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		PAGE 10 Pages
		APPLICABLE DIVISION YAO PLANT APPLIANCE SYSTEMS GROUP

SPECIFICATION

SPECIFICATION FOR CCD CAMERA MODULE

Model No.

YH-7B12G
YH-8B12G

☐CUSTOMER'S APPROVAL

DATE _____

BY _____

PRESENTED
BY _____
J. Aoki
General Manager
House Electronics Business Promotion Dept.
Appliance Systems Group

SHARP CORPORATION

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  - Communications equipment for trunk lines
  - Control equipment for the nuclear power industry
  - Medical equipment related to life support, etc.

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RECORDS OF REVISION

SPEC No.	DATE	REVISED No.	PAGE	SUMMARY	NOTE
YH-7282G-01	———	———		———	1st issue

1. Application

This document describes the specifications of Color CCD Camera module to be supplied to _____.

All figures described in this document are based on the conditions that the camera is used under *normal operating temperature, normal operating humidity.

*Normal operating temperature ; +20 ~ +25°C

*Normal operating humidity ; 65 ± 5%RH

The monitor to be used shall be standard monitor.

Model No.	TV system	Output signal	Iris control	Lens
YH-7B12G	NTSC	Composite	EE,1/100 sec.(fixed)	○
YH-8B12G	PAL		EE,1/120 sec.(fixed)	

Electronic Exposure (EE)

2. General Description

These color CCD camera modules incorporate 1/4-inch CCD whose characteristics;

1) TV system ; NTSC,PAL

2) Output signal ; Composite

3) Iris control ; EE type

4) White balance
- Auto ; TTL auto tracing white balance

5) Contrast control; Adjustable contrast (up/down), Backlight compensation
- When power on, contrast level comes to factory preset level. (NTSC;714mV,PAL;700mV)

6) Sequence of AGC (refer to YH-7282G-01-6)
- When power is turned on, AGC function is Freeze mode.

(Freeze Mode)
- High level input to Pin No.2 or Pin No.3 of CN102 separately changes the gain of AGC.
- When power is turned off, Camera module remembers last value of AGC in Freeze mode.
- High level input to both of Pin No.2 and Pin No.3 of CN102 at the same time turns to Auto mode.

(Auto mode)
- High level input to Pin No.2 or Pin No.3 of CN102 separately changes the gain of AGC.
- High level input to both of Pin No.2 and Pin No.3 of CN102 at the same time again turn back to Freeze mode.
- When power is turned off, the level of AGC in Auto mode returns to the factory preset level.

7) Built-in compact lens specially designed for the module.

8) Connecting cable between CCD board and signal processing board
- FFC(Flexible Flat Cable)
- Separable signal processing board and CCD board(up to max.150mm)

