

SONY**CXA1450M****Video Signal Switch for VCR****Description**

The CXA1450M is a high-accuracy wide-band switch IC for video signals.

Features

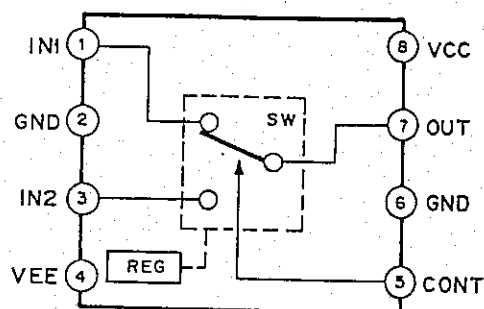
- Capable of switching video and RF signals at frequencies over a wide range (up to 30MHz)
- Low current consumption (6mA, Typ.)
- Wide operating supply voltage range
- Cross-talk: -55dB or less (Typ.)
(at 10MHz/1Vp-p)
- DG: 0.3% or less (Typ.)
- DP: 0.3 deg. or less (Typ.)
- Secondary distortion: -55dB or less (Typ.)
(at 5MHz/0.2Vp-p)
- Output dynamic range: -50dB or less (Typ.)
(at 5MHz/2Vp-p)
- DC offset between inputs: 10 mV or less (Typ.)
- Frequency response: Relative to 500kHz;
 - Within ± 0.1 dB (Typ.) at 5MHz
 - Within ± 0.3 dB (Typ.) at 10MHz
 - Within ± 1 dB (Typ.) at 30MHz

Absolute Maximum Ratings (Ta=25°C)

- | | | | |
|-------------------------------|----------------------------------|-------------|----|
| • Supply voltage | V _{CC} -V _{EE} | 14 | V |
| • Operating temperature | T _{opr} | -20 to +75 | °C |
| • Storage temperature | T _{stg} | -65 to +150 | °C |
| • Allowable power dissipation | P _D | 520 | mW |

Operating Conditions

- | | | | |
|----------------|-----------------|--------------|---|
| Supply voltage | V _{CC} | 4.0 to 6.0 | V |
| | V _{EE} | -4.0 to -6.0 | V |

Block Diagram and Pin Configuration

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Pin Description

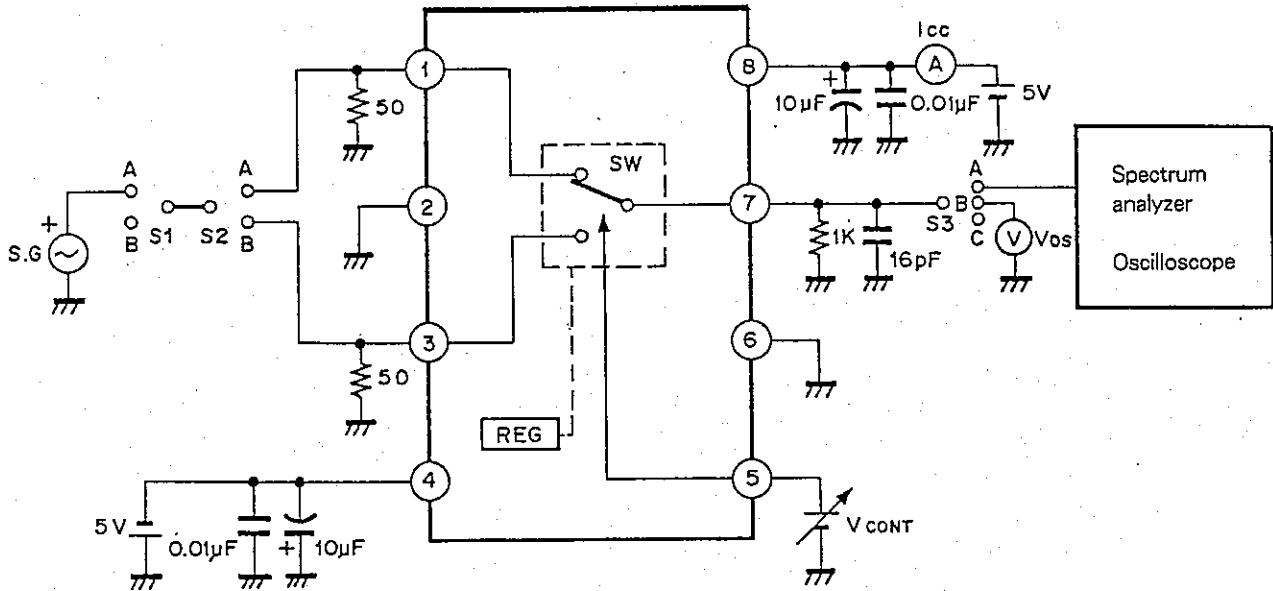
| Pin No. | Symbol | Pin voltage (V) | Equivalent circuit | Description |
|---------|------------|-----------------|--------------------|---|
| 1 3 | IN1 IN2 | 0 | | <p>Channel 1 input pin Channel 2 input pin Input resistance is 24kΩ for each channel. Note that the voltage difference between Pin 1 and 3 is less than 3V.</p> |
| 2 6 | GND | 0* | | GND pin |
| 5 | CONT | 0 | | <p>Input pin for input switching control signal. When this pin is open or low (<1.0V), the IN1 signal is output from the OUT pin; when it is high (>2.0V), the IN2 signal is output from the OUT pin.</p> |
| 7 | OUT | 0 | | Switch output pin |
| 8 | Vcc | +5V* | | Positive power supply (+5V) pin |
| 4 | VEE | -5V* | | Negative power supply (-5V) pin |

* External input

Electrical Characteristics (Ta=25°C, Vcc=+5V, VEE=-5V. See Electrical Characteristics Test Circuit.)

