

# SHARP

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To: \_\_\_\_\_

PRELIMINARY



## SPECIFICATIONS

Product Type : 1/7 type Color CIF CMOS Camera Module

Model No. : LZ0P3904

※This specification contains 7 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

Dept. General Manager

REVIEWED BY: \_\_\_\_\_

PREPARED BY: \_\_\_\_\_



Product Development Dept. II  
Integrated Circuits Group  
SHARP CORPORATION

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    - Office electronics
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    - Machine tools
    - Audiovisual equipment
    - Home applications
    - Communications 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.
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    - 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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    - Communications equipment for trunk lines
    - Control equipment for the nuclear power industry
    - Medical equipment related to life support, etc.
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- Please direct all queries regarding the products covered herein to a sales representative of the company.

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## 1. GENERAL

This is color camera module which is designed with Lens-integrated CMOS imaging device.

## 1-1. FEATURES

- Smaller size optical lens.
- +3.3V single voltage operation.
- Digital YUV output. (8bit UYVY)

## 2. GENERAL SPECIFICATIONS

## 2-1. CMOS imaging device SPECIFICATIONS

Items	Specifications
• Imaging system	Progressive scan, 1/7-type CMOS imaging device.
• Number of pixels	Horizontal 367 × Vertical 291 (approximately 110,000 pixels, Square pixel) Compatible with CIF standard

## 2-2. LENS SPECIFICATIONS

Parameter	Remarks	Note
• Configuration	Single, Aspherical, Plastic	
• Focal length	2.0 mm [ typ.:reference ]	
• F No.	2.8 ± 5%	
• Angle of view	H:58° [ typ.:reference ]	
• TV distortion	≤ -4.2 %	(a)
• Focus range	∞ ~ 20 cm	

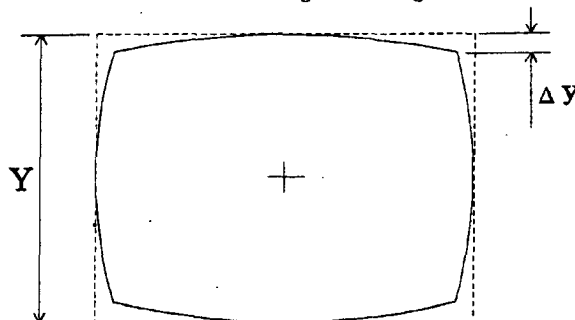
## 【Conditions】

(a) TV distortion is defined the formula,  $(\Delta y / Y) \times 100 [\%]$

at capturing rectangular pattern sized Horizontal by Vertical as 4 by 3.

"Y" is defined as the Vertical height of center of horizontal line.

"y" is defined as the Vertical height of edge of horizontal line.



## 2-3. OPERATING SPECIFICATIONS

Items	Specification
• Supply voltage	DC +3.3 V $\pm$ 0.3 V
• Power consumption	DC 40 mA typ.
• Operating temperature	-10 $\sim$ +50 $^{\circ}$ C
• Storage temperature	-20 $\sim$ +70 $^{\circ}$ C
• Operating humidity	Less than 70 % on condition that don't dew condensation.

## 2-4. SIGNAL SPECIFICATIONS

Items	Specification
• Synchronous system	Internal synchronization
• Output Signal Level	Y0 $\sim$ 7, UV0 $\sim$ 7 HD, VD, DCK1
	Low level : 0 $\sim$ 0.6 V
	High level : 2.7 $\sim$ 3.3 V

## 2-5. PERFORMANCE SPECIFICATIONS

Items		Specification				
		Min.	Typ.	Max.	Unit	Note
• Resolution	Horizontal	150	—	—	TV-line	Central portion
• $\gamma$ correction		—	0.45	—	—	
• Electronic shutter speed		1/10,000	—	1/30	Sec	
• Difference of center		—	—	$\pm$ 15	%	*1

## 【Note】

\*1: Difference of center between image and monitor. Ratio of horizontal underscanning monitor size.

## 2-6. FORM SPECIFICATIONS

Items	Specification
• External form specification	10.0 $\pm$ 0.5 mm x 10.0 $\pm$ 0.5 mm x 10.0mm
• Exterior diagram	TBD

