

2-Input 1-Output 3-Circuit Video Switch Monolithic IC MM1231~1234

Outline

This is serial 2-input, 1-output, 3-circuit video switch IC for video / audio signal switching with and without clamp circuit.

Circuit configuration tables and block diagrams are as follows.

MM1234 is used as the representative model in this description.

MM1231~MM1234 Series Circuit Configuration Table

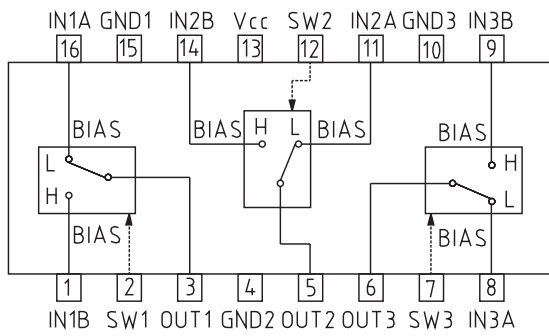
| Model name | # of Inputs | # of Outputs | Clamp circuit | Power supply voltage |
|------------|-------------|--------------|---------------|----------------------|
| MM1231 | 2 | 1 | No | 4.6~13.0V |
| MM1232 | 2 | 1 | 1 input | 4.6~13.0V |
| MM1233 | 2 | 1 | 2 input | 4.6~13.0V |
| MM1234 | 2 | 1 | 3 input | 4.6~13.0V |

MM1231~MM1234 Input/Output Voltage Measurement Values (typ.)

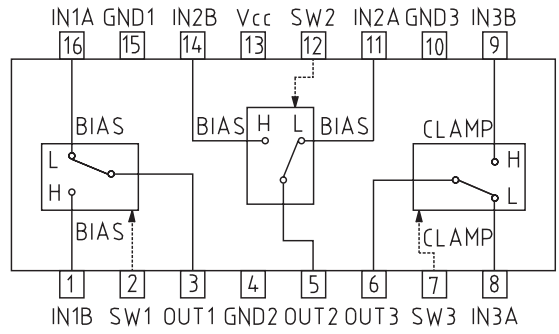
| Model name | Input / Output voltage | Power supply voltage | | | Unit |
|------------|------------------------|----------------------|------|------|------|
| | | 5V | 9V | 12V | |
| MM1231 | Input voltage | 2.80 | 5.00 | 6.70 | V |
| | Output voltage | 2.01 | 4.30 | 6.00 | V |
| MM1232 | Input voltage | 2.80 | 5.00 | 6.70 | V |
| | Output voltage | 2.10 | 4.30 | 6.00 | V |
| | Input clamp | 1.40 | 2.50 | 3.30 | V |
| | Output voltage | 0.70 | 2.20 | 2.90 | V |
| MM1233 | Input voltage | 2.80 | 5.00 | 6.70 | V |
| | Output voltage | 2.10 | 4.30 | 6.00 | V |
| | Input clamp | 1.40 | 2.50 | 3.30 | V |
| | Output voltage | 0.70 | 2.20 | 2.90 | V |
| MM1234 | Input clamp | 1.40 | 2.50 | 3.30 | V |
| | Output voltage | 0.70 | 2.20 | 2.90 | V |

Block Diagram (MM1231~MM1234)

