

# Video signal switcher

## BA7021

The BA7021 is a switching IC developed for use in VCRs and televisions. It contains a three-channel analog multiplexer, a built-in mute, and video clamp.

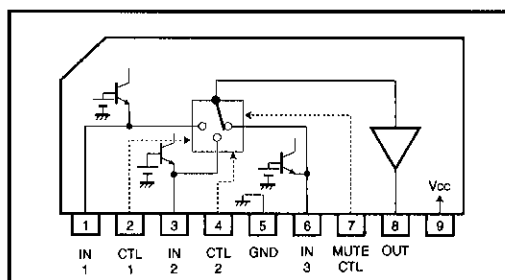
### ●Applications

Video cassette recorders, televisions and video disc players

### ●Features

- 1) 3-input / 1-output.
- 2) Built-in video clamp circuit.
- 3) Built-in mute circuit.
- 4) Operates of a 5V (Typ.) power supply and has low power consumption.

### ●Block diagram



### ●Absolute maximum ratings (Ta=25°C)

| Parameter             | Symbol           | Limits  | Unit |
|-----------------------|------------------|---------|------|
| Power supply voltage  | V <sub>cc</sub>  | 10      | V    |
| Power dissipation     | P <sub>d</sub>   | 950 *   | mW   |
| Operating temperature | T <sub>opr</sub> | -25~60  | °C   |
| Storage temperature   | T <sub>stg</sub> | -55~125 | °C   |

\* Reduced by 9.5mW for each increase in Ta of 1°C over 25°C.

### ●Electrical characteristics (Unless otherwise specified Ta=25°C and V<sub>cc</sub>=5.0V)

| Parameter                | Symbol          | Min. | Typ. | Max. | Unit             | Conditions                                                                   |
|--------------------------|-----------------|------|------|------|------------------|------------------------------------------------------------------------------|
| Operating voltage        | V <sub>cc</sub> | 4.5  | 5.0  | 6.0  | V                | —                                                                            |
| Quiescent current        | I <sub>q</sub>  | —    | 5.0  | 8.0  | mA               | —                                                                            |
| Maximum output level     | V <sub>OM</sub> | 1.9  | 2.7  | —    | V <sub>P-P</sub> | Switch operation 1                                                           |
| Voltage gain             | G <sub>v</sub>  | -0.5 | 0.0  | +0.5 | dB               | f=1MHz, V <sub>IN</sub> =2V <sub>P-P</sub> ,<br>Switch operation 1           |
| Interchannel crosstalk   | C <sub>T</sub>  | —    | -55  | -45  | dB               | f=4.43MHz, V <sub>IN</sub> =2V <sub>P-P</sub> ,<br>Switch operation 2        |
| Mute function            | C <sub>TM</sub> | —    | -50