CITIZEN

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LCD Module Specification

USC-220

PAL & NTSC versions

RGB and Composite versions.

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1. Scope of application

This specification applies to LCD Color Video Unit USC-220-***.

2. Ratings

①NTSC-Composite video signal
②NTSC-Analog RGB signal
③PAL-Composite video signal
④PAL-Analog RGB signal

2- 1	Screen size	5.6cm
2- 2	Recommended viewing size	43.2(H)mm*33.5(V)mm
2- 3	Number of dots	NTSC 70080=480(H)*146(V) PAL 62400=480(H)*130(V)
2- 4	Display device	Twisted Nematic STN color LCD
2- 5	Prior viewing angle	In a direction of 12 o'clock
2- 6	Picture element form	Rectangle
2- 7	Driving method	NTSC 1/73 duty multiplex drive PAL 1/65 duty multiplex drive
2- 8	Mounting system	Cip on glass
2- 9	Polarizing plate	Glare
2-10	Lighting system	Built-in high luminance fluorescent tube
2-11	Power consumption	1.8W or less (at 5V)
2-12	Input signal	①③ Composite video signa 1.0Vp-p (Terminus:75ohm) ②④ Analog RGB signal 0.7Vp-p (Terminus:75ohm) Synchronized signal is A or B A:Composite Synchronized signal(Positive) B:Horizontal Synchronized signal(Positive) Vertical Synchronized signal(Positive)
2-13	Operating temperature	5 to +40 ℃
2-14	Storage temperature	-10 to +60 ℃
2-15	Outside dimensions	70.6mm(V)*71.7mm(H)*24mm(D) A projection portion is removed.
2-16	Weight	Approx. 83 g

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REVISED	DATE			REMARKS	

3. Performance

Measurement conditions	Supply voltage	5 ± 5%	V
	Temperature	25 ± 2	℃
	Humidity	65 ± 5	%RH

3- 1 Maxmum input voltage: 6V

3- 2 Operating voltage: 5V±10 %

3- 3 Current consumption: 350mA or less

3- 4 Picture display field: Composite video signa(Negative) Falling edge from
NTSC Horizontal:12.6～59.1 uSEC
Vertical :Odd number 28～247H Field
Even numbe 29～248H Field
PAL Horizontal : 13～6.3 uSec
Vertical : 37～298H Field

3- 5 Contrast ratio: CR(MAX)＝12 or more

3- 6 Viewing angle range: Vertical Viewing angle range θ1:+10～-20deg (φ= 0 , CR>5)
Horizontal Viewing angle range θ2:-25～+25deg (φ=90 , CR>5)

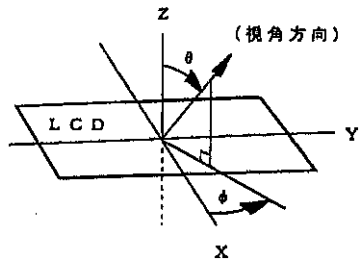


Fig 1

3- 7 Response time: (φ=0, θ=0)
Tr-ON : 95±20 mSec
Tr-OFF : 50±20 mSec

3- 8 Gray scales: In the cace of 11 gray levels being inputted, more than 8 levels should be displayed.
1(white) : 8(Gray) : 2(Black)
or 2(white) : 7(Gray) : 2(Black)

3-10 Lighting unit

Average Brightness	3000 nit or more Average at 5 points on specfied diffuser plate surface. (See Fig.2)
Uneven Brightness	-20 % to +20 % 5 points on specfied diffuser plate surface.
Measurement conditions	Measurement in 5 minutes after lighting.
Life time of fluorescent tube	10000 hours or more

*The life time means a case where one of two items described below comesunder.
①when the center brightness of straight tube has reached 50% of the initial value.
②when an non-effective luminous length has become more than 15 mm.