## 2-7. OUT PUT SIGNAL SPECIFICATIONS

## 1) Pin functions

## FPC OUT PUT

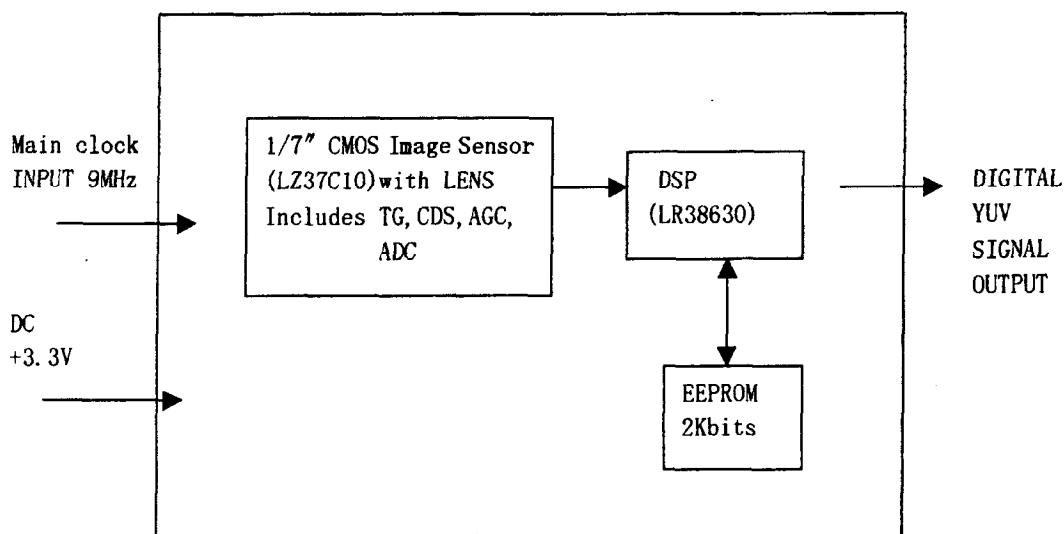
Pin No.	Signal name	I/O	Function
1	GND	—	Ground
2	GND	—	Ground
3	+3.3V	IN	+3.3V power supply input
4	HREF	OUT	Horizontal blanking plus output
5	FV	OUT	Vertical blanking plus output
6	RCLK	OUT	Digital clock signal output
7	DATA7	OUT	Digital YUV signal output (MSB)
8	DATA6	OUT	Digital YUV signal output
9	DATA5	OUT	Digital YUV signal output
10	DATA4	OUT	Digital YUV signal output
11	DATA3	OUT	Digital YUV signal output
12	DATA2	OUT	Digital YUV signal output
13	DATA1	OUT	Digital YUV signal output
14	DATA0	OUT	Digital YUV signal output (LSB)
15	CKI	IN	Main clock signal input (9MHz)

### 3. CAUTIONS FOR USE

In order to prevent the module from being broken, observe the following instructions

- When applying force for mounting the module, take care no stress will be given to the module.
- Especially the CCD is a precise optical component and the package material is ceramic, therefor avoid giving a shock to the package.

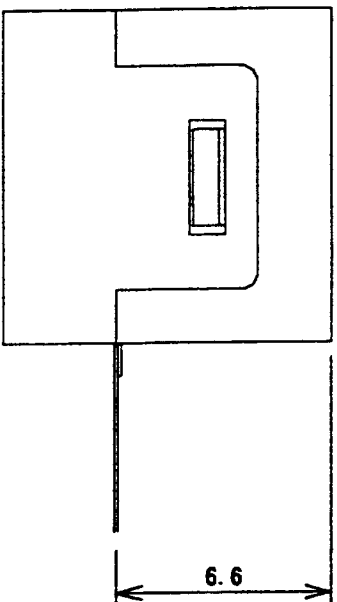
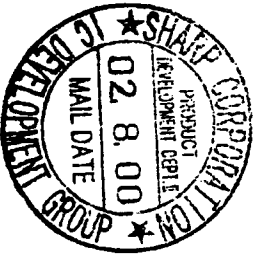
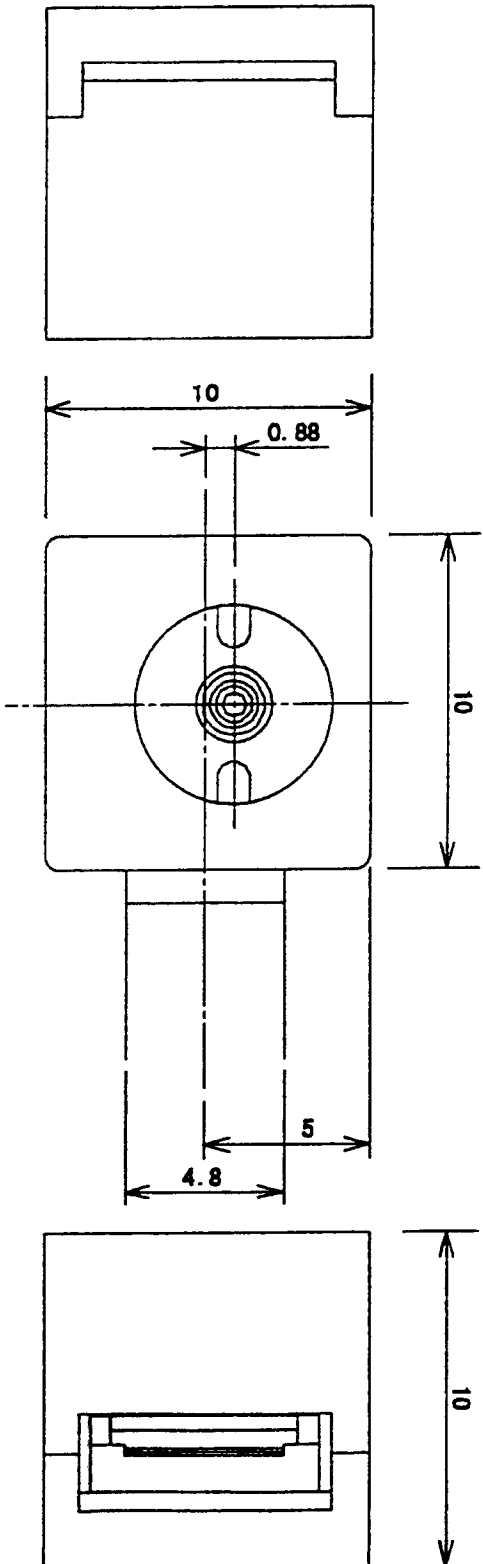
### 4. CIRCUIT BLOCK DIAGRAM



# 5. Dimensions

L20P3904

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5-1. Dimensions

LZOP 3904

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