD	O6MA	⊓	OFD pulse output	A pulse that sweeps the charge of the photodiode for electronic shutter. Connect to OFD pin of CCD through the D.C. offset circuit.
36	LOFX	O6MA	⊓	LOFX pulse output	A last pulse that sweeps the charge of the photodiode for electronic shutter. Connect to LOFX pin of CCD.
37	FCDI	IC	—	FCDS phase control input	Pins to control the phase between FH1(pin 44) and FCDS(pin 23).
38	FCDO	O6MA2	—	FCDS phase control output	A pulse to control pulse timing of FCDS, connect to FCDI(pin 37) pin through the CR delay circuit.
39	FSI	IC	—	FS phase control inout	Pins to control the phase between FH1(pin 44) and FS(pin 24).
40	FSO	O6MA2	—	FS phase control output	A pulse to control pulse timing of fs, connect to FSI(pin 39) pin through the CR ddelay circuit.
41	FR	O6MA2	⊓	Reset pulse	A reset pulse for CCD. Connect to ϕRS of CCD through the D.C. offset circuit.
42	FH2	O6MA3	⊓	Hor. transfer pulse 2	A horizontal transfer pulse for CCD. Connect to ϕH2 of CCD.
43	GND	-	—	Ground	A grounding pin.
44	FH1	O6MA3	⊓	Hor. transfer pulse 1	A horizontal transfer pulse for CCD. Connect to ϕH1 of CCD.
45	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
46	CKI	OSCI	⎍	Clock input	An input pin for reference clock oscillation. The frequencies are as follows : at EIA mode : 13.500MHz (858fH) at CCIR mode : 13.500MHz (864fH) fH=Hor. frequency
47	CKO	OSCO	⎍	Clock output	An output pin for reference clock oscillation. The output is the inverse CKI(pin 46).
48	NINT	ICU	–	Non-interlace select	An input pin to select non-interlace mode. L level : Interlace mode H level or open : Non-interlace mode At non-interlace mode, the field is ODD field and 262H period at EIA mode, and 1st field and 312H period at CCIR mode.

4-2. How to use ACLX pin.



4-3. Fixed shutter mode

EEMD (pin 20)	FLMD (pin 19)	Shutter speed (s)	
		EIA	CCIR
L	L	appro. 1/ 60	appro. 1/ 50
L	H	appro. 1/ 100	appro. 1/ 120

4-4. Electoronic Exposur control

EEMD (pin 20)	FLMD (pin 19)	Start shutter speed (s)	
		EIA	CCIR
H	L	1/ 31,320max	1/ 30,890max
H	H	1/109,890max	1/109,890max

EEMD (pin 20)	EEST (pin 25)	EEUD (pin 21)	EENR (pin 22)	Electoronic Exposur control
H	H	H	L	Shutter speed up
H	H	H	H	Control stopped
H	H	L	H	Shutter speed down
H	L	×	×	Control stopped

4-5. Shutter speed changes at Electoronic Exposure control.

	EIA			CCIR	
	Charge time	Shutter speed		Charge time	Shutter speed
0	262H, 263H	≒1/ 60s	0	322H, 323H	≒1/ 50s
1	252H+0.209H	≒1/ 62s	1	302H+0.207H	≒1/ 52s
	(by 10H step)			(by 10H step)	
18	82H+0.209H	≒1/ 191s	23	82H+0.207H	≒1/ 190s
19	72H+0.209H	≒1/ 218s	24	72H+0.207H	≒1/ 216s
20	68H+0.209H	≒1/ 231s	25	68H+0.207H	≒1/ 230s
	(by 4H step)			(by 4H step)	
29	32H+0.209H	≒1/ 490s	34	32H+0.207H	≒1/ 485s
30	28H+0.209H	≒1/ 560s	35	28H+0.207H	≒1/ 555s
31	26H+0.209H	≒1/ 600s	36	26H+0.207H	≒1/ 595s
	(by 2H step)			(by 2H step)	
36	16H+0.209H	≒1/ 970s	41	16H+0.207H	≒1/ 965s
37	14H+0.209H	≒1/ 1,110s	42	14H+0.207H	≒1/ 1,100s
38	13H+0.209H	≒1/ 1,190s	43	13H+0.207H	≒1/ 1,180s
	(by 1H step)			(by 1H step)	
43	8H+0.209H	≒1/ 1,920	48	8H+0.207H	≒1/ 1,900s
44	7H+0.209H	≒1/ 2,180	49	7H+0.207H	≒1/ 2,170s
45	6.5H+0.209H	≒1/ 2,350	50	6.5H+0.207H	≒1/ 2,335s
	(by 0.500H step)			(by 0.500H step)	
49	4.5H+0.209H	≒1/ 3,360s	54	4.5H+0.207H	≒1/ 3,330s
50	4H+0.209H	≒1/ 3,740s	55	4H+0.207H	≒1/ 3,715s
51	3.75H+0.209H	≒1/ 3,980s	56	3.75H+0.207H	≒1/ 3,960s
	(by 0.250H step)			(BY 0.250H step)	
61	1.25H+0.209H	≒1/11,040s	66	1.25H+0.207H	≒1/10,930s
62	1H+0.209H	≒1/13,020s	67	1H+0.207H	≒1/12,945s
63	0.875H+0.209H	≒1/14,600s	68	0.875H+0.207H	≒1/14,500s
	(by 0.125H step)			(by 0.125H step)	
69	0.294H	≒1/53,360s	69	0.300H	≒1/52,120s
70	0.209H	≒1/75,420s	75	0.207H	≒1/75,420s
71	0.151H	≒1/103,850s	76	0.150H	≒1/103,850s

5. Electorical Characteristics

5-1. Absolute Maximum Ratings

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

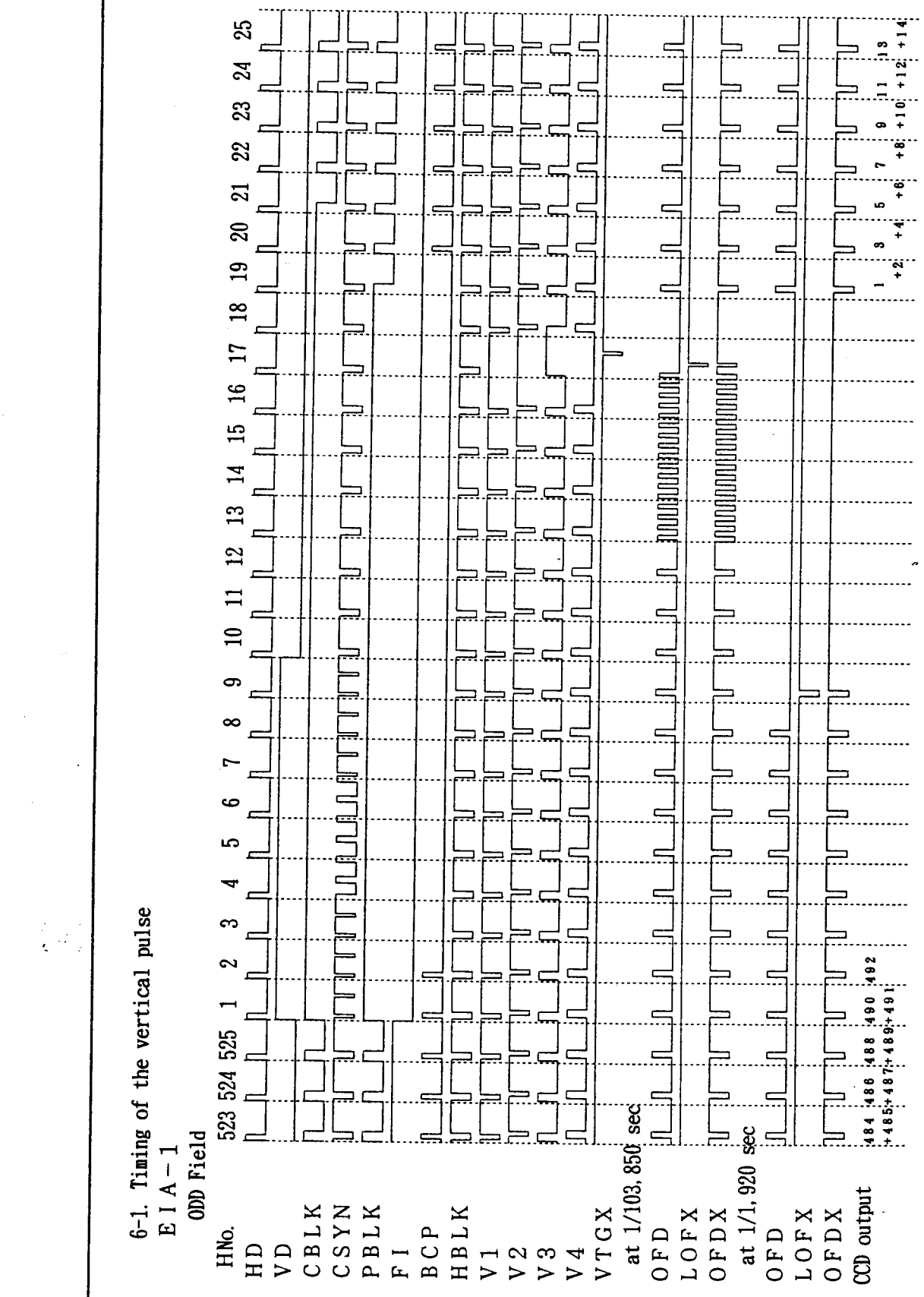
5-2. DC Characteristics (V_{DD}=+5V±10%, T_{opr}=-20~+70℃)