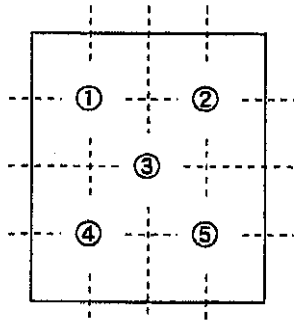
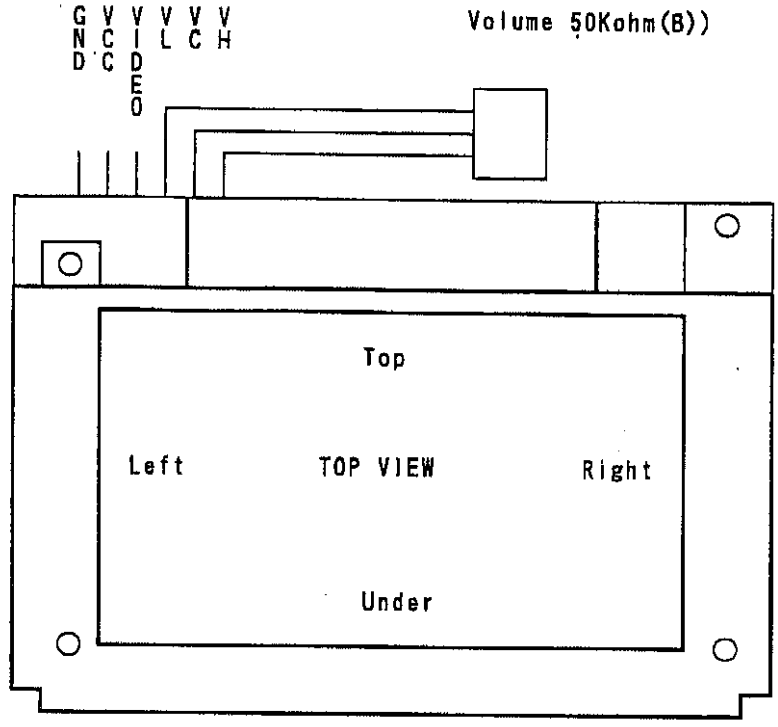