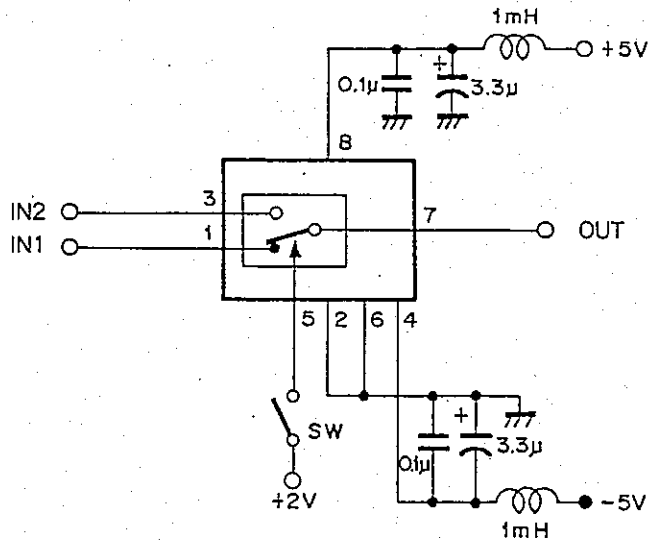
| Test item | Symbol | Test conditions | Input pin | Test pin | V _{CONT} (V) | Switches | | | Min. | Typ. | Max. | Unit | |
|------------------------------------|--------|-------------------|---|----------|-----------------------|----------|----|----|------|------|------|------|----|
| | | | | | | S1 | S2 | S3 | | | | | |
| Voltage gain | IN1 | GV ₁ | Measure the voltage gain at an input frequency of 500kHz. Input: 1Vp-p | 1 | 7 | 0 | A | A | A | -0.5 | 0 | 0.5 | dB |
| | IN2 | GV ₂ | | 3 | 7 | 5 | A | B | A | | | | |
| Frequency response characteristics | IN1 | f ₀₁ | Measure the gain difference between 500kHz and 30MHz. Input: 1Vp-p | 1 | 7 | 0 | A | A | A | -1 | -0.1 | 1 | dB |
| | IN2 | f ₀₂ | | 3 | 7 | 5 | A | B | A | | | | |
| Output DC offset | IN1 | V _{OS1} | No signal input | | 7 | 0 | B | — | B | -60 | 0 | +60 | mV |
| | IN2 | V _{OS2} | | | 7 | 5 | B | — | B | | | | |
| Control voltage | | V _{CONT} | Measure the V _{CONT} voltage value as the output voltage switches. | 1 | 5 | | A | A | B | 1.0 | 1.5 | 2.0 | V |
| Current consumption | | I _{CC} | No input signal | | 8 | 0 | B | — | C | 3.8 | 6.2 | 9.2 | mA |

Electrical Characteristics Test Circuit



Application Circuit

Signal switching



When SW is off, the IN1 signal is output.
When SW is on, the IN2 signal is output.

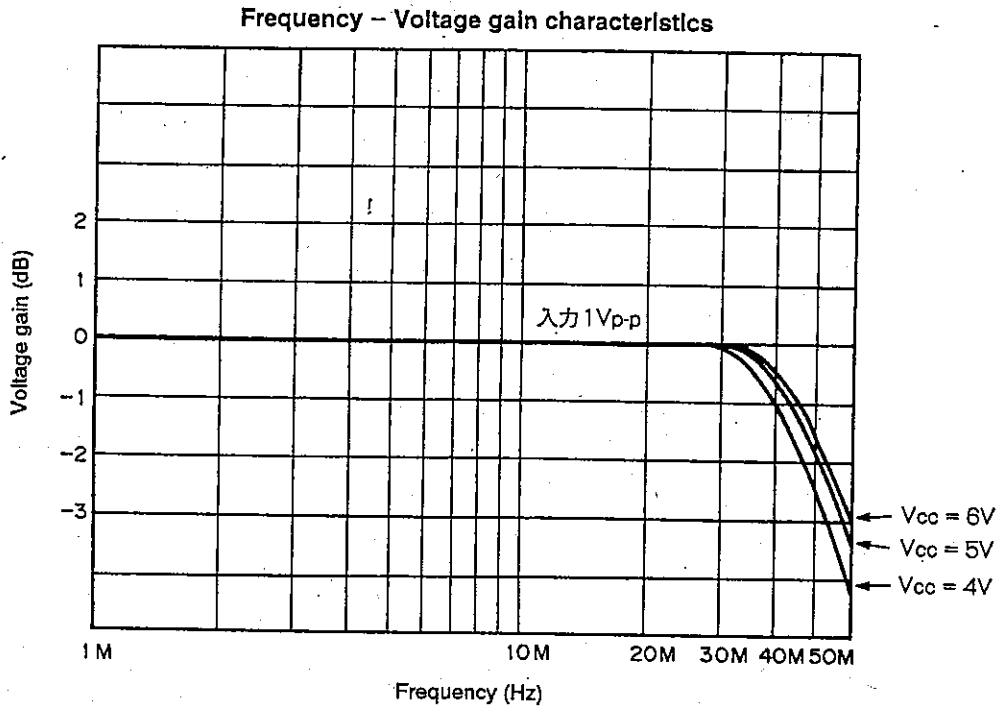
Application circuits shown are typical examples illustrating the operation of the devices. Sony cannot assume responsibility for any problems arising out of the use of these circuits or for any infringement of third party patent and other right due to same.