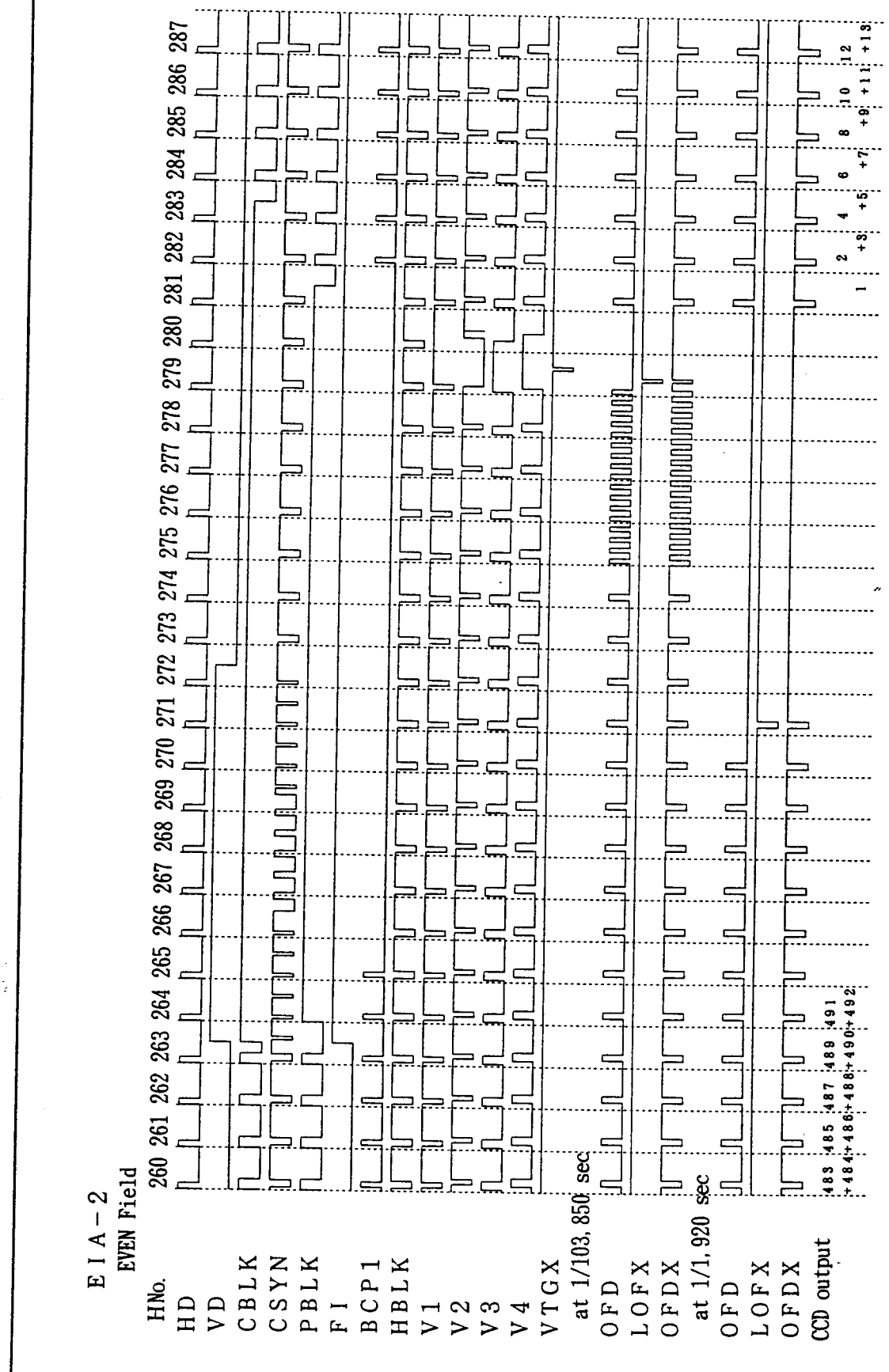
Parameter	Symbol	Condition	MIN.	TYP.	MAX.	Unit	Note
Input "Low" voltage	V_{IL}				1.5	V	1
Input "High" voltage	V_{IH}		3.5			V	
Input "High"	V_{T+}				3.7	V	2
Input "Low"	V_{T-}		1.0			V	
Hysterisis voltage	$V_{T+}-V_{T-}$		0.2			V	
Input "Low" current	$\lvert I_{IL1} \rvert$	V_I = 0 V			1.0	μA	3
	$\lvert I_{IL2} \rvert$	V_I = 0 V	8.0		75	μA	2, 4
Input "High" current	$\lvert I_{IH1} \rvert$	V_I = V_{DD}			1.0	μA	2, 5
	$\lvert I_{IH2} \rvert$	V_I = V_{DD}	8.0		75	μA	6
Output "High" voltage	V_{OH1}	I_{OH}=−2mA	4.0			V	7
Output "Low" voltage	V_{OL1}	I_{OL}= 4mA			0.4	V	
Output "High" voltage	V_{OH2}	I_{OH}=−3mA	4.0			V	8
Output "Low" voltage	V_{OL2}	I_{OL}= 4mA			0.4	V	
Output "High" voltage	V_{OH2}	I_{OH}=−6mA	4.0			V	9
Output "Low" voltage	V_{OL2}	I_{OL}= 8mA			0.4	V	
Output "High" voltage	V_{OH3}	I_{OH}=−9mA	4.0			V	10
Output "Low" voltage	V_{OL3}	I_{OL}= 12mA			0.4	V	