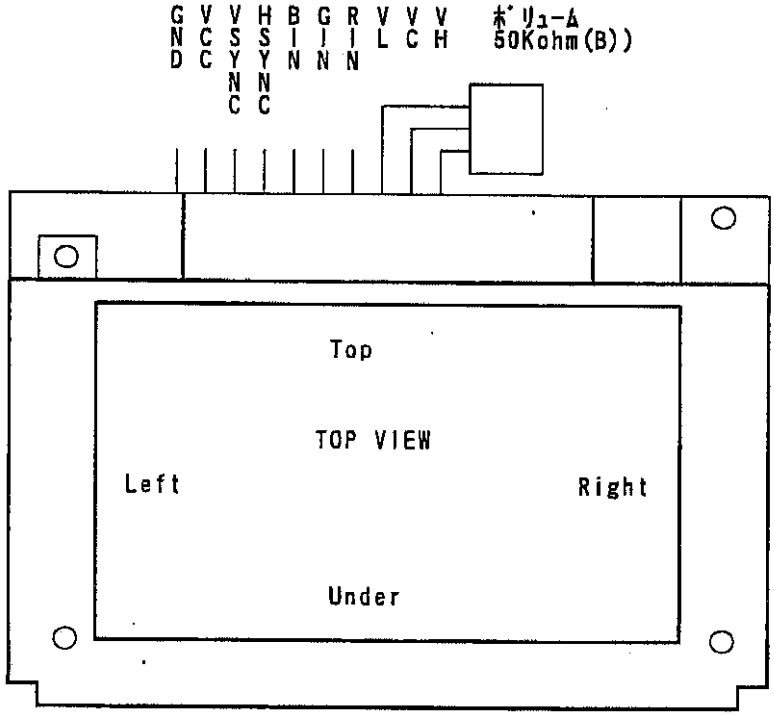
Fig 2

4. Connection

①③ Composite video signal



②④ Analog RGB signal



5. Explanation of a Pin

①③ Composite video signal

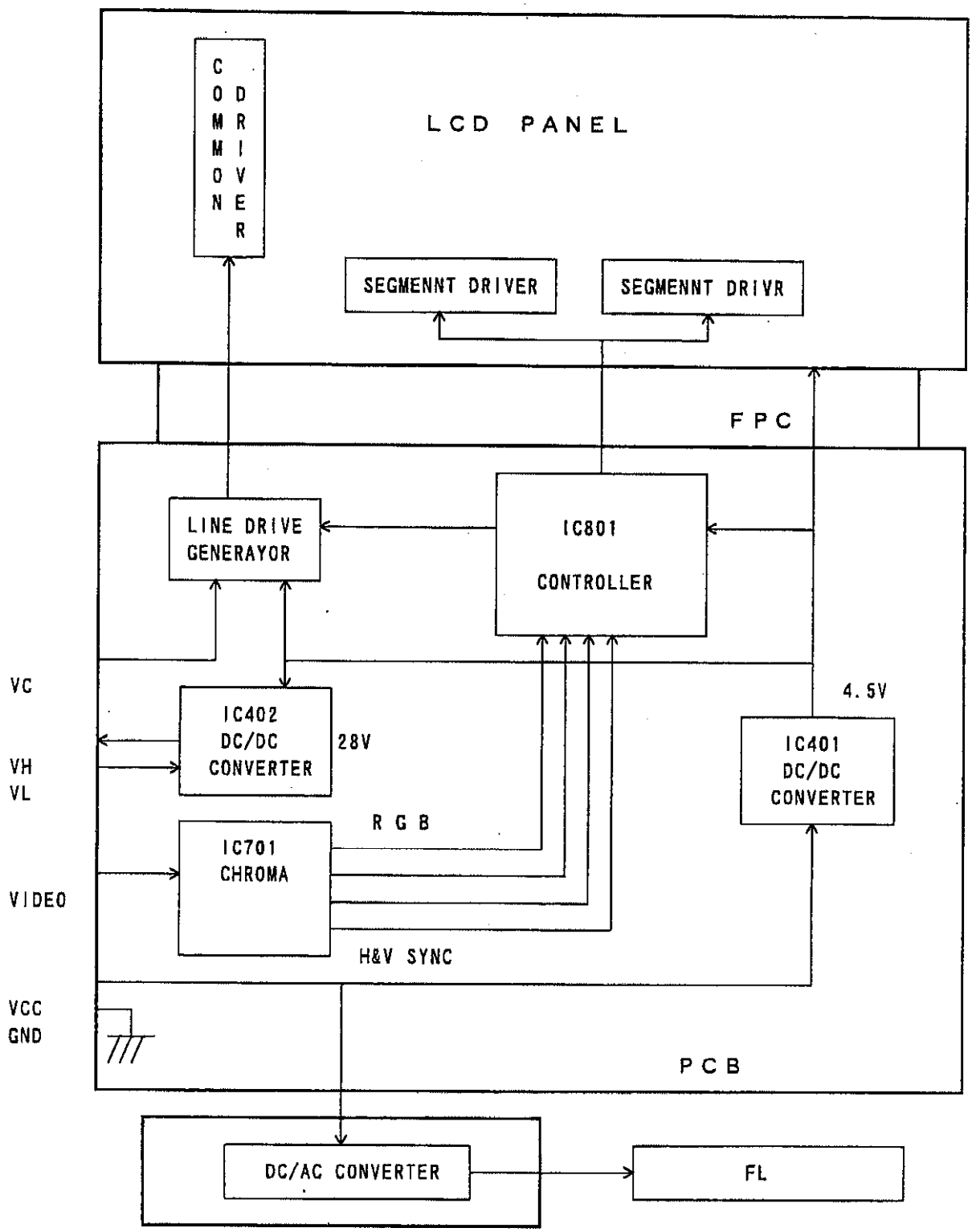
Pin Name	Signal Name	
GND	0V	
VCC	+5V	
VIDEO	Composite video signal	・1Vp-p(75ohm Terminus)
VH	Bright Volume High	・Value 50k ohm(B)))
VC	Bright Volume Center	
VL	Bright Volume Low	