9) 5V signal operation

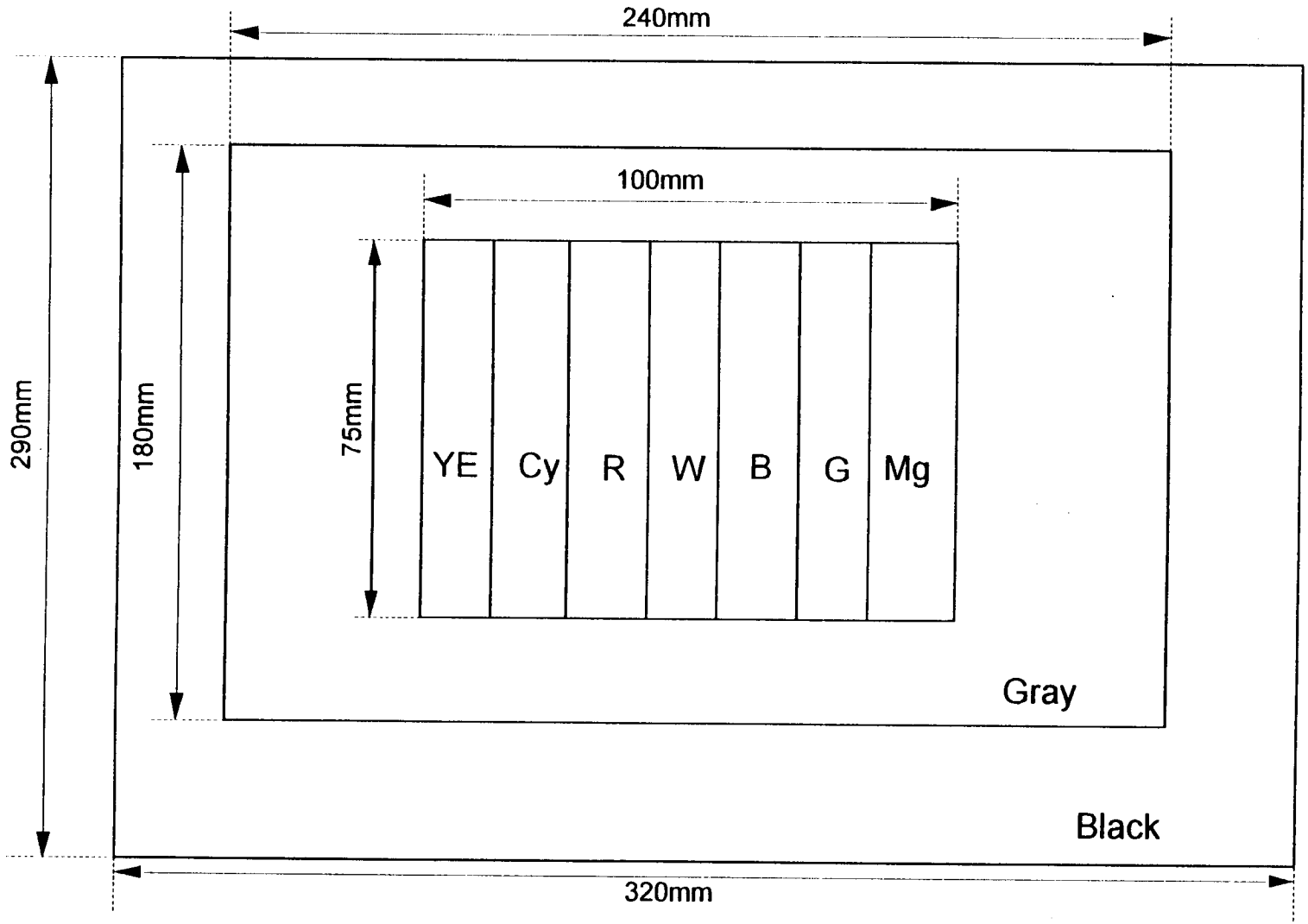
3. Specifications(1)