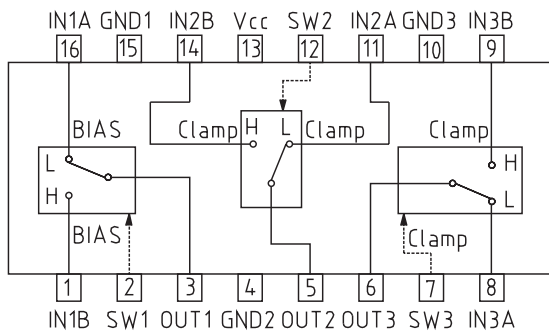
MM1231



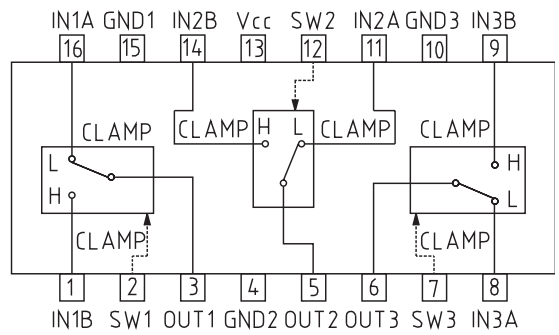
MM1232



MM1233



MM1234



Control input truth table

| SW | OUT |
|----|------|
| L | IN1A |
| | IN2A |
| | IN3A |
| H | IN1B |
| | IN2B |
| | IN3B |

Introduction of Main Model

2-Input 1-Output 3-Circuit Video Switch Monolithic IC MM1234

Outline

This is a video switch for video signal switching, with 2-input and 1-output circuits built in. All three circuits have a clamp function.

Features

- | | |
|----------------------------------------------|-------------------|
| 1. 3 circuits built in, 2-input and 1-output | |
| 2. Clamp function | |
| 3. Current consumption | 9.0mA typ. |
| 4. Operating power supply voltage range | 4.6~13.0V |
| 5. Frequency response | 10MHz |
| 6. Crosstalk | 70dB (at 4.43MHZ) |

Package

- SOP-16B
- DIP-16B

Applications

- 1. TV
- 2. VCR
- 3. Other video equipment

Pin Description

| Pin no. | Pin name | Function | Internal equivalent circuit diagram |
|-------------------------------|----------------------------------------------|--------------|-------------------------------------|
| 16 1 11 14 8 9 | IN1A IN1B IN2A IN2B IN3A IN3B | Input | |
| 2 12 7 | SW1 SW2 SW3 | Switch | |
| 3 5 6 | OUT1 OUT2 OUT3 | Output | |
| 13 | Vcc | Power supply | |
| 15 4 10 | GND1 GND2 GND3 | Ground | |

Absolute Maximum Ratings (Ta=25°C)

| Item | Symbol | Ratings | Units |
|-----------------------|------------------|---------------------------------|-------|
| Storage temperature | T _{STG} | -40~+125 | °C |
| Operating temperature | T _{OPR} | -20~+75 | °C |
| Power supply voltage | V _{CC} | 15 | V |
| Allowable loss | P _d | 350 (SOP-16B) 1200 (DIP-16B) | mW |

Electrical Characteristics (Except where noted otherwise, Ta=25°C, V_{CC}=5.0V)

| Item | Symbol | Measurement conditions | Min. | Typ. | Max. | Units |
|--------------------------------------|------------------|----------------------------|------|------|------|-------|
| Operating power supply voltage range | V _{CC} | | 4.6 | | 13.0 | V |
| Consumption current | I _d | Refer to Measuring Circuit | | 9.0 | 11.7 | mA |
| Voltage gain | G _v | Refer to Measuring Circuit | -0.5 | 0 | +0.5 | dB |
| Frequency characteristic | F _c | Refer to Measuring Circuit | -1 | 0 | +1 | dB |
| Differential gain | DG | Refer to Measuring Circuit | | 0 | ±3 | % |
| Differential phase | DP | Refer to Measuring Circuit | | 0 | ±3 | deg |
| Output offset voltage | V _{off} | Refer to Measuring Circuit | | | ±15 | mV |
| Crosstalk | C _T | Refer to Measuring Circuit | | -70 | -60 | dB |
| Switch input voltage H | V _{IH} | Refer to Measuring Circuit | 2.1 | | | V |
| Switch input voltage L | V _{IL} | Refer to Measuring Circuit | | | 0.7 | V |
| Output impedance | R _o | | | 25 | | Ω |

Measuring Circuit