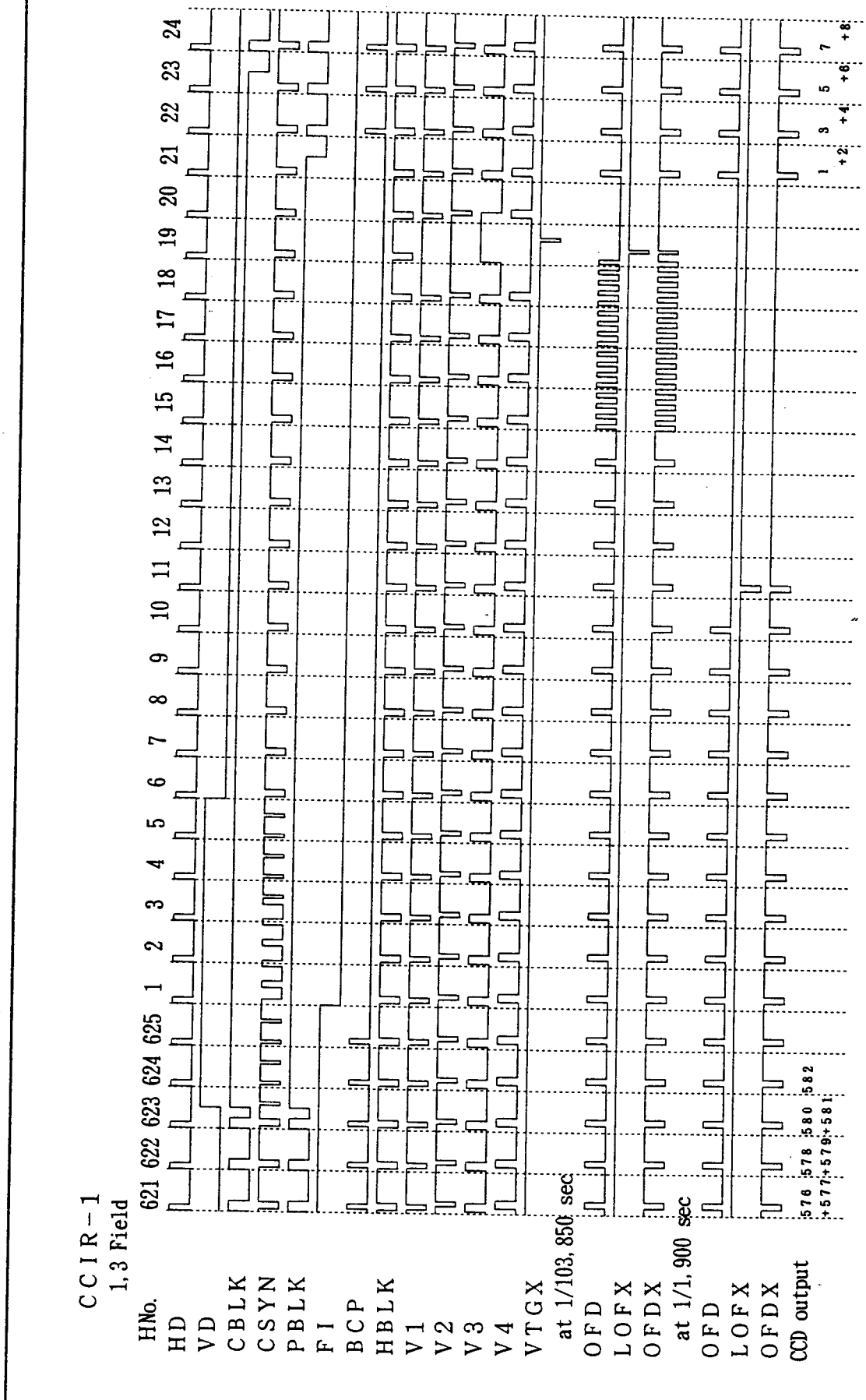
Note 1 : Applied to Inputs(IC, ICD, ICU, OSCI).
Note 2 : Applied to Inputs(ICSU).
Note 3 : Applied to Inputs(IC, ICD, OSCI).
Note 4 : Applied to Input(ICU).
Note 5 : Applied to Inputs(IC, ICU, OSCI).
Note 6 : Applied to Input(ICD).
Note 7 : Applied to (O, OSCO).
(Output(OSCO) measures on conditions that input(OSCI) level is 0V or V_{DD}.)
Note 8 : Applied to Output(O6MA).
Note 9 : Applied to Output(O6MA2).
Note 10 : Applied to Output(O6MA3).