TV system	NTSC	PAL
Image sensor	1/4"Inter-line transfer CCD	
Total pixels	542(H)x492(V)(Total;270K)	542(H)x582(V)(Total;320K)
Effective pixels	512(H)x492(V)(Total;250K)	512(H)x582(V)(Total;300K)
Resolution Horizontal Vertical Distance from chart to camera : 70cm	 310 TV lines 280 TV lines	 310 TV lines 350 TV lines
S/N ratio	≧46dB Condition: AGC off High pass filter 10KHz Fsc trap Weighting filter on Low pass filter(NTSC;4.2MHz,PAL;5.0KHz) Light shield	
Minimum illumination	≦20 lx Condition: ITE gray scale chart(Gamma=1.0) Y signal amplitude 350mV	
White balance	TTL auto tracing white balance,Range;2,800 to 6,800° K	
Iris control	EE,1/100 sec.(fixed)	EE,1/120 sec.(fixed)
Gamma correction	approx.0.6	
Auto gain control	Freeze/Auto (refer to 2.6 in page 1)	
Sub-carrier frequency	3.57945MHz ± 200Hz	4.43361875MHz ± 200Hz
Sync. system	Internal only	
Output video signal Composite type ・Y signal amplitude *(Condition 1) ・Color signal*(Condition 2) R amplitude R phase B amplitude B phase ・Sync.amplitude ・Burst amplitude	 1.0Vp-p/75 Ω 714mV ± 100mV 88.25 IRE ± 25% 103.4° ± 15 62.2 IRE ± 25% 347.1° ± 15 286mV ± 80mV 286mV ± 90mV	 1.0Vp-p/75 Ω 700mV ± 100mV 94.8 IRE ± 25% 103.4° ± 15 67.2 IRE ± 25% 347.1° ± 15 300mV ± 80mV 300mV ± 90mV
Lens focal length F number viewing angle Horizontal Vertical Focus TV distortion	 approx.4.3mm(fixed) approx.2.4 approx.46° approx.35° manual adjustable (50mm to infinity) approx.2%	
Power supply	DC 4.5V - DC7.0V, ≦2W	
Operating temperature	-10 to +50° C	
Storage temperature	-20 to +60° C	
Dimension CCD board Signal processing board	 20(H)×20(V)×38(D) mm 55(H)×43(V)×16(D) mm	

*Condition 1: ITE gray scale chart(Gamma=1.0)

*Condition 2: Exclusive color chart (YH-7282G-01-4)
Line select ; 141 lines (NTSC)/166lines(PAL)
Y (white) amplitude ; 714mV (NTSC)/700mV(PAL)
Color temp ; 5,100° K

Proprietary color chart; Transmissive type
Transmissivity of Gray part; 27%



YH-7282G-01-4

4.Connector

4-1. CN102(Signal processing board)

1) Power input , Signal output , Video signal control

2) Pin assignment

No.	Name
1	Video signal level control input (GND)
2	Video signal level up control input
3	Video signal level down control input
4	Composite video signal
5	---------
6	GND
7	Power input (Vdd)

3) Connector used in the module Molex 53398 - 0710

4) Mating connector Molex 51021 - 0700

4-2. CN101 (Signal processing board)

1) Connection between Signal processing board and CCD board

2) Connector used in the module Molex 52559 - 1690

4-3. CN1 (CCD board)

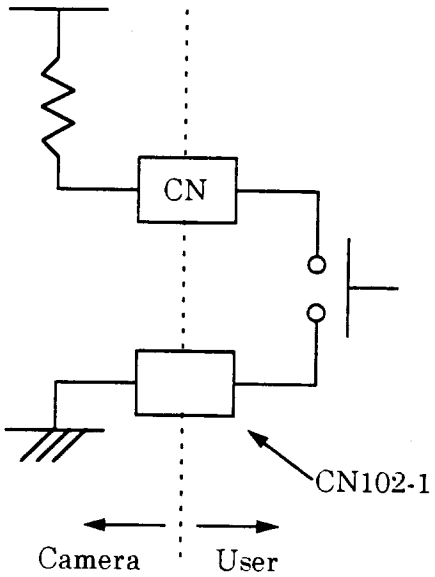
1) Connection between Signal processing board and CCD board

2) Connector used in the module Molex 52559 - 1490

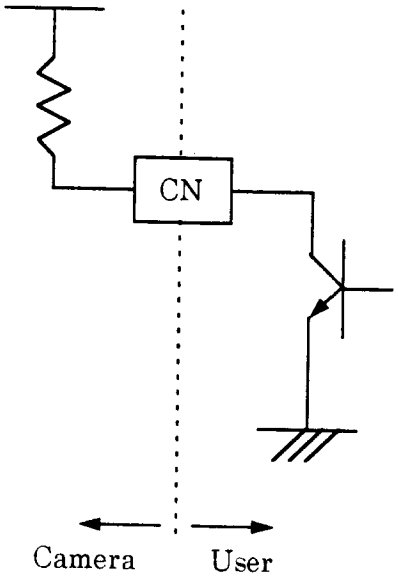
5. Video control (CN102)

1) Interface

Either (A) or (B)



(A)



(B)

2) Input level Hi : more than 4.3V
Low : less than 0.5V

3) Video signal (contrast) level

When power on , video signal (contrast) level comes to factory preset level.

