

# Video Amplifier Monolithic IC MM1031

## Outline

This IC is a 6dB amp for video signals (Y or composite signals). Gain is fixed at 6dB and it is used in 75 $\Omega$  signals). Gain is fixed at 6dB and it is used in 75 $\Omega$  output circuits.

## Features

1. For video signal (Y or composite) amplification
2. Built-in clamp circuit
3. 75 $\Omega$  driver built in
4. Frequency response      7MHz
5. Current consumption      4mA typ.
6. Power supply voltage      5V

## Package

MMP-4A (MM1031XM)  
 SIP-5A (MM1031XS)

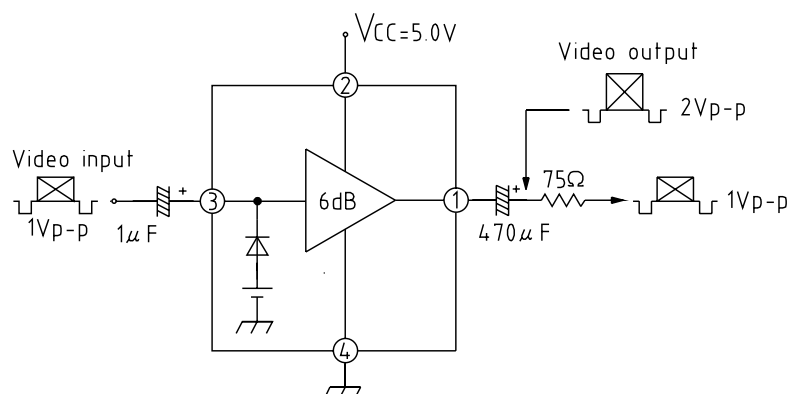
## Applications

1. TV
2. Free-standing VCanding VCR
3. VCR w3. VCR with camera
4. Ot

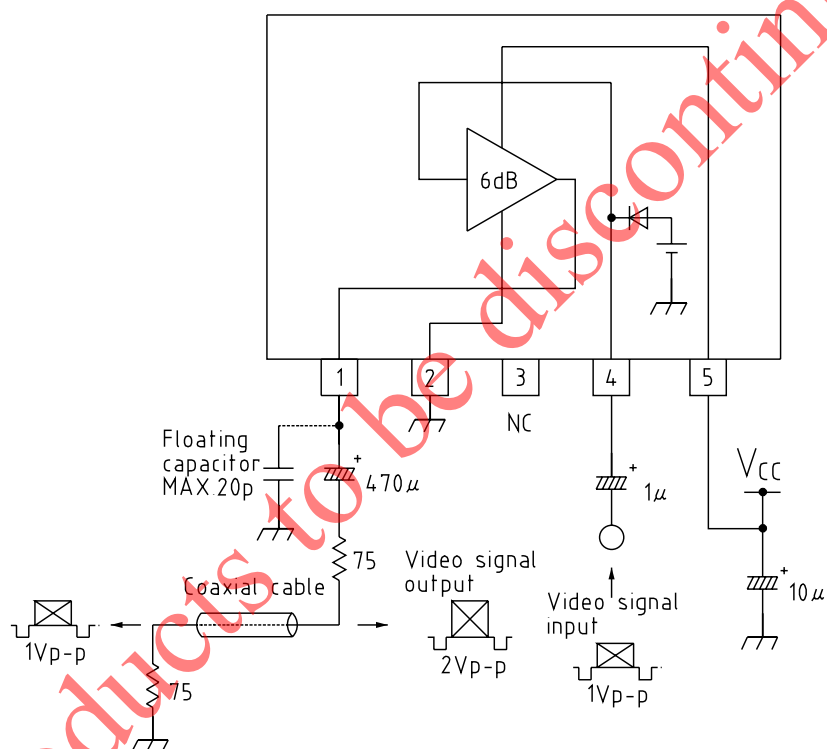
Products to be discontinued

## Block Diagram

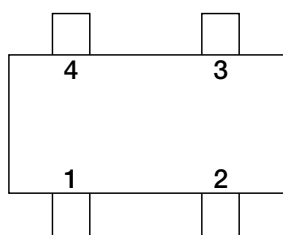
### ■ MMP-4A



### ■ SIP-5A



## Pin Description



MMP-4P

| Pin no. |        | Pin name        |
|---------|--------|-----------------|
| MMP-4A  | SIP-5A |                 |
| 1       | 1      | Output          |
| 2       | 5      | V <sub>CC</sub> |
| 3       | 4      | Input           |
| 4       | 2      | GND             |

## Absolute Maximum Ratings (Ta=25°C)

| Item                  | Symbol               | Ratings                      | Units |
|-----------------------|----------------------|------------------------------|-------|
| Storage temperature   | T <sub>STG</sub>     | -40~+125                     | °C    |
| Operating temperature | T <sub>OPR</sub>     | -20~+75                      | °C    |
| Power supply voltage  | V <sub>CC</sub> max. | 7                            | V     |
| Allowable loss        | P <sub>D</sub>       | 200 (MMP-4A)<br>300 (SIP-5A) | mW    |

