CITIZEN

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)

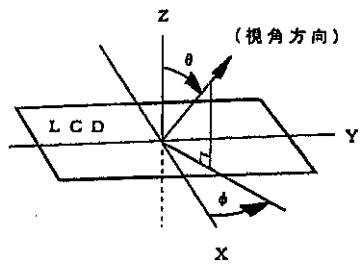


Fig 1

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.

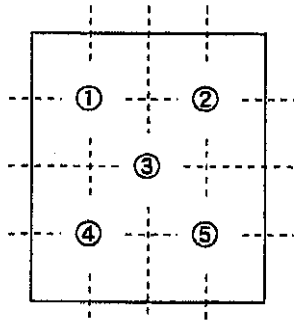
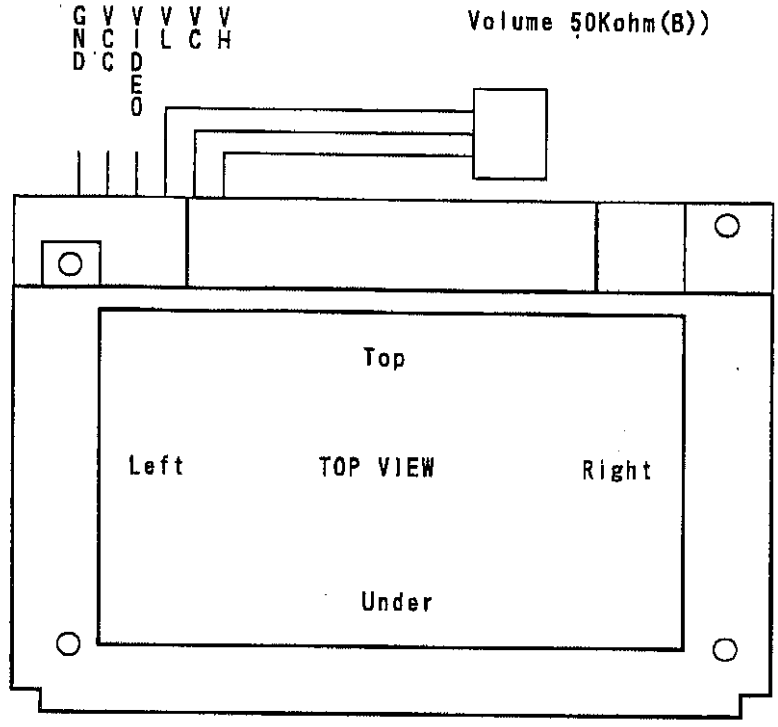