②④Analog RGB signal

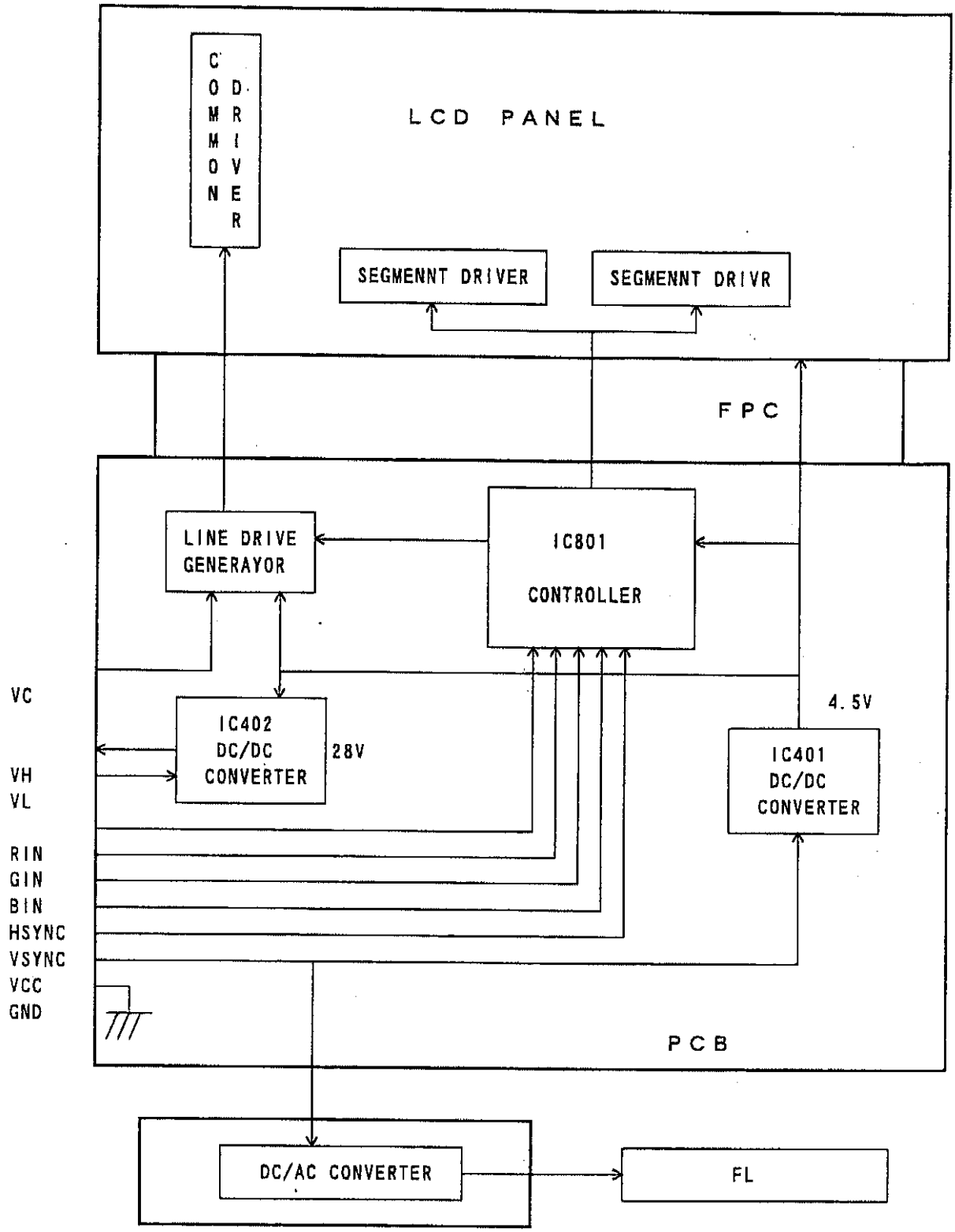
Pin Name	Signal Name	
GND	0V	
VCC	+5V	
VSYNC	Vertical Synchronized signal	・0-5V(Positive)
		Not use
HSYNC	Horizontal Synchronized signal	・0-5V(Positive)
	Composite Synchronized signal	・0-5V(Positive)
BIN	B Signal	・0.7Vp-p(75ohm Terminus)
GIN	G Signal	
RIN	R Signal	
V H	Bright Volume High	・Value 50k ohm(B))
V C	Bright Volume Center	
V H	Bright Volume Low	