Pin No.	3	2	Video signal level
Input level	L	L	no change
	L	H	down
	H	L	up
	H	H	changes from/to Freeze mode to/from Auto mode

6. Reliability Tests

Unless otherwise stated, the following reliability tests are conducted (sampling base) to confirm the reliability of the module in the testing room kept in normal temp. and humidity.

1) Low temp. storage test

To prove that the module shows no abnormal operation and function after it is stored at ambient temp. of -20°C for 24H and then left at room temp. for 2H min.

2) Low temp. operation test

To prove that the module normally operates for continuously 5H at ambient temp. of -10°C.

3) High temp. storage test

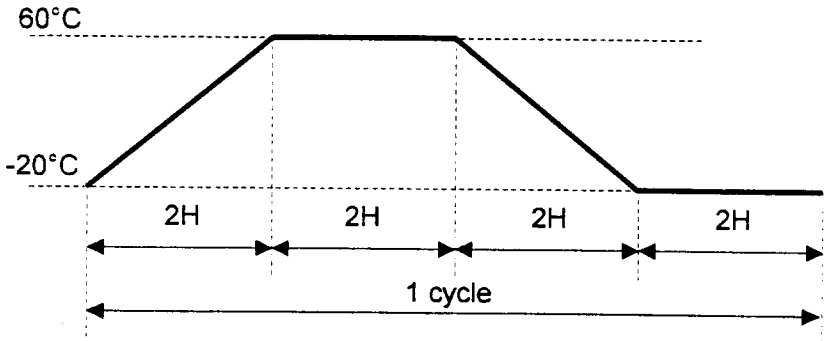
To prove that the module shows no abnormal operation and function after it is stored at ambient temp. of 60°C for 24H and then left at room temp. for 2H min.

4) High temp. operation test

To prove that the module normally operates for continuously 5H at ambient temp. of 50°C.

5) Temp. cycle test

To prove that the module shows no abnormal operation and function during 5 cycles as stipulated in the following pattern and, then 2H storage at room temp.



6) High humidity test

To prove that the module shows no abnormal operation and function after the module has been operated for 24H at ambient temp. of 30°C and relative humidity of 90%RH, and take out from test chamber with water drop removed.

7) Vibration test

To prove that the module shows no abnormal operation and function after vibration test under the condition of 10~55~10Hz/min. at acceleration speed 3.6G and up/down for 4H and left/right for 2H and back/forward for 2H.

8) Shock test

Three successive shocks shall be applied in both direction of 3 mutually perpendicular axes (a total of 18 shocks).
Peak acceleration : 50G , Duration of pulse : 10msec

7. Pixel Defect

Number of defective pixels	not more than 10
Condition:	Temperature 25°C
	Light shield
	AGC off
	Standard monitor (NTSC/PAL)

*10 pixels in both horizontal edges and 9 pixels in both vertical edges shall be disregarded as a void area.

8. Precautions & Notes

1) Since EMI is system dependent , agency approval is to be obtained by customer.

2) Series regulator is recommended.
In case of using the switching regulator , make sure that regulator does not cause display noise.

3) The CCD board and signal processing board contained in each individual carton shall always be used together in the same equipment since the performance of the camera module is factory-tuned on the pair.

4) Care shall be used not to damage the components during installation or removal of the cables.

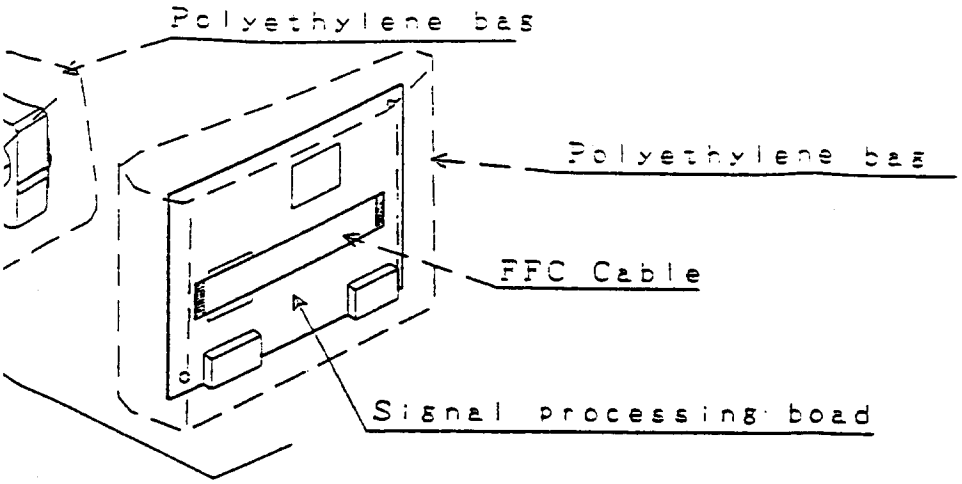
5) Never shoot at direct sunlight , since color filters of CCD will be discolored.
The display picture disappears in case of shooting at direct sunlight.

6) An earth band or conductive mat shall be used to avoid the generation of static electricity that easily damages the CCD sensors.

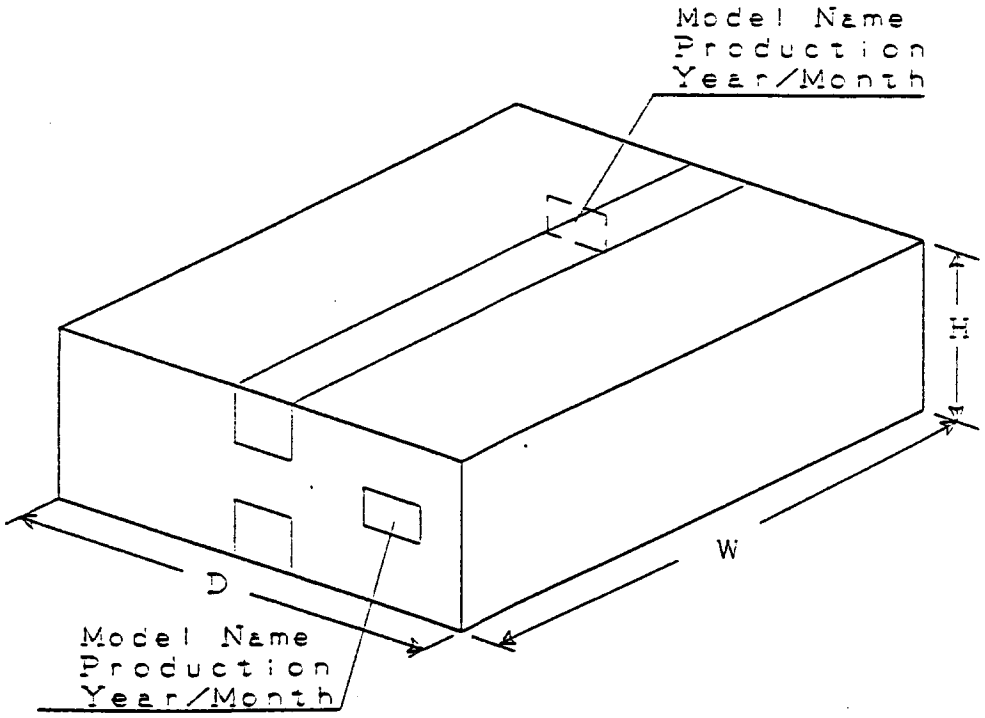
7) These products are made specifically for indoor use.
(Office and ordinary home-use environment.)

Please note that Sharp cannot guarantee the performance and quality under any use other than the conditions stated above, such as circumstances where vibrations are constant as in a moving vehicle, where shocks may occur as in a moving vehicle or where shocks exceed ordinary house-hold or office use.

CCD camera module)



board)



☆Master caton

- A-1 type (Regular Slotted Container)
  I-Seal (Double wall corrugated fiberboard)
- Weight : approx. kg
- Size : 487 (W) x 337 (D) x 171 (H) mm
- Quantity : 50 pieces/CTN

					PACKAGE SPEC.
PARTS CODE	PROCESS	PIECES	MATERIAL	FINISH	NAME

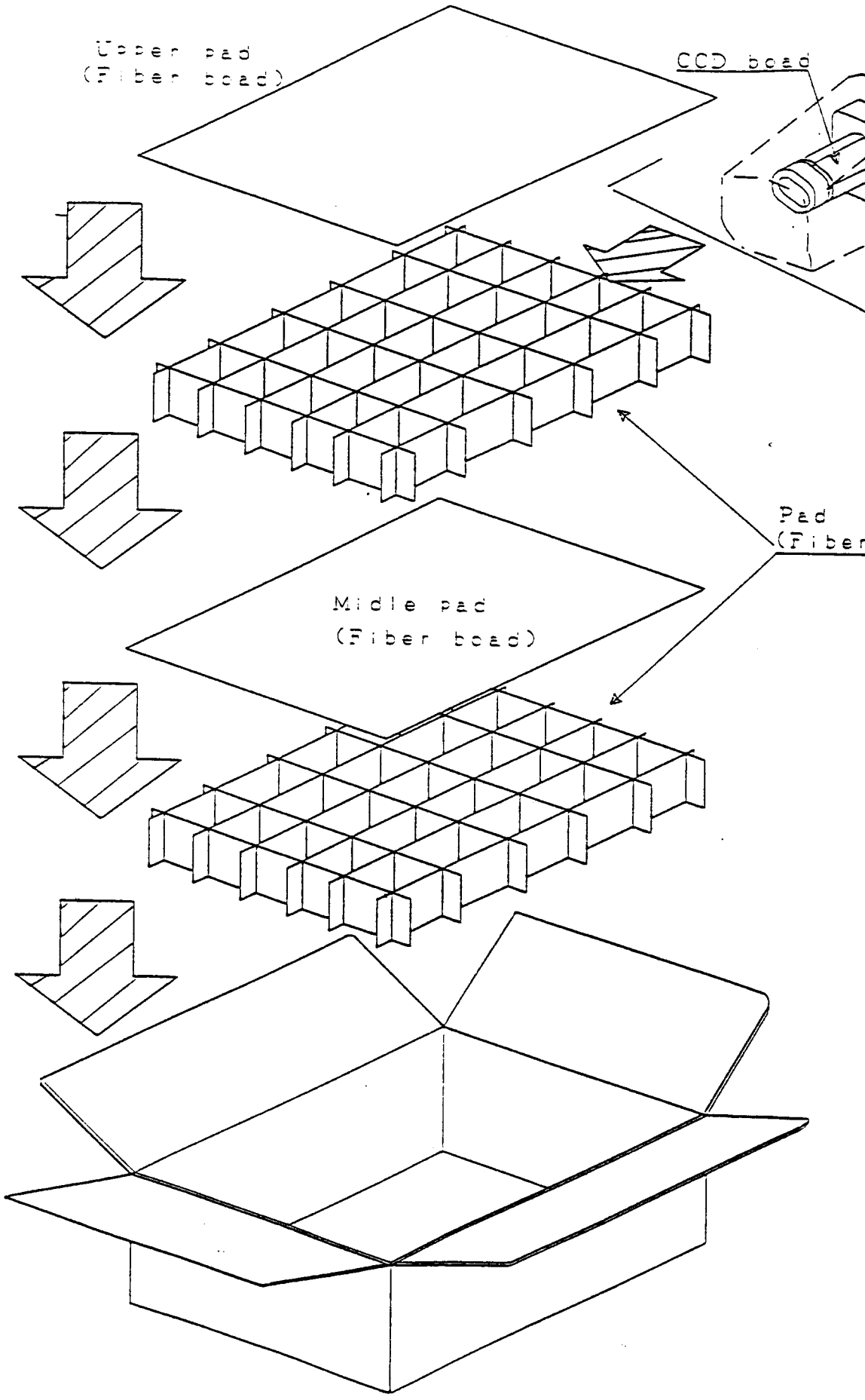
APPROVE	CHECK	DESIGN	DRAW	CHARGE
H. Gradenigo	[illegible]	[illegible]	M. Yamamoto	

DATE	NO.	REVISE

ASSIGN NO.	DRAWING NO.
	YH-7B12/8B12

DATE 28. FEB 1996 HE Business Promotion Dept.

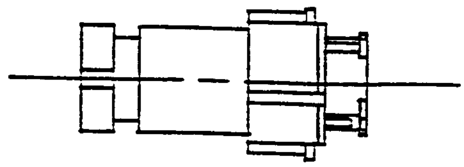
PACKAGE SPECIFICATION(Color



SHARP

発行日付	仮発行図面	見積用図面	新設図面	参考図面
19 . .				

No pl



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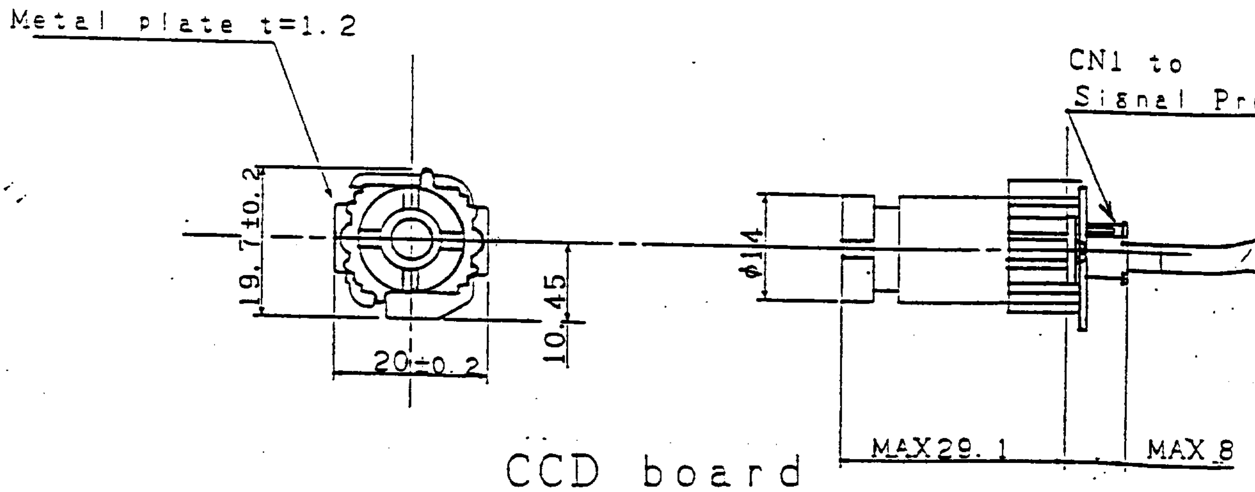
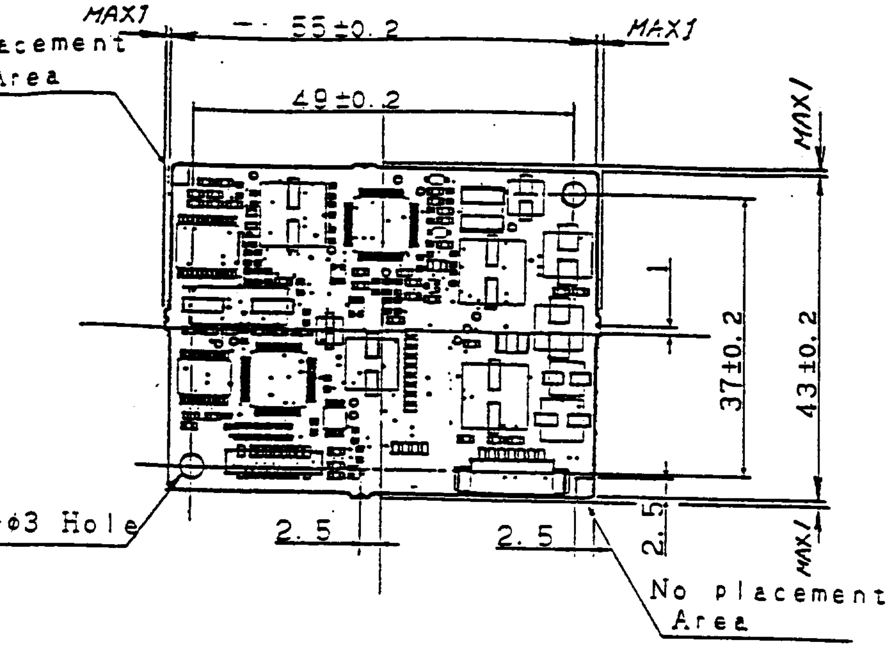
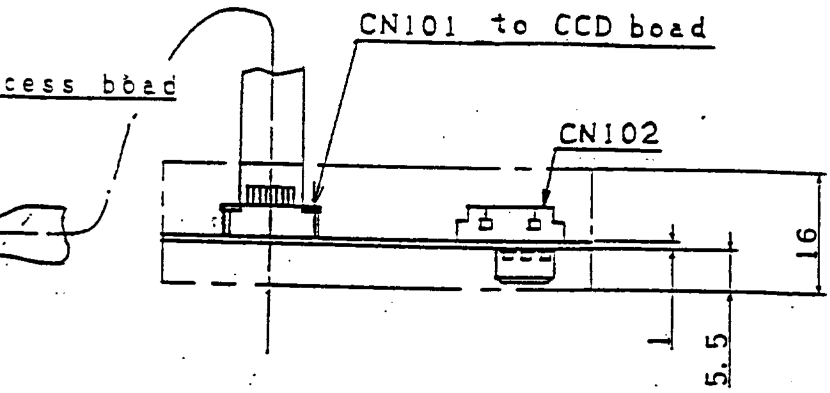


CCD board

製図一般検図
組合寸法検図
設計一般検図
計
枚数

共用金型						
	発注品番		適用機種名	台数	設計通報、連絡書等による	新規 変更 追加
	部品名称					
	部品コード				実施	一次試作、量産試作、量産
	共用金型工程	共用型（後加工・コア入れ換え）・押出型 外形抜き・穴明・折曲・絞り・その他				から





Signal process board

NO.	部品コード PARTS CODE	加工経路 PROCESS	員数 PIECES	材質 MATERIAL	仕上 FINISH	部品名称 NAME
						YH-7B Series

5			原図尺度 SCALE	単位 UNIT	コピーサイズ A1. A2 A4	3角図法
4					
3			承認 APPROVE	校図 CHECK	設計 DESIGN	製図 DRAW	担当 CHARGE
2			H. Tsukioka	M. Mikami	Y. Kumagi		
1					
年月日 DATE	設通番号 NO.	訂正記事 REVISE	取扱番号 ASSIGN NO.	図番 DRAWING NO.	
作成日付 DATE 1996.1.30	HE Business P. DeT 発行				