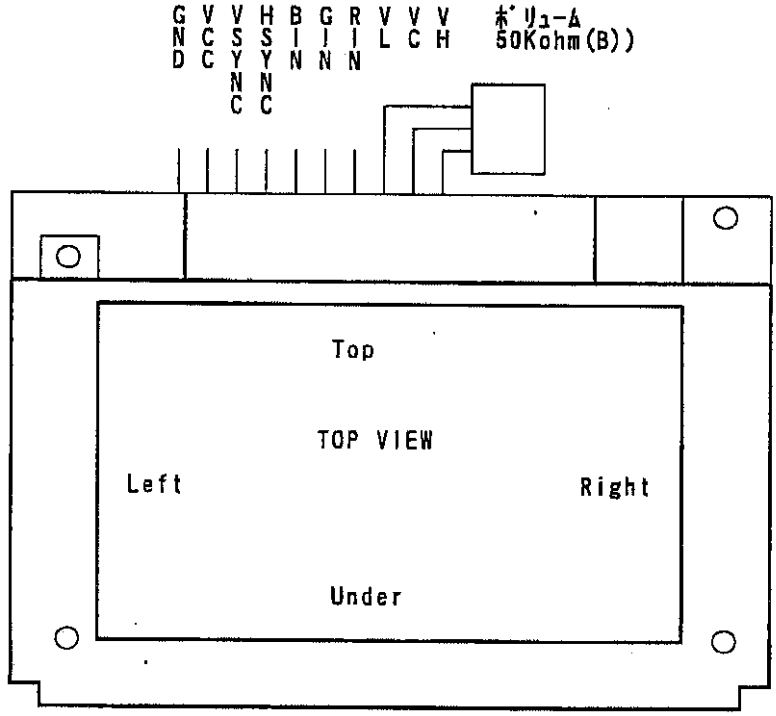
Fig 2

4. Connection

①③ Composite video signal



②④ Analog RGB signal



5. Explanation of a Pin

①③ Composite video signal

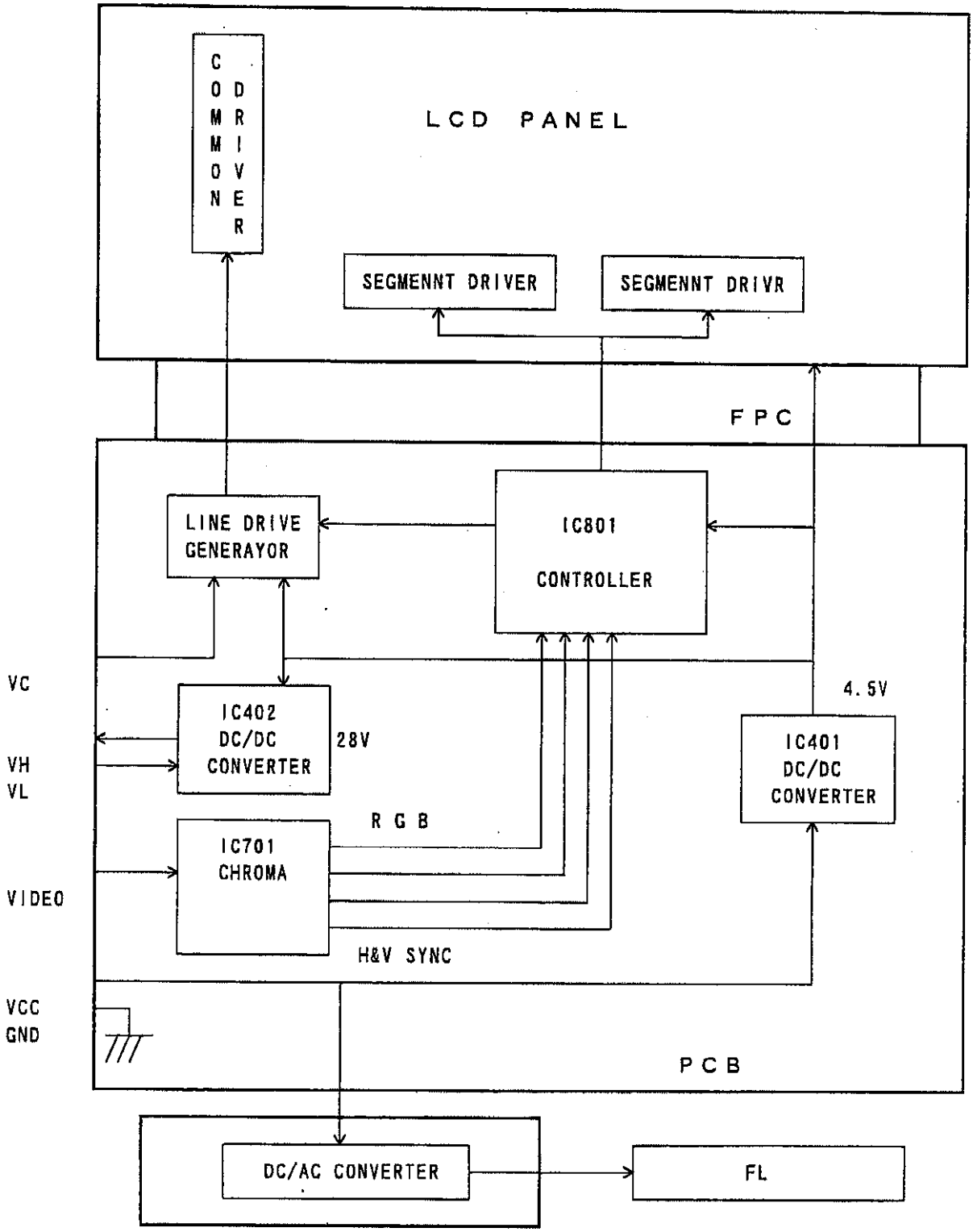
Pin Name	Signal Name	
GND	0V	
VCC	+5V	
VIDEO	Composite video signal	・1Vp-p(75ohm Terminus)
VH	Bright Volume High	・Value 50k ohm(B)))
VC	Bright Volume Center	
VL	Bright Volume Low	