Description of Operation

The CXA1450M is a high-accuracy wide-band switch IC for video signals.

The IN1 and IN2 signals input to Pins 1 and 3 are switched by the control signal input to Pin 5. When Pin 5 is open or low (<1.0V), the Pin 1 input signal is selected. When Pin 5 is high (>2.0V), the Pin 3 input signal is selected. The selected signal is output from Pin 7.

Example of Representative Characteristics



The test point is Pin 7.
 (See the Electrical Characteristic Test Circuit diagram for reference)

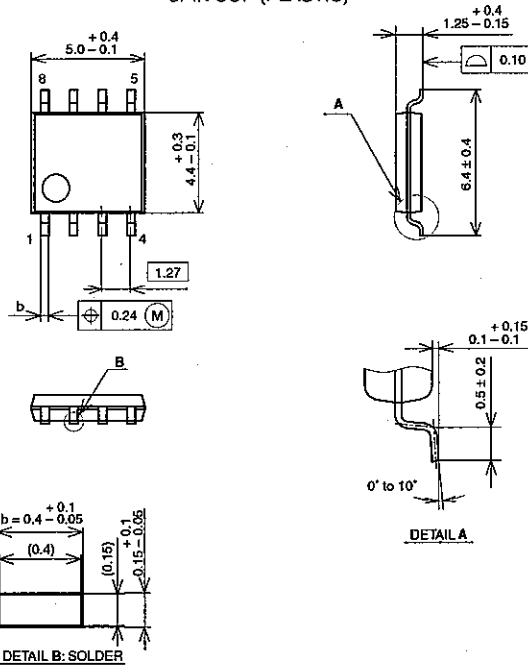
Notes on Operation

- The voltage difference between Pin 1 and Pin 3 must be less than 3V.
 If the voltage difference of more than 3V is applied, it causes degradation of characteristics.

Package Outline

Unit : mm

8PIN SOP (PLASTIC)

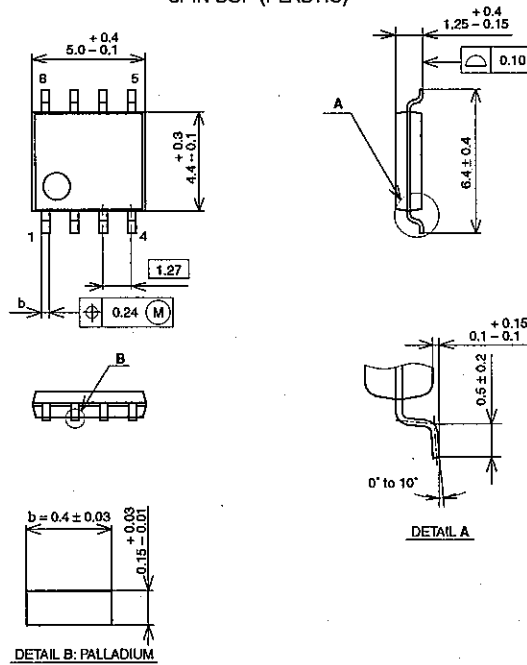


| | |
|------------|---------------------|
| SONY CODE | SOP-8P-L03 |
| EIAJ CODE | P-SOP8-4.4x5.0-1.27 |
| JEDEC CODE | — |

PACKAGE STRUCTURE

| | |
|------------------|-----------------|
| PACKAGE MATERIAL | EPOXY RESIN |
| LEAD TREATMENT | SOLDER PLATING |
| LEAD MATERIAL | 42/COPPER ALLOY |
| PACKAGE MASS | 0.1g |

8PIN SOP (PLASTIC)



| | |
|------------|---------------------|
| SONY CODE | SOP-8P-L03 |
| EIAJ CODE | P-SOP8-4.4x5.0-1.27 |
| JEDEC CODE | — |

PACKAGE STRUCTURE

| | |
|------------------|-------------------|
| PACKAGE MATERIAL | EPOXY RESIN |
| LEAD TREATMENT | PALLADIUM PLATING |
| LEAD MATERIAL | COPPER ALLOY |
| PACKAGE MASS | 0.1g |



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