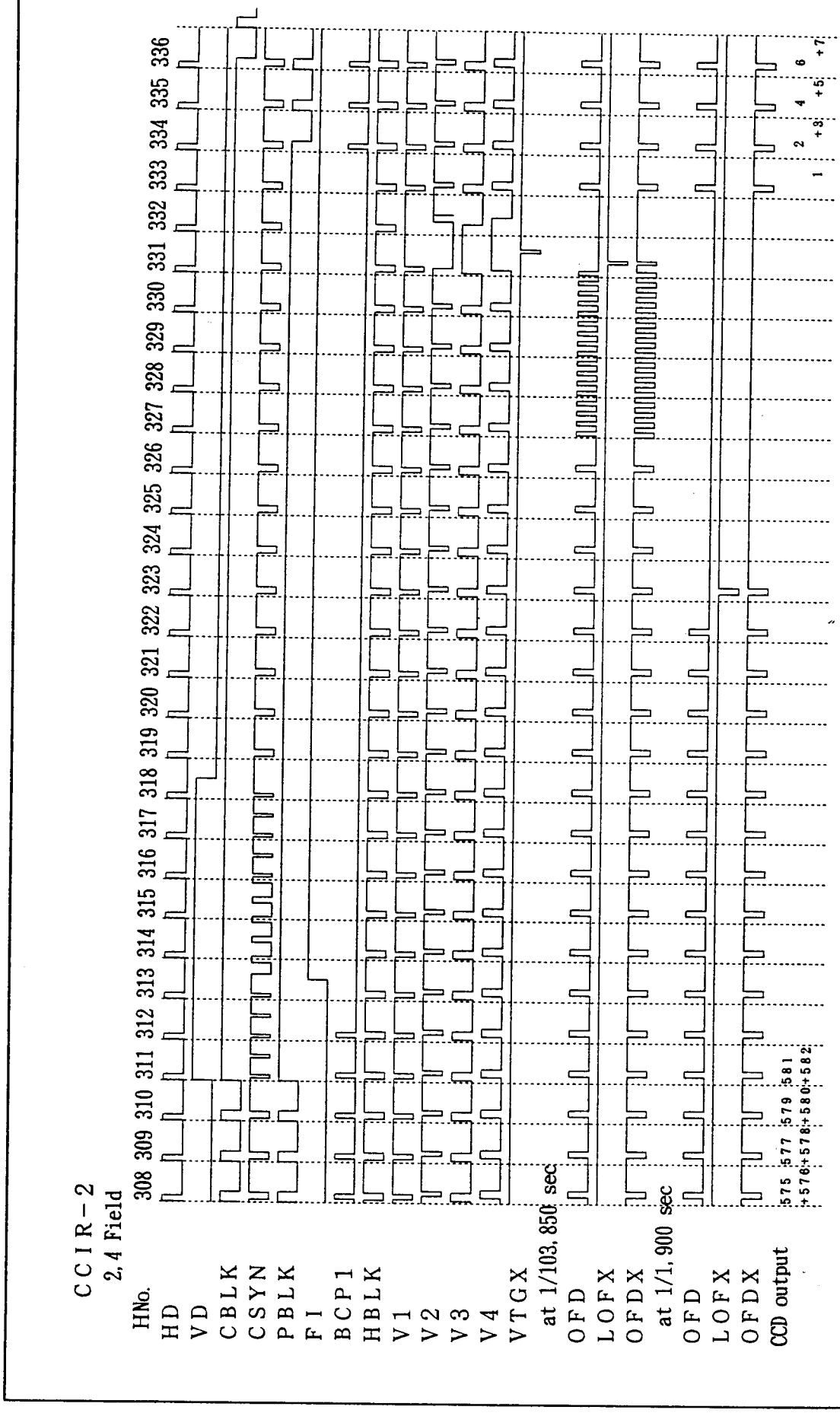
6. Pulse Timing

6-1. Timing of the vertical pulse
EIA-1
ODD Field

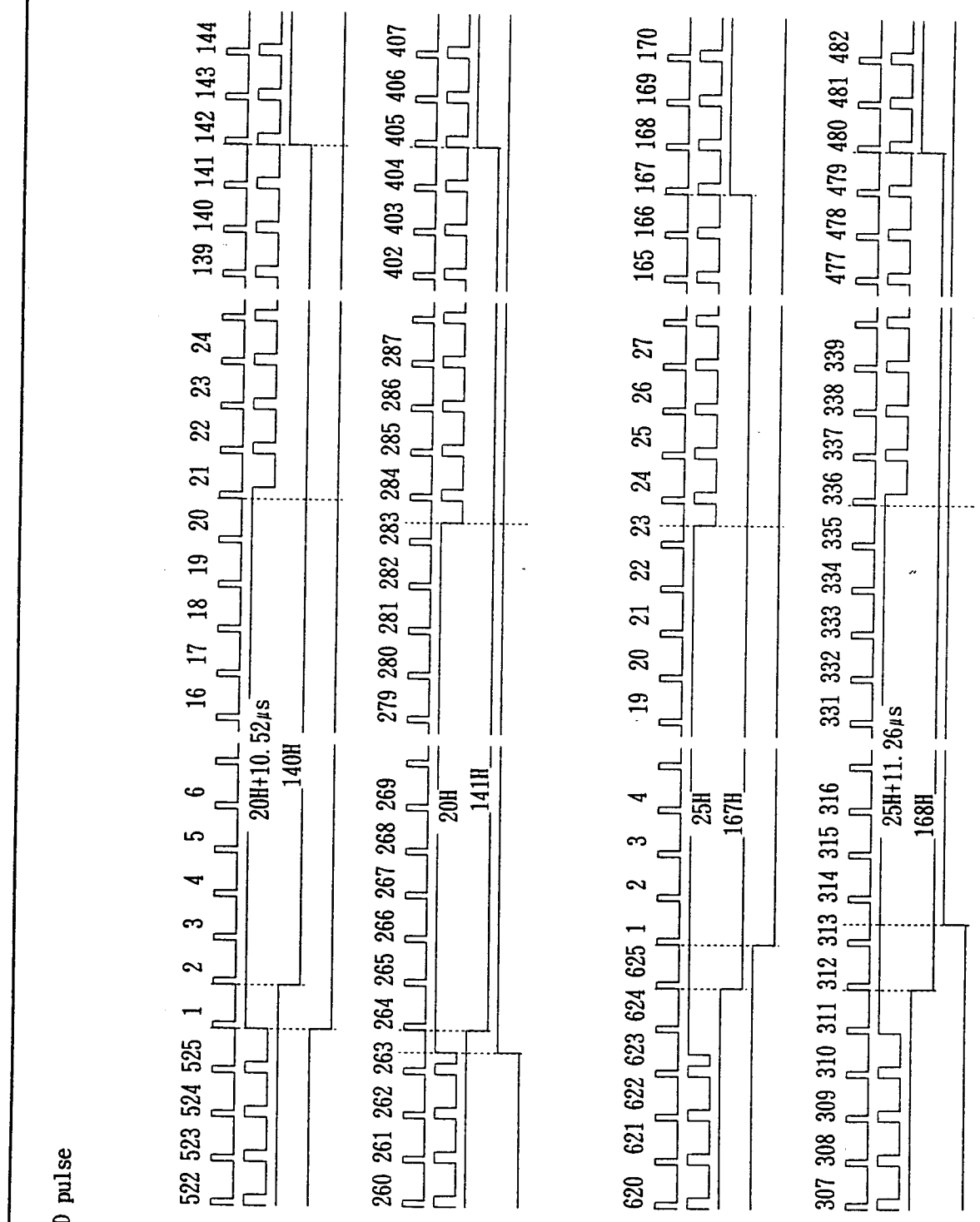



EIA-2
EVEN Field
HNo.
260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287
HD
VD
CBLK
CSYN
PBLK
FI
BCP1
HBLK
V1
V2
V3
V4
VTGX
at 1/103,850 sec
OFD
LOFX
OFDX
at 1/1,920 sec
OFD
LOFX
OFDX
CCD output
+484 485 486 487 488 489 490 491 492
1 2 +3 4 +5 6 +7 8 +9 10 +11 12 +13


CCIR-1
1,3 Field
HNo.
HD
VD
CBLK
CSYN
PBLK
FI
BCP
HBLK
V1
V2
V3
V4
VTGX
at 1/103,850 sec
OFD
LOFX
OFDX
at 1/1,900 sec
OFD
LOFX
OFDX
CCD output

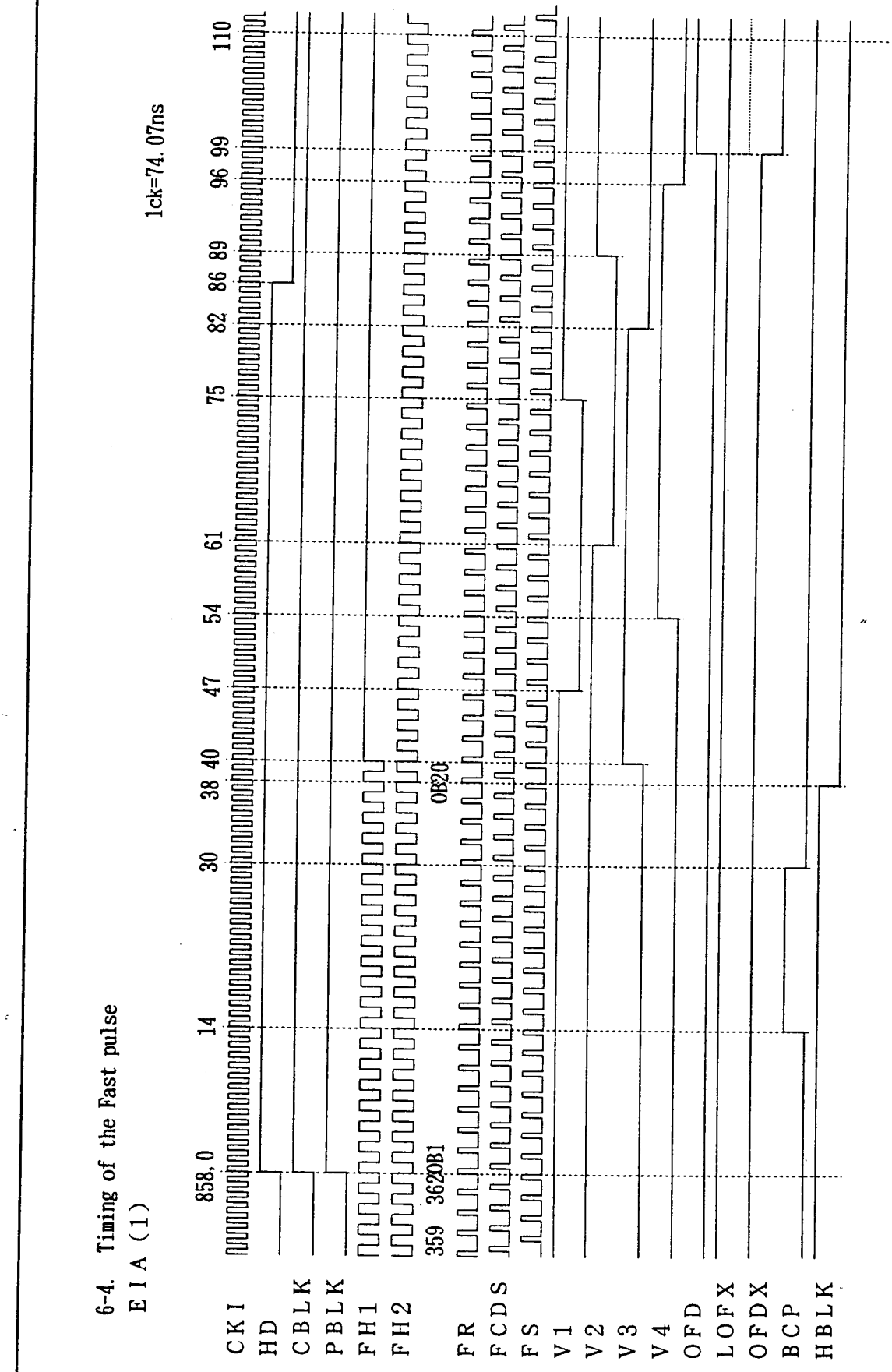

CCIR-2
2,4 Field
HNo.
308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336
HD
VD
CBLK
CSYN
PBLK
FI
BCP1
HBLK
V1
V2
V3
V4
VTGX
at 1/103.850 sec
OFD
LOFX
OFDX
at 1/1,900 sec
OFD
LOFX
OFDX
CCD output
575 577 579 581
+576 +578 +580 +582
1 2 4 6
+3 +5 +7