②④Analog RGB signal

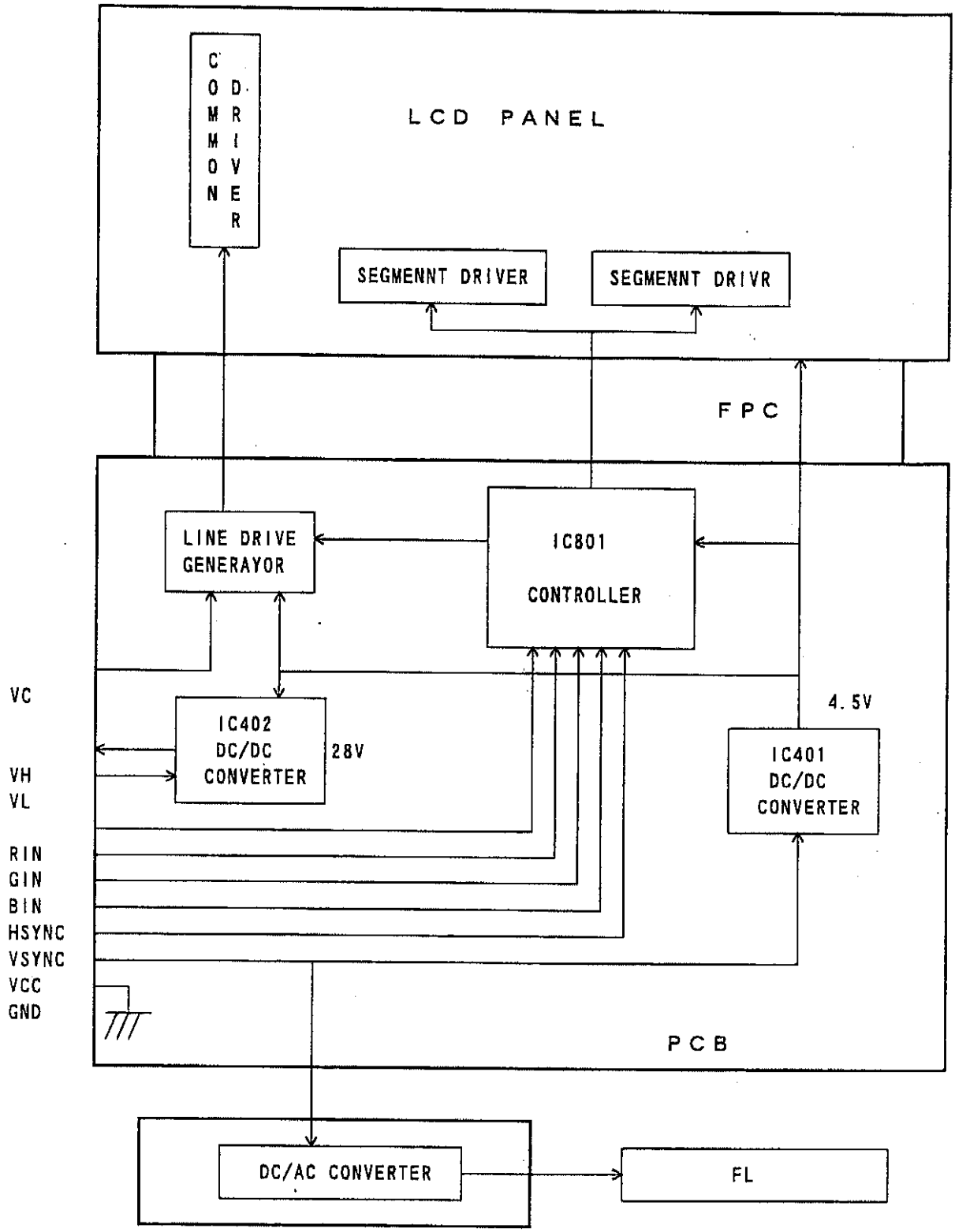
Pin Name	Signal Name	
GND	0V	
VCC	+5V	
VSYNC	Vertical Synchronized signal	・0-5V(Positive)
		Not use
HSYNC	Horizontal Synchronized signal	・0-5V(Positive)
	Composite Synchronized signal	・0-5V(Positive)
BIN	B Signal	・0.7Vp-p(75ohm Terminus)
GIN	G Signal	
RIN	R Signal	
V H	Bright Volume High	・Value 50k ohm(B))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