## Electrical Characteristics (Except where noted otherwise, Ta=25°C, V<sub>CC</sub>=5.0V)

| Item                           | Symbol            | Measurement circuit | Measurement conditions                                 | Min. | Typ. | Max. | Units            |
|--------------------------------|-------------------|---------------------|--------------------------------------------------------|------|------|------|------------------|
| Operating power supply voltage | V <sub>CC</sub>   | V <sub>CC</sub>     |                                                        | 4.7  | 5.0  | 5.3  | V                |
| Consumption current            | I <sub>d</sub>    | V <sub>CC</sub>     |                                                        |      | 4.0  | 7.0  | mA               |
| Voltage gain                   | G <sub>v</sub>    | TP2                 | SI Sweep signal, 1V <sub>P-P</sub> , 0.1MHz            | 5.5  | 6.0  | 6.5  | dB               |
| Frequency characteristic       | f <sub>c1</sub>   | TP2                 | SI Sweep signal, 1V <sub>P-P</sub><br>7MHz/0.1MHz ★    | -1   | 0    | 1    | dB               |
| Output dynamic range           | V <sub>OP-P</sub> | TP2                 | SI Square wave, 1.5V <sub>P-P</sub> , 16kHz            | 2.6  |      |      | V <sub>P-P</sub> |
| Differential gain              | DG                | SO                  | SI Staircase wave, 1V <sub>P-P</sub> , APL=10, 50, 90% |      | 1    | 3    | %                |
| Differential phase             | DP                | SO                  | SI Staircase wave, 1V <sub>P-P</sub> , APL=10, 50, 90% |      | 1    | 3    | deg              |
| Input clamping voltage         | V <sub>c</sub>    | TP1                 |                                                        |      | 2.0  |      | V                |

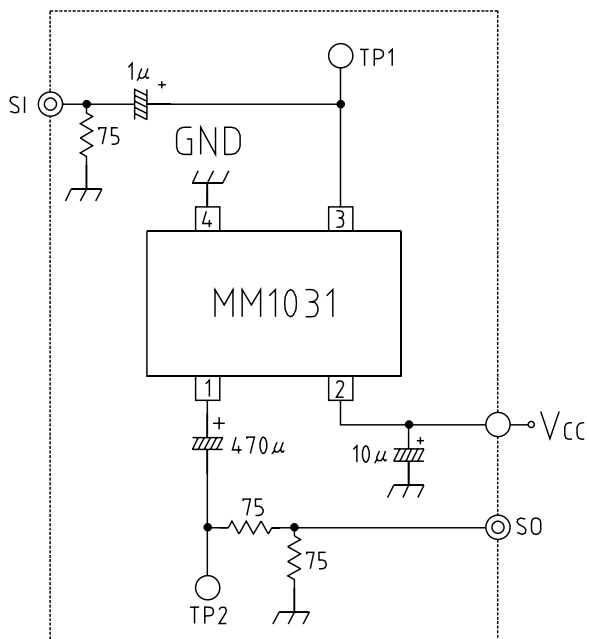
Note : Frequency response f<sub>c</sub>

Given video output for 1.0V<sub>P-P</sub>, 0.1MHz sweep signal input as V1, and output for 7MHz input as V2, f<sub>c1</sub> is obtained as follows.

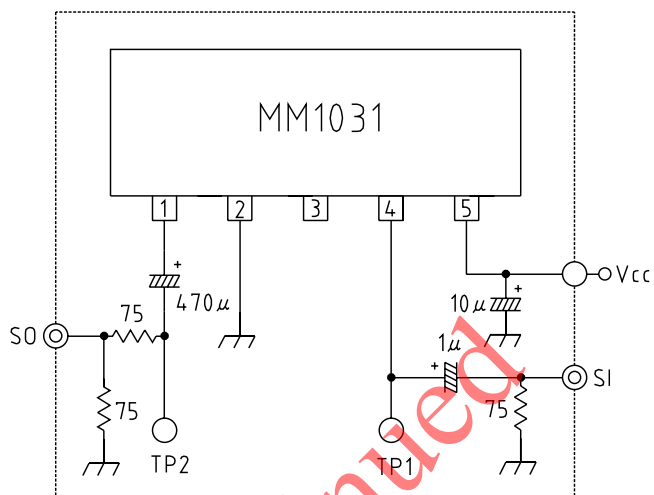
$$f_{c1} = 20 \log \frac{V_2}{V_1} \text{ dB}$$

## Measuring Circuit

### ■ MMP-4A

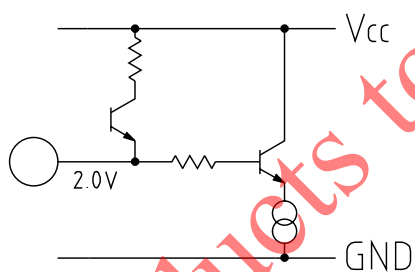


### ■ SIP-5A



## Equivalent Circuit Diagram

Input pin(MMP:-3P/SIP:-4P)



Output pin(MMP:-1P/SIP:-1P)