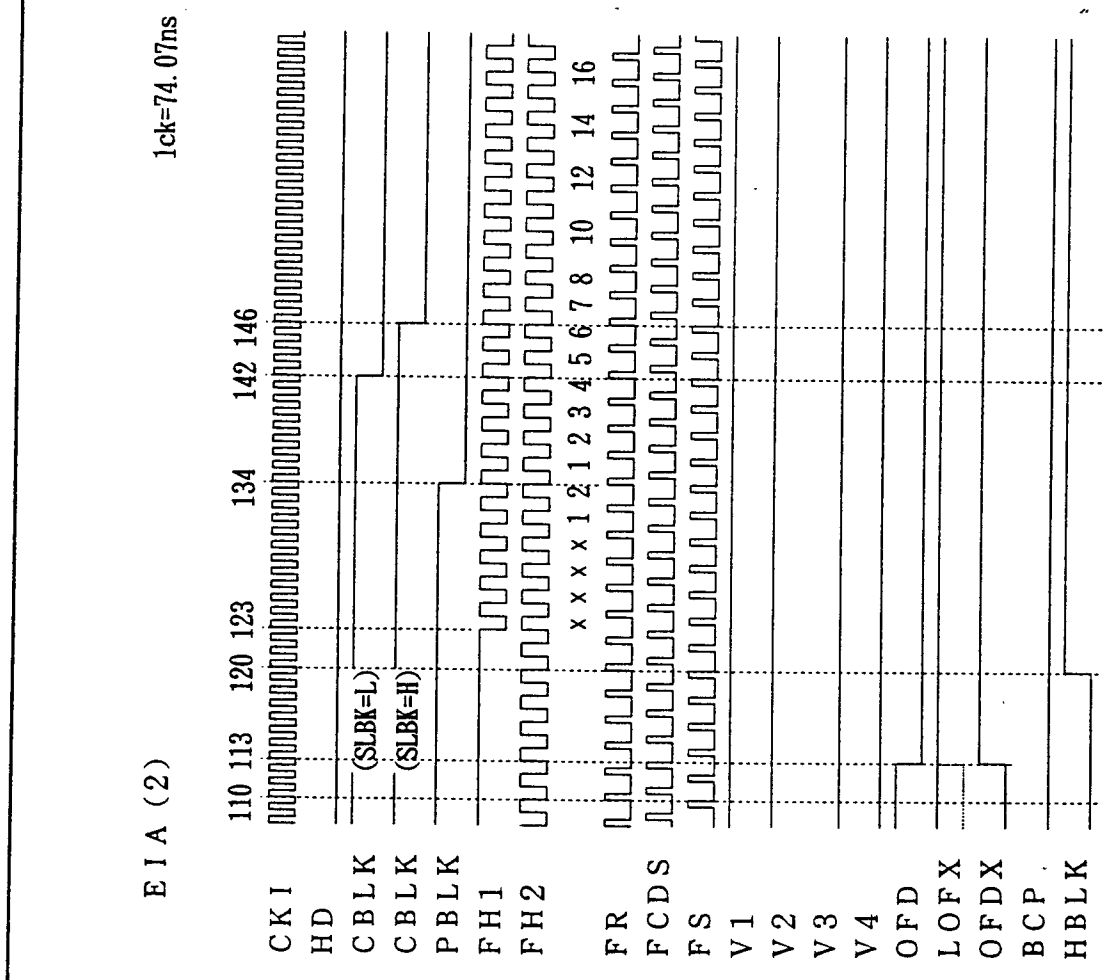
6-2. WIND pulse

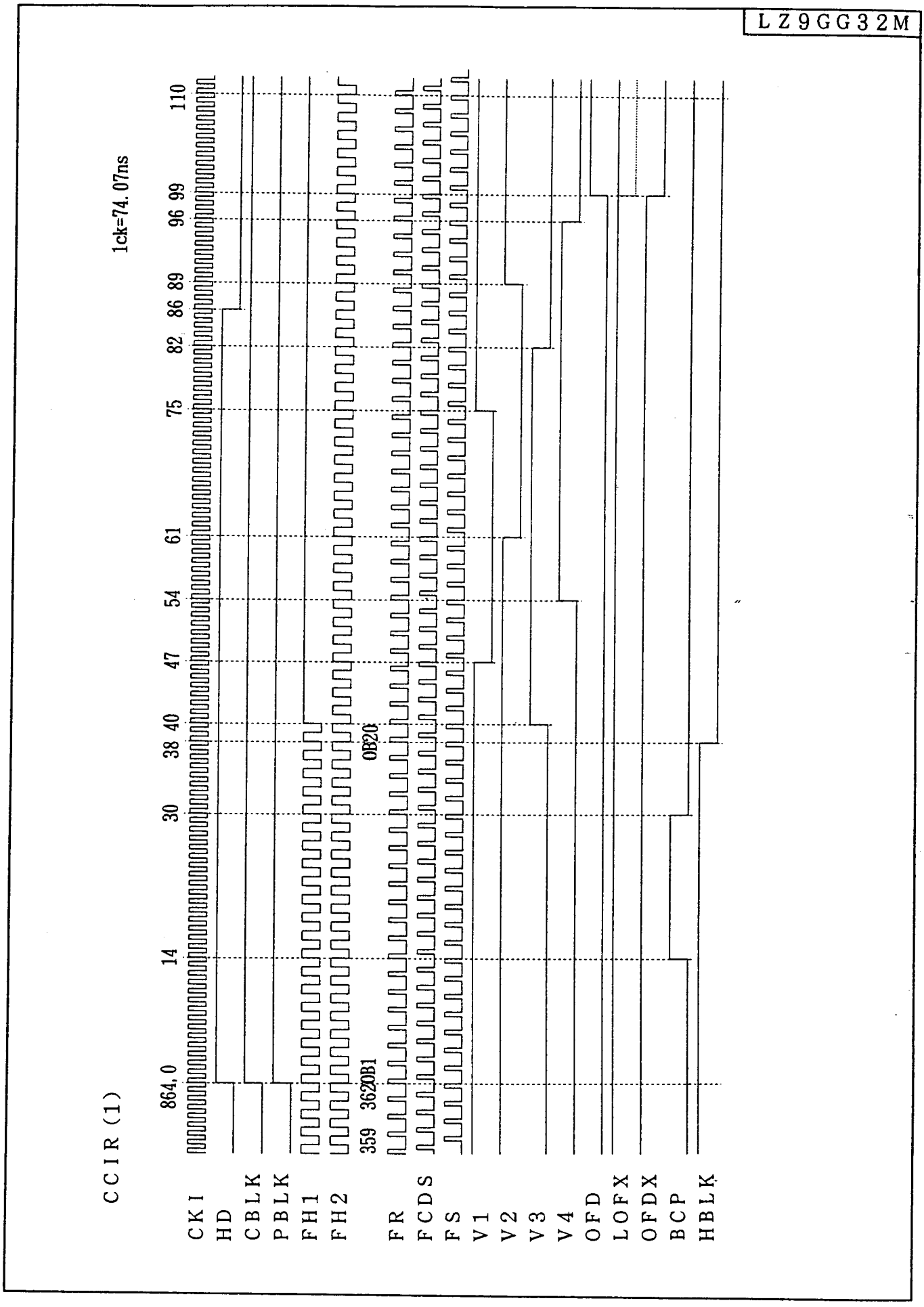


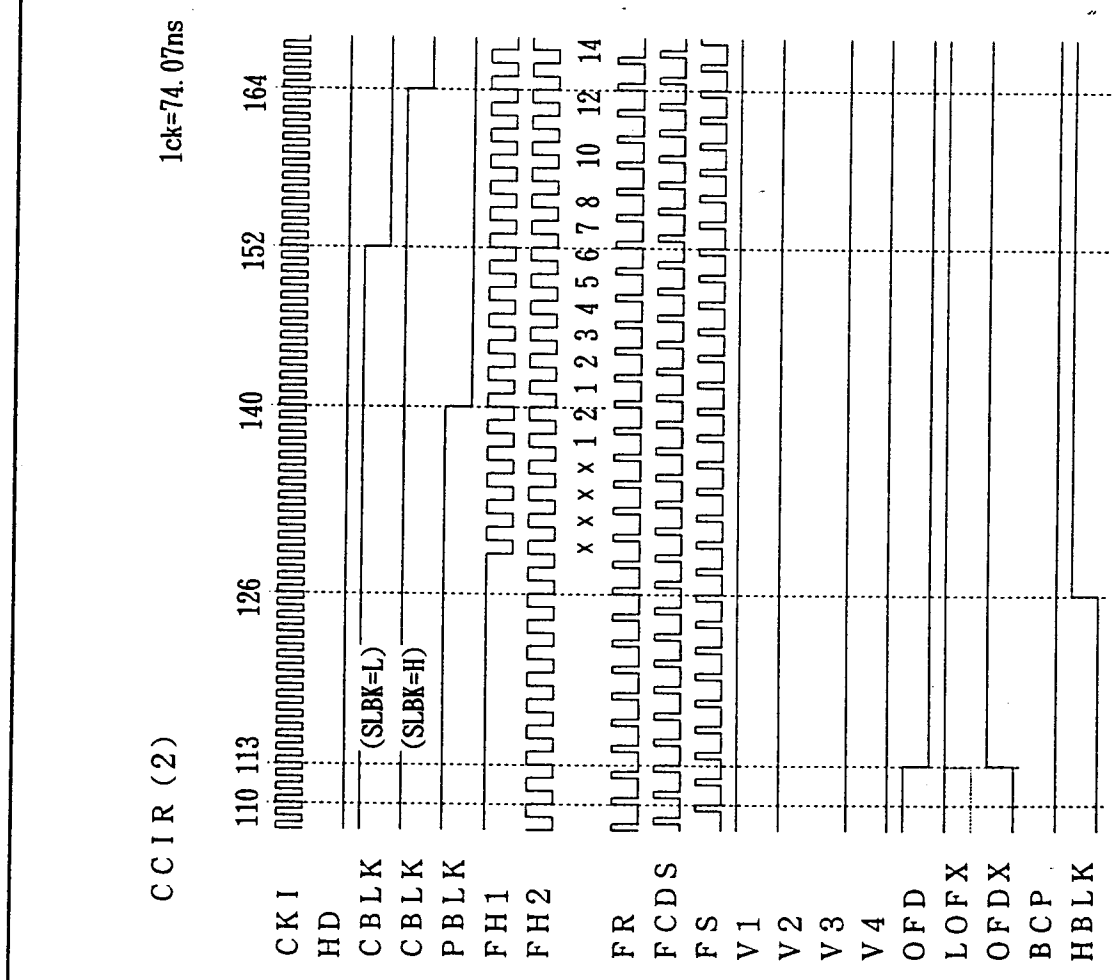
6-4. Timing of the Fast pulse

EIA (1)




EIA (2)
1ck=74.07ns
110 113 120 123 134 142 146
1 2 3 4 5 6 7 8 10 12 14 16
x x x x
(SLBK=L)
(SLBK=H)
CKI
HD
CBLK
CBLK
PBLK
FH1
FH2
FR
FCDS
FS
V1
V2
V3
V4
OFD
LOFX
OFDX
BCP
HBLK


CCIR(1)
1ck=74.07ns
864,0
14
30
38 40
47
54
61
75
82
86 89
96 99
110
359
362
0B1
0B20
CKI
HD
CBLK
PBLK
FH1
FH2
FR
FCDS
FS
V1
V2
V3
V4
OFD
LOFX
OFDX
BCP
HBLK

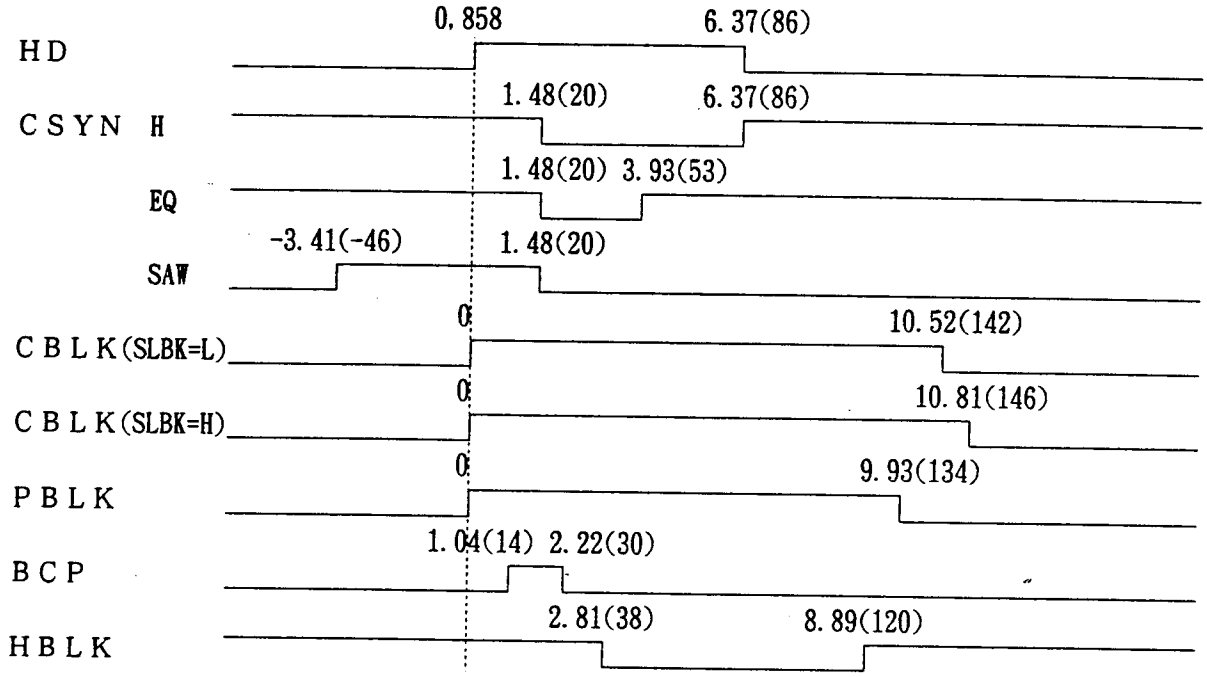

CCIR(2)
1ck=74.07ns
110 113
126
140
152
164
CKI
HD
CBLK
(SLBK=L)
CBLK
(SLBK=H)
PBLK
FH1
FH2
x x x 1 2 1 2 3 4 5 6 7 8 10 12 14
FR
FCDS
FS
V1
V2
V3
V4
OFD
LOFX
OFDX
BCP
HBLK

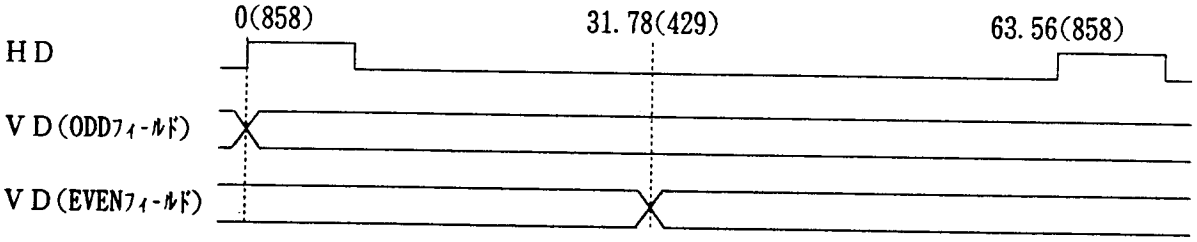
LZ9GG32M

6-3. Timing of the horizontal syncronus pulse

EIA

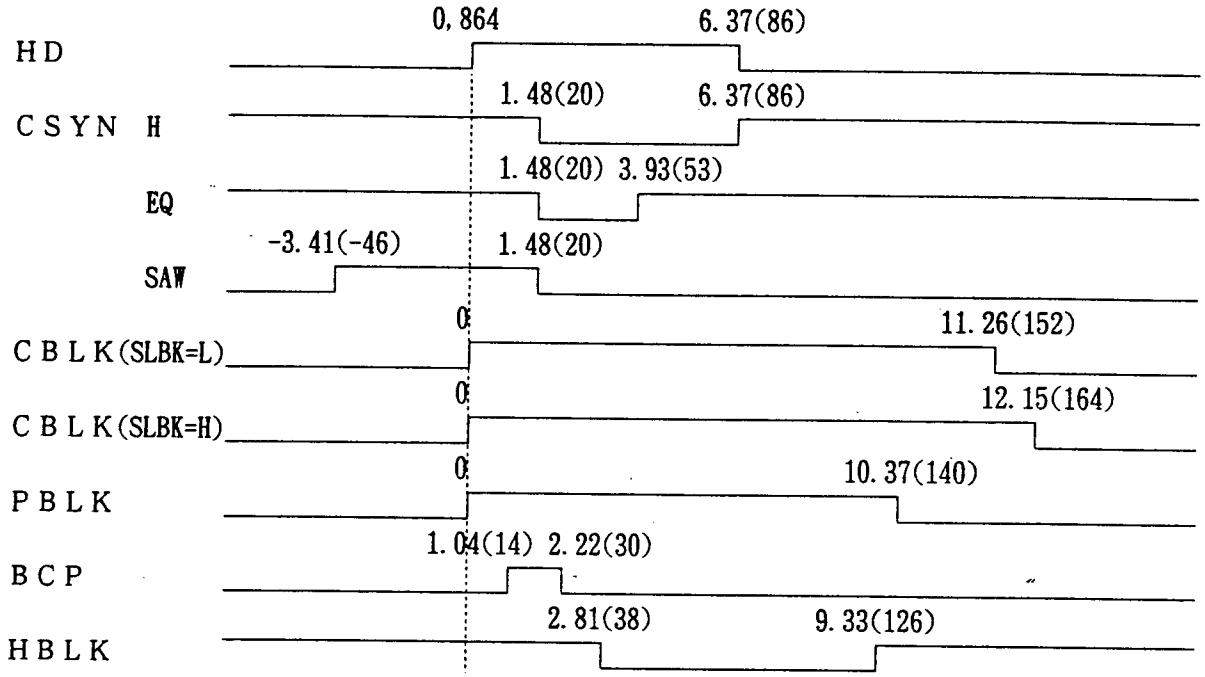
Unit;μs ( ); Number of the CKI

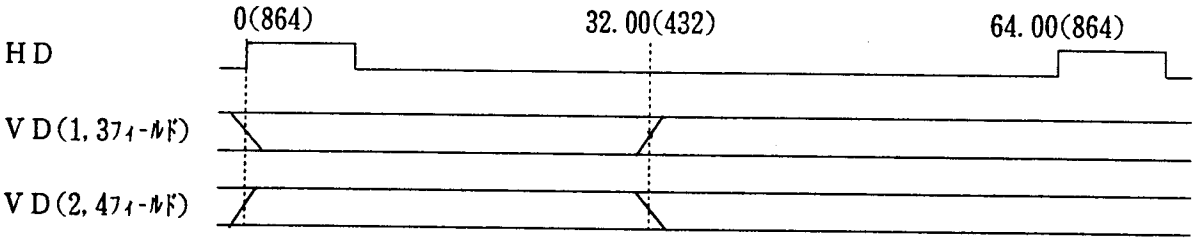




CCIR

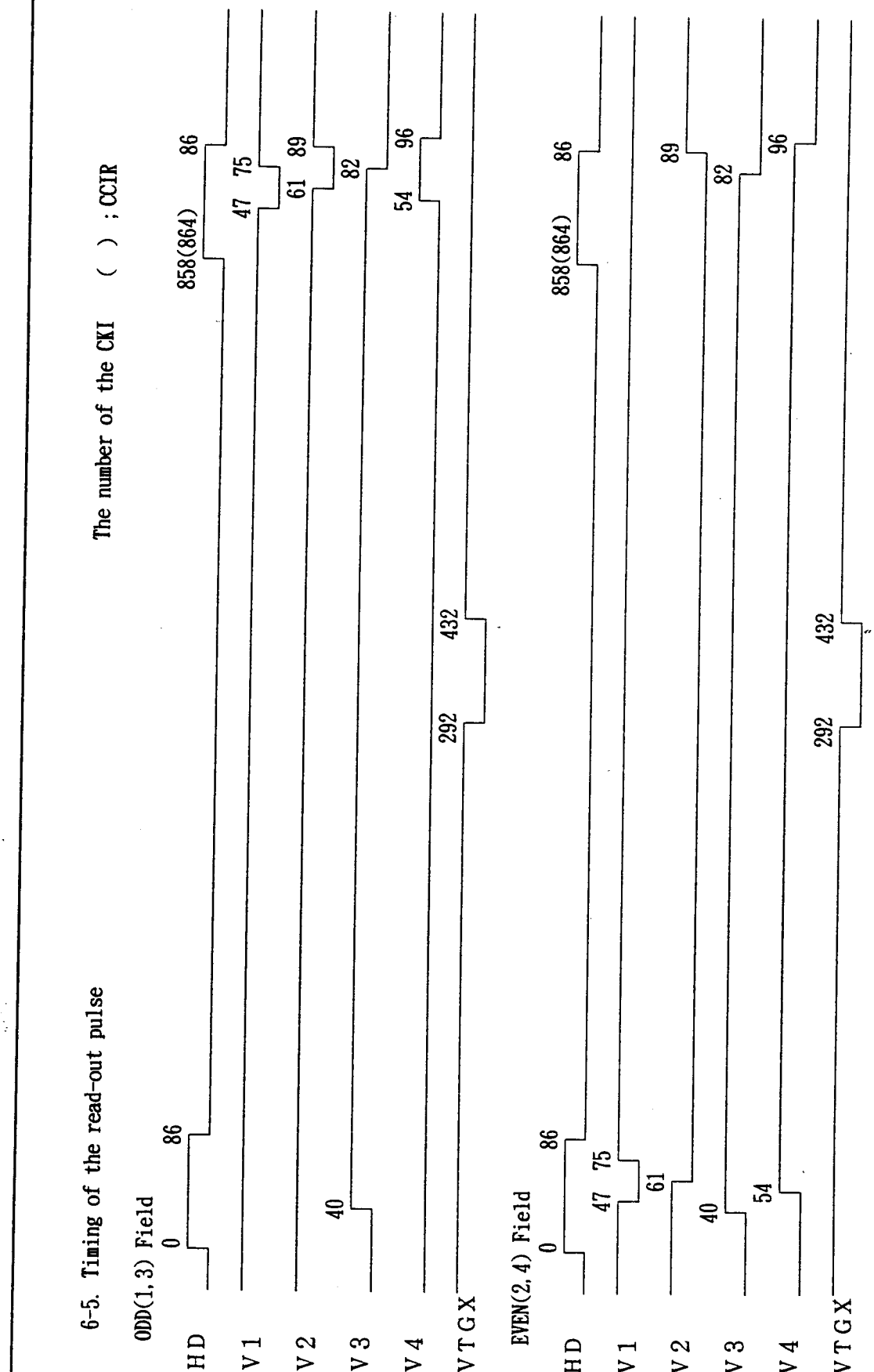
Unit;μs ( ); Number of the CKI





6-5. Timing of the read-out pulse

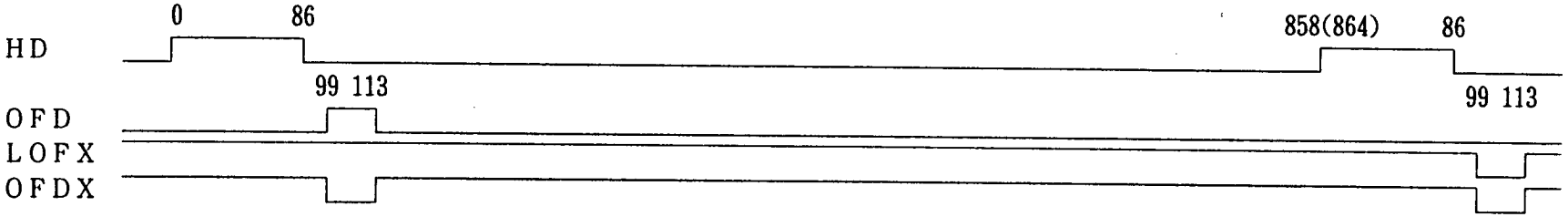
The number of the CKI ( ) ; CCIR



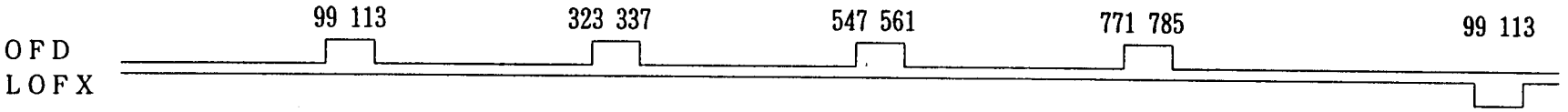
6-6. Timing of the Sweep pulse

The number of the CKI ( ) ; CCIR

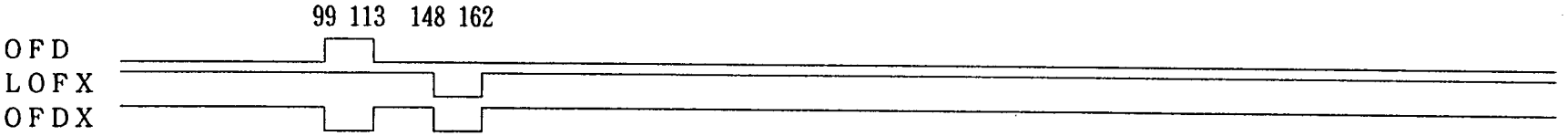
•At shutter speed changed 9H, 4H or 1H



•At 1/4,900 sec(1/4,870 sec) with shutter speed changed 0.25H



•At max. shutter speed 1/103,850 sec(1/103,850)



7 Package and packing specification

1. Package Outline Specification

Refer to drawing No. AA1035

2. Markings

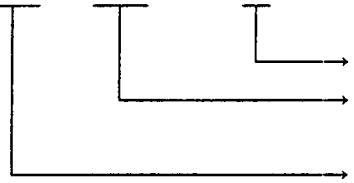
2－1. Marking contents

(1) Product name : LZ9GG32M

(2) Company name : SHARP

(3) Date code

(Example) YY WW ×



Indicates the product was manufactured in the WWth week of 19YY.

Denotes the production ref. code.

Denotes the production week. (01,02,03,・・・・・52,53)

Denotes the production year. (Lower two digits of the year.)

(4) The marking of "JAPAN" indicates the country of origin.

2－2. Marking layout

Refer to drawing No. AA1035

(This layout do not define the dimensions of marking character and marking position.)

3. Packing Specification

3－1. Packing materials

Material Name	Material Specification	Purpose
Tray	Conductive plastic (80devices/tray)	Fixing of device
Upper cover tray	Conductive plastic (1tray/case)	Fixing of device
Laminated aluminum bag	Aluminum polyethylene (1bag/case)	Drying of device
Desiccant	Silica gel	Drying of device
P P band	polypropylene (3 pcs/case)	Device tray fixing
Inner case	Card board (800devices/case)	Packaging of device
Label	Paper	Indicates part number, quantity and date of manufacture
Outer case	Cardboard	Outer packing of device case

(Devices shall be placed into a tray in the same direction.)

3－2. Outline dimension of tray

Refer to attached drawing

4. Precausion For Unpacking

(1) Unpacking should be done on the stand as well as human body treated with anti-ESD.

(2) Conductive treatment or anti-ESD treatment is given to a dray. Use the equivalent tray, if it is changed to another one.

5. Surface Mount Conditions

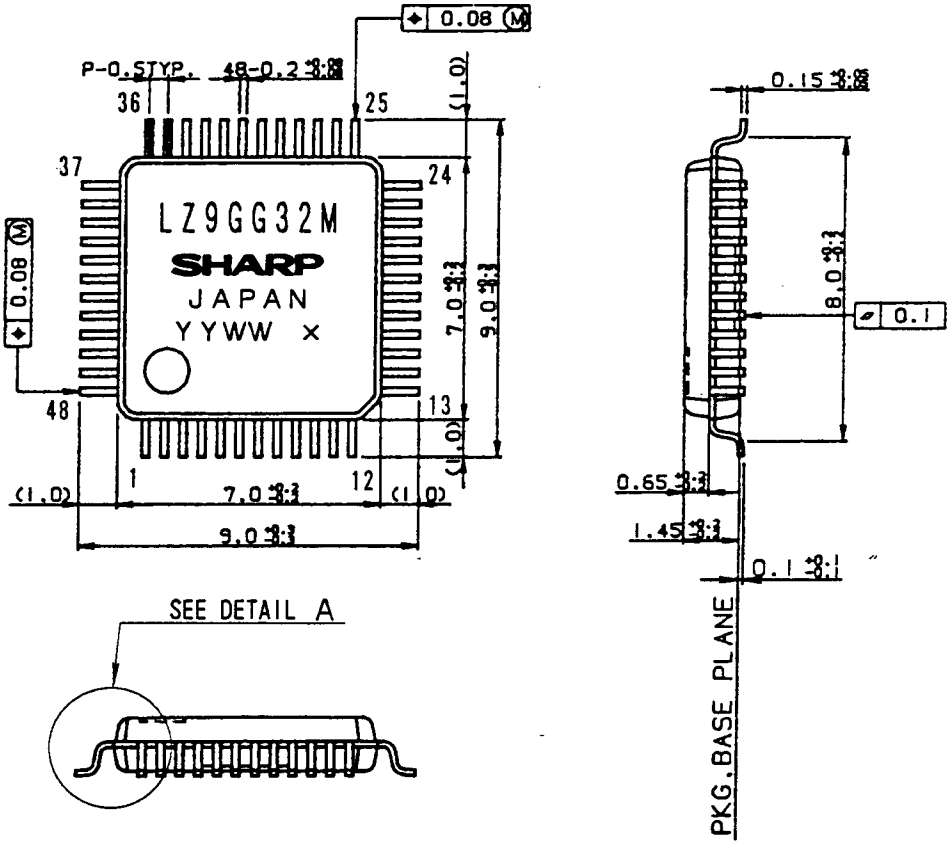
Please perform the following conditions when mounting ICs not to deteriorate IC quality.

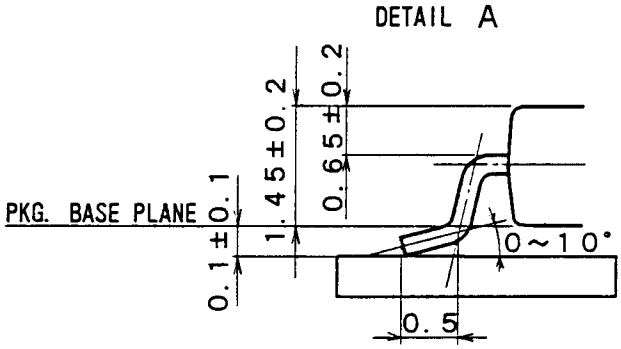
5－1. Soldering conditions (The following conditions are valid only for one time soldering.)

Mounting Method	Temperature and Duration	Measurement Point
Reflow soldering (air)	Peak temperature of 240℃, duration less than 15 seconds above 230℃, temperature increase rate of 1～4℃/second	IC surface
Vapor phase solderring	215℃ or less, duration less than 40 seconds above 200℃	Steam
Manual soldering (soldering iron)	260℃ or less, duration less than 10 seconds	IC outer lead surface

5－2. Conditions for removal of residual flux

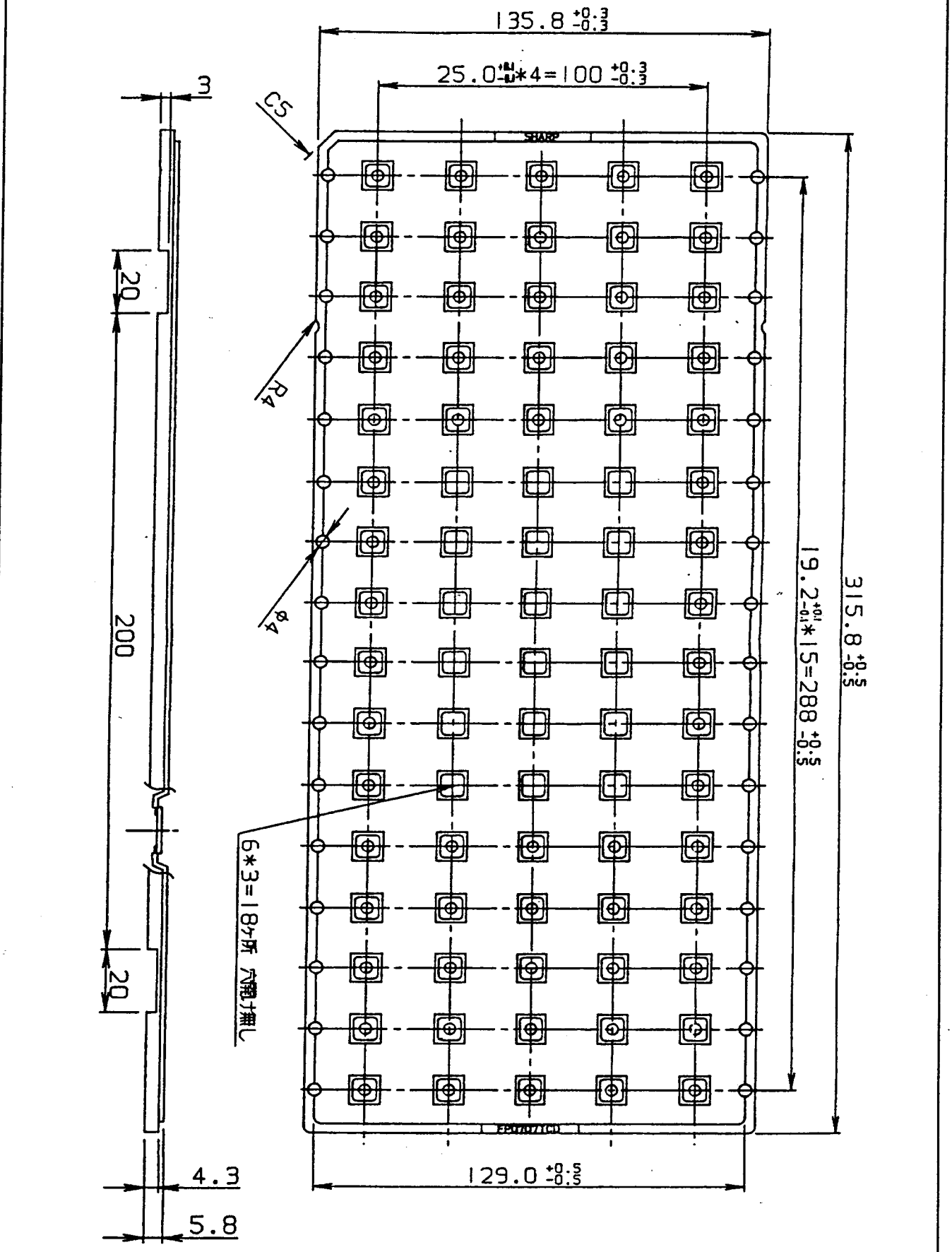
(1) Ultrasonic washing power : 25 Watts/liter or less
(2) Washing time : Total 1 minute maximum
(3) Solvent temperature : 15～40℃





名称 NAME	QFP48-P-0707	リード仕上 LEAD FINISH	TIN-LEAD PLATING
DRAWING NO	AA1035	単位 UNIT	mm

備考 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。
NOTE Plastic body dimensions do not include burr of resin.



名称 NAME	FP0707TCD	備考 NOTE
DRAWING NO.	CV536	単位 UNIT mm

CCD, sensor, imaging, area sensor, pattern recognition, timing generator, vertical driver, white balance, LSI, LZ9GG32M