6. BLOCK DIAGRAM

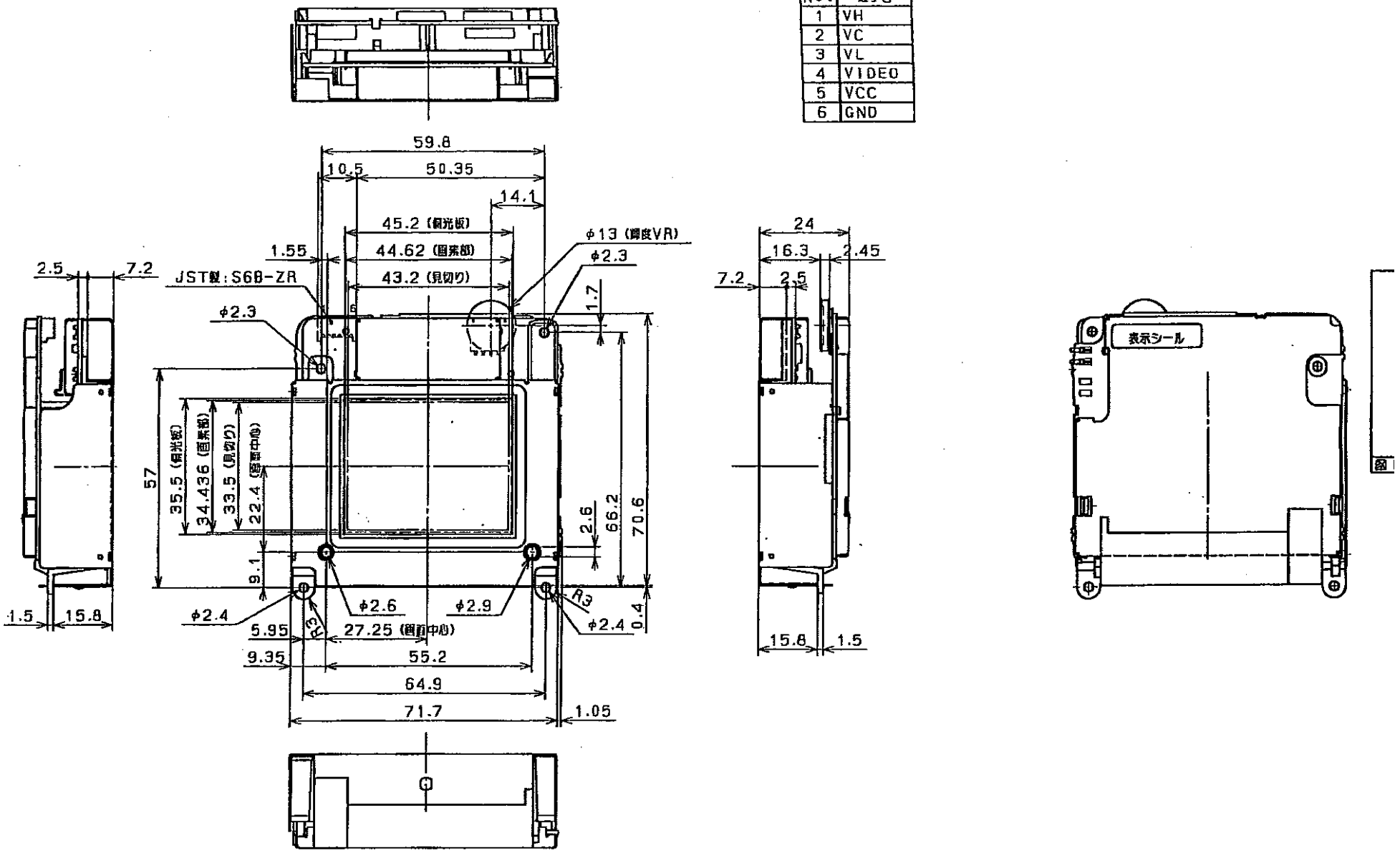
①③ Composite video signal



②④Analog RGB signal ＲＧＢ入力 ②④

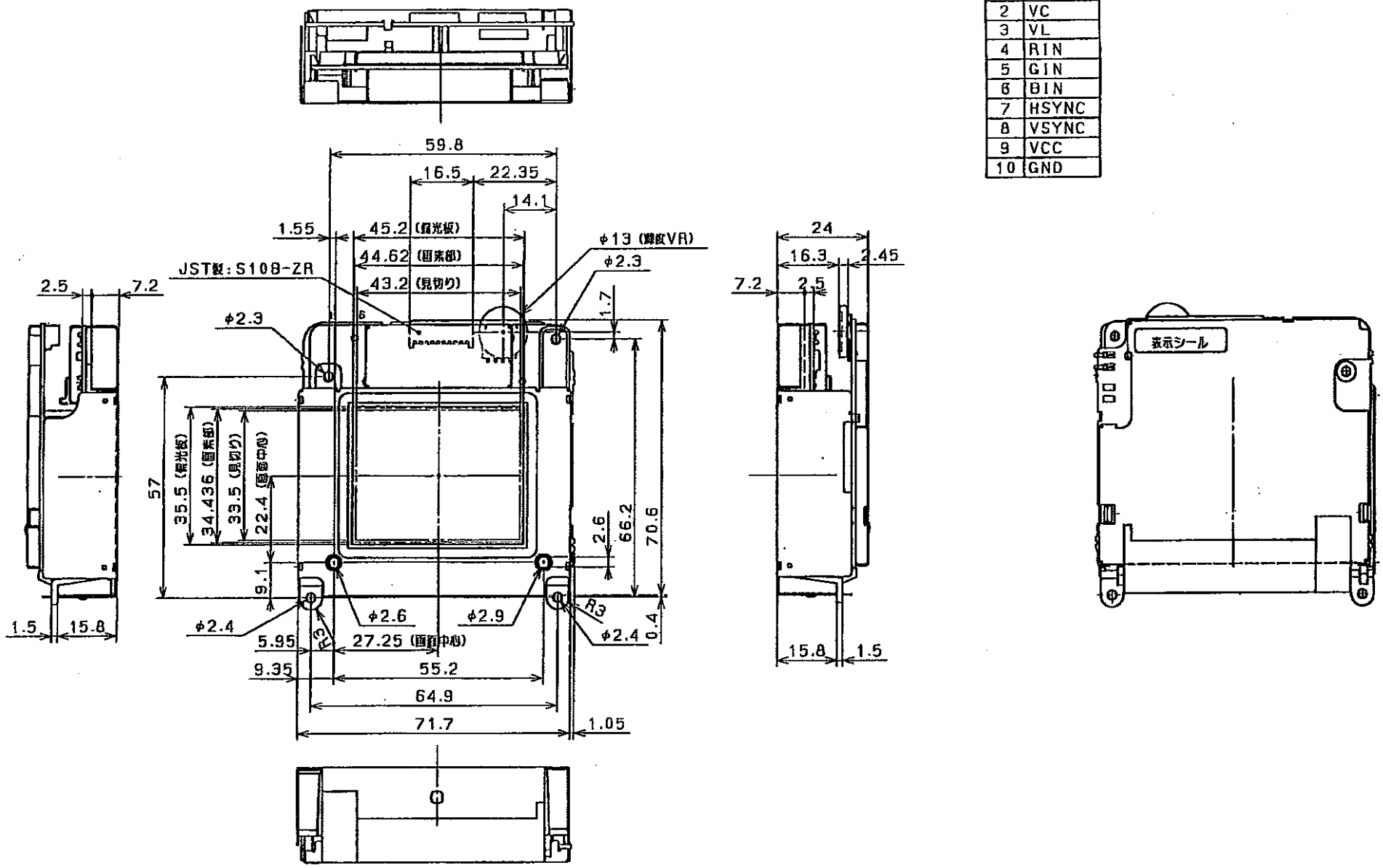


No.	端子名
1	VH
2	VC
3	VL
4	VIDEO
5	VCC
6	GND



一般公差	寸法		角度		表面処理カタサ単位尺度		質量		U71		
承認	担当	設計	設図	検図					機名	図数	親番号
	松山	松山	松山		1/1 mm				名称	完成ビデオユニット（ビデオ入力用）	
日付									番図	ASSYPBV	
シチズン時計株式会社					1/1	表示機器部					

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



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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					