6. BLOCK DIAGRAM

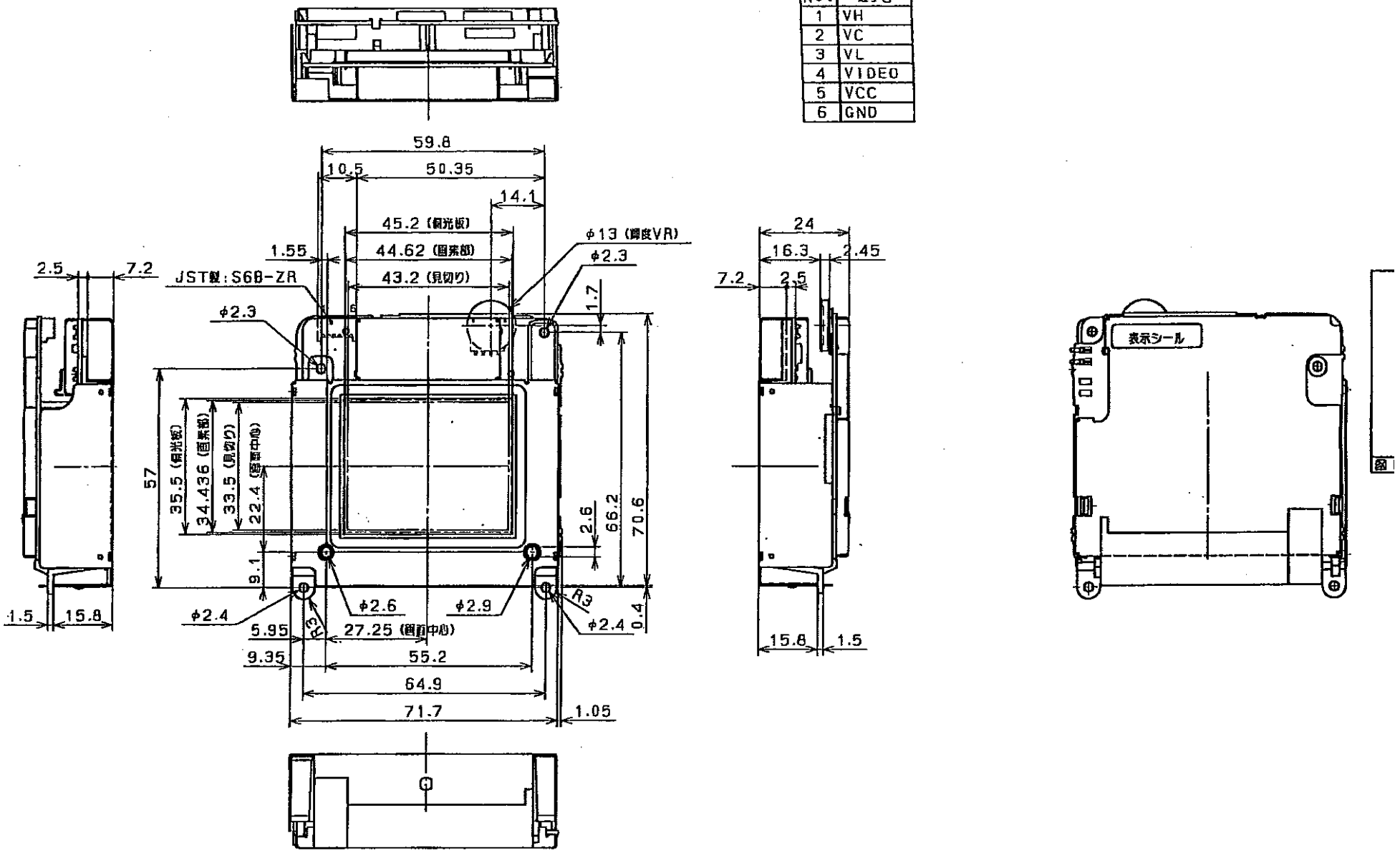
①③ Composite video signal



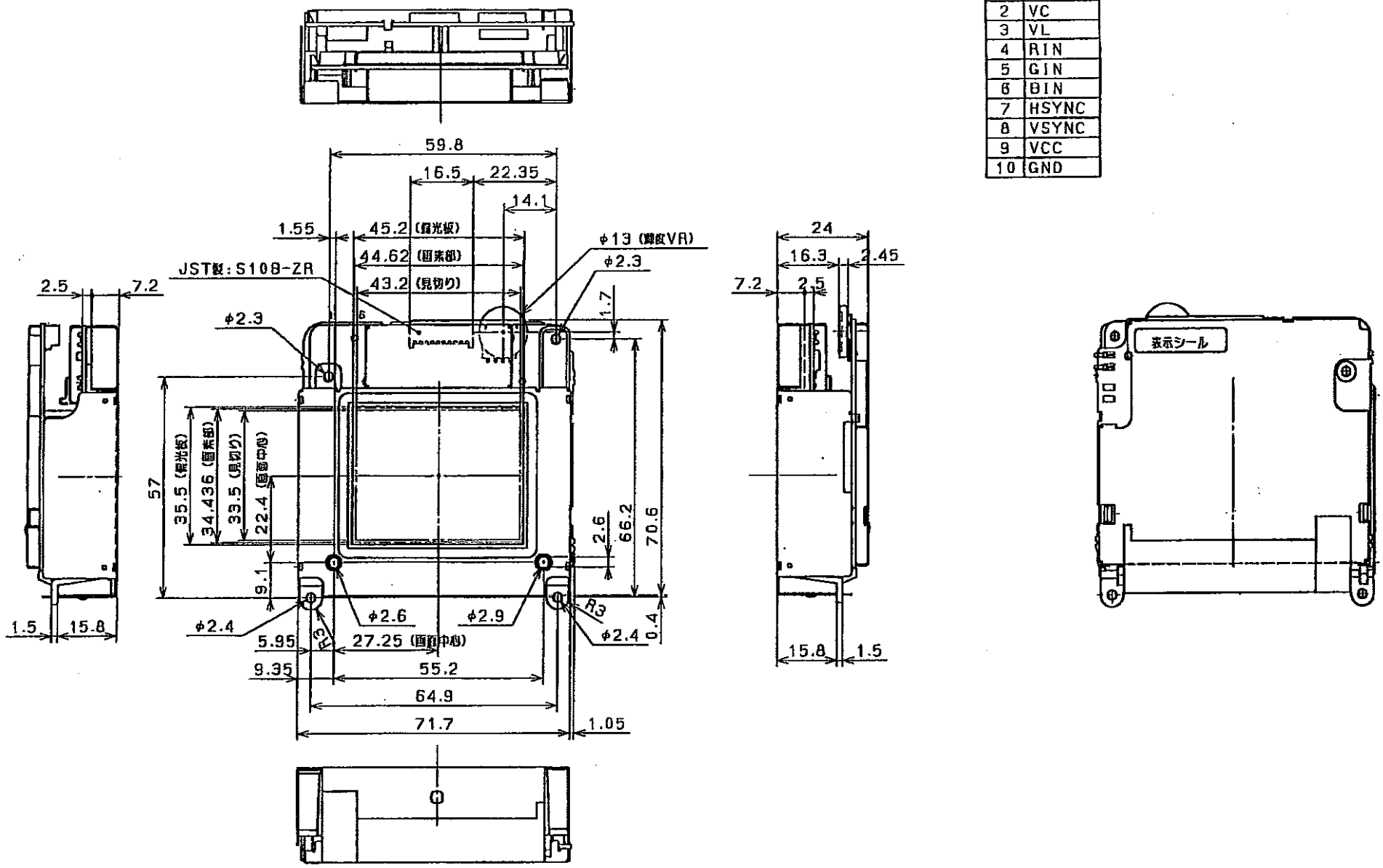
②④Analog RGB signal ＲＧＢ入力 ②④



No.	端子名
1	VH
2	VC
3	VL
4	VIDEO
5	VCC
6	GND



No.	端子名
1	VH
2	VC
3	VL
4	RIN
5	GIN
6	BIN
7	HSYNC
8	VSYNC
9	VCC
10	GND



一般公差	寸法			角度		表面処理		材質		U71			
承認	担当	設計	製図	検図						機名	図数	親番号	図数
	松山	松山	松山							名称	完成ビデオユニット（RGB入力用）		
日付						1／1 mm				番号	ASSYPBR		
シチズン時計株式会社						1／1		表示機器部					