

**SONY****CX10045****CCD CAMERA SIGNAL PROCESSING WITH  
SAMPLE-HOLD CIRCUIT**

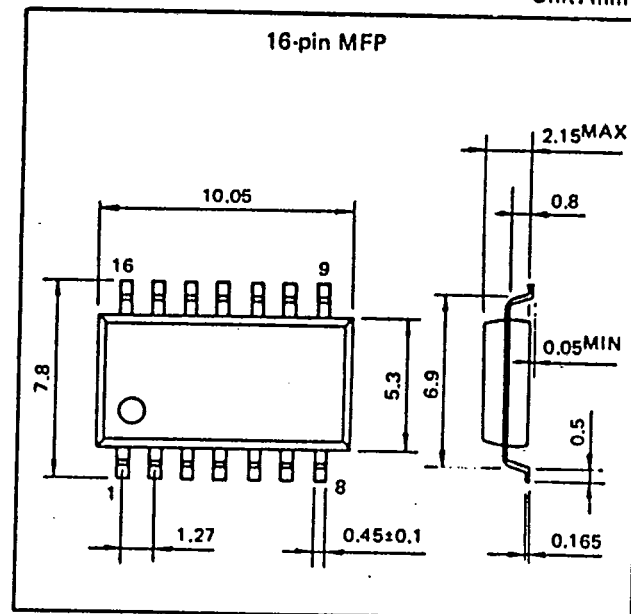
**Description:** CX10045 is a bipolar IC designed for CCD camera signal processing. It samples the CCD image signal and holds the sample signal with a specified timing pulse to provide the final analog video signal output.

**Features:**

- Double sample processing to reduce random noises in the CCD signal with appropriate sampling pulse.
- Integrated analog signal processing of B/W CCD camera is possible when combined with CX10046 and CX10047.

**Package outline**

Unit: mm

**ABSOLUTE MAXIMUM RATING ( $T_a = 25^\circ\text{C}$ )**

|                               |           |                          |                                |
|-------------------------------|-----------|--------------------------|--------------------------------|
| • Power supply voltage        | $V_{CC}$  | 15                       | V                              |
| • Terminal voltage            | $V_{IN}$  | $-0.3 \sim V_{CC} + 0.3$ | V                              |
| • Operating Temperature       | $T_{opr}$ | $-10 \sim +60$           | $^\circ\text{C}$               |
| • Storage temperature         | $T_{stg}$ | $-50 \sim +125$          | $^\circ\text{C}$               |
| • Allowable power dissipation | $P_D$     | 390*                     | mW $T_a \leq 60^\circ\text{C}$ |

\* When mounted on a double glass epoxy substrate (30mm square, 0.8mm thick)

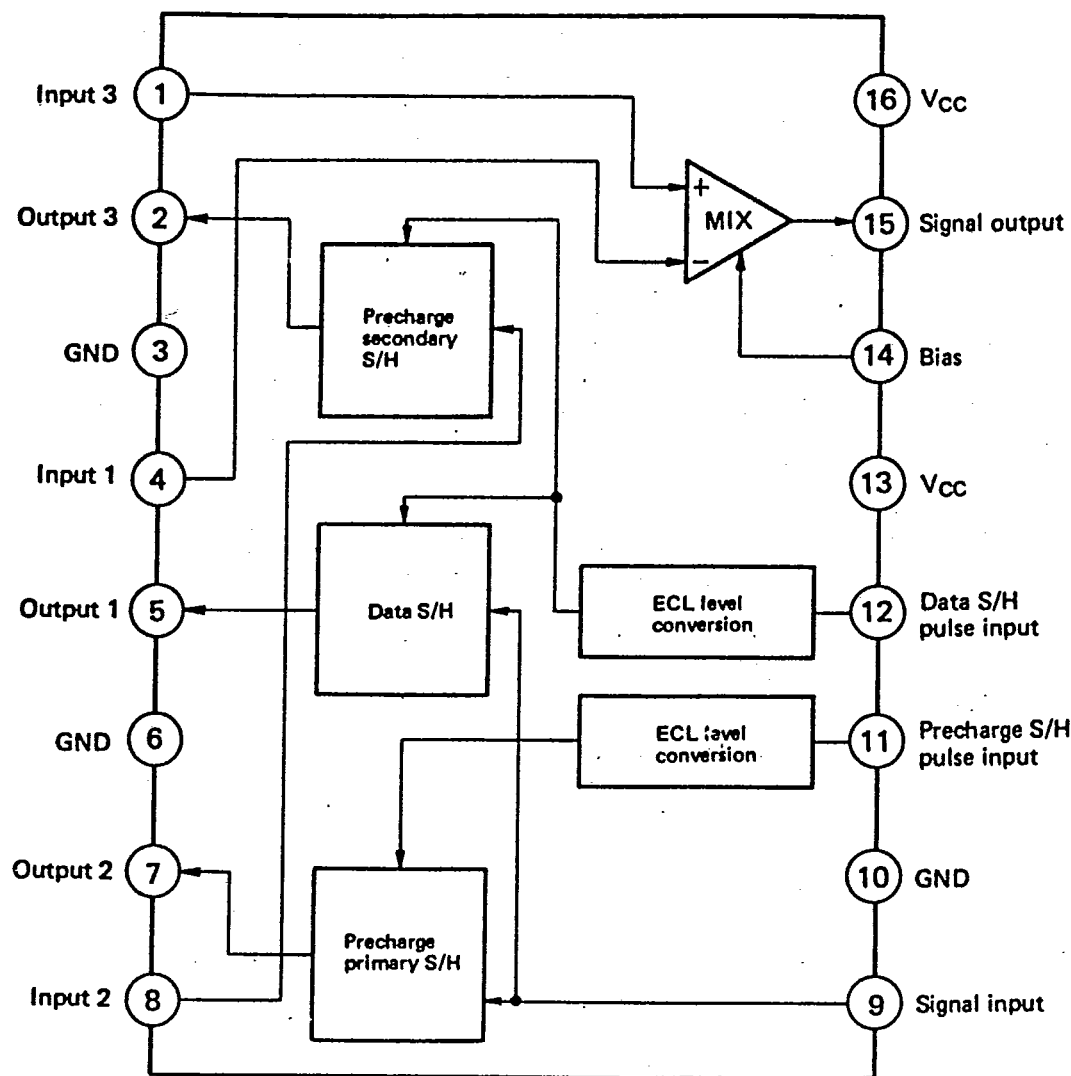
**RECOMMENDED OPERATING CONDITION**

|                        |                   |           |   |
|------------------------|-------------------|-----------|---|
| • Power supply voltage | $V_{CC}$          | 8.0 ~ 9.5 | V |
| • Logic input voltage  | $V_{I1} \ V_{I2}$ | 0 ~ 55    | V |

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## BLOCK DIAGRAM



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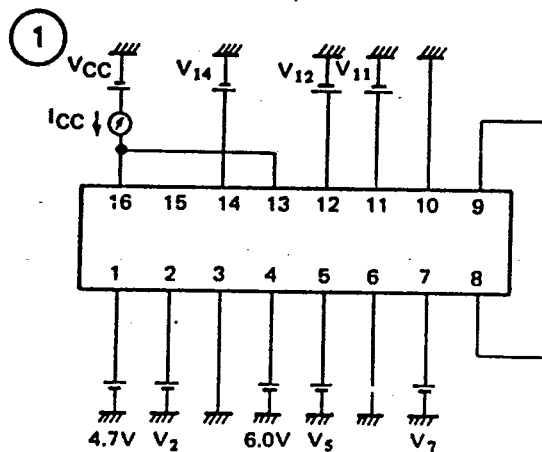
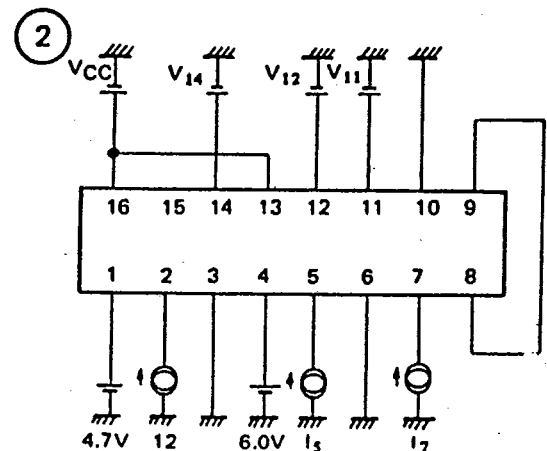
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## ELECTRICAL CHARACTERISTICS

(Ta=25°C, V<sub>CC</sub>=8.5V)

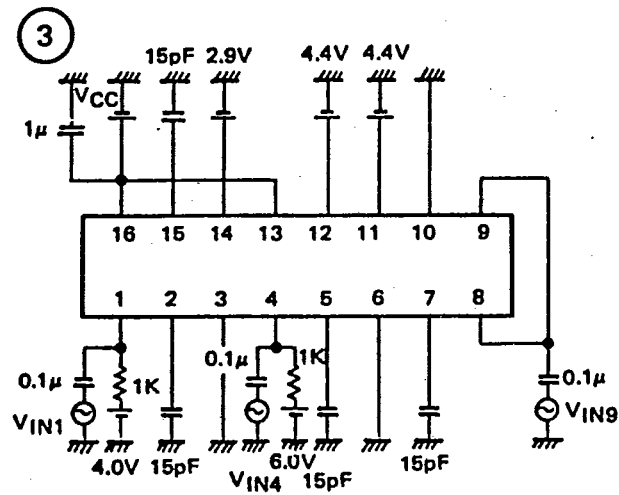
| Measuring item            | Symbol                                                          | V <sub>IN</sub><br>(mVpp) | Measuring<br>point | Conditions                                                                                                                            | Measuring<br>circuit | Min  | Typ  | Max  | Unit |
|---------------------------|-----------------------------------------------------------------|---------------------------|--------------------|---------------------------------------------------------------------------------------------------------------------------------------|----------------------|------|------|------|------|
| Power supply current      | I <sub>CC</sub>                                                 | —                         | 16<br>13           | V <sub>11</sub> =V <sub>12</sub> =5.0V                                                                                                | 1                    | 16.8 | 24.0 | 34.3 | mA   |
| Output voltage            | V <sub>2H</sub> ,<br>V <sub>5H</sub> ,<br>V <sub>7H</sub>       | —                         | 2.5.7              | V <sub>11</sub> =V <sub>12</sub> =4.4V                                                                                                | 1                    | 6.1  | 6.5  | 6.9  | V    |
| Output voltage difference | ΔV <sub>2</sub> ,<br>ΔV <sub>5</sub> ,<br>ΔV <sub>7</sub>       | —                         | 2.5.7              | Potential difference between<br>V <sub>12</sub> =4.4V and 0.4V when<br>I <sub>n</sub> =-100μA (n=2.5.7) and<br>V <sub>11</sub> =4.4V. | 2                    | 1.85 | 2.1  | —    | V    |
| Discharge current         | I <sub>2D</sub> , I <sub>5D</sub><br>I <sub>7D</sub>            | —                         | 2.5.7              | V <sub>11</sub> =V <sub>12</sub> =4.4V,<br>V <sub>n</sub> =7.1V (n=2.5.7)                                                             | 1                    | 1.3  | 2.0  | —    | mA   |
| Voltage gain              | G <sub>8-2</sub> ,<br>G <sub>9-5</sub> ,<br>G <sub>9-7</sub>    | V <sub>IN</sub> 9<br>800  | 2.5.7              | f=100KHz                                                                                                                              | 3                    | -0.4 | 0    | 0.3  | dB   |
| Frequency bandwidth       | BW <sub>8-2</sub> ,<br>BW <sub>9-5</sub> ,<br>BW <sub>9-7</sub> | V <sub>IN</sub> 9<br>800  | 2.5.7              | -3dB frequency                                                                                                                        | 3                    | 25   | 50   | —    | MHz  |
| Output voltage            | V <sub>15H</sub>                                                | —                         | 15                 | V <sub>11</sub> =V <sub>12</sub> =4.4V, V <sub>14</sub> =0                                                                            | 1                    | 6.1  | 6.6  | 7.1  | V    |
| Output voltage            | V <sub>15L</sub>                                                | —                         | 15                 | V <sub>11</sub> =V <sub>12</sub> =4.4V, V <sub>14</sub> =7.8V                                                                         | 1                    | 2.3  | 2.8  | 3.3  | V    |
| Voltage gain              | G <sub>1-15</sub>                                               | V <sub>IN</sub> 1<br>1000 | 15                 | f=100KHz                                                                                                                              | 3                    | 3.1  | 3.8  | 4.5  | dB   |
| Voltage gain              | G <sub>4-15</sub>                                               | V <sub>IN</sub> 4<br>1000 | 15                 | f=100KHz                                                                                                                              | 3                    | 3.3  | 3.8  | 4.3  | dB   |
| Frequency bandwidth       | BW <sub>1-15</sub>                                              | V <sub>IN</sub> 1<br>1000 | 15                 | -3dB frequency                                                                                                                        | 3                    | 15   | 30   | —    | MHz  |
| Frequency bandwidth       | BW <sub>4-15</sub>                                              | V <sub>IN</sub> 4<br>1000 | 15                 | -3dB frequency                                                                                                                        | 3                    | 15   | 30   | —    | MHz  |

## ELECTRICAL CHARACTERISTIC MEASURING CIRCUIT

• Unless specified, V<sub>2</sub>, V<sub>5</sub> and V<sub>7</sub> are open with V<sub>14</sub>=4.9V• Unless specified, I<sub>2</sub> = I<sub>5</sub> = I<sub>7</sub> = 0 with V<sub>14</sub> = 4.9V

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- 15pF includes the stray capacitance of the measuring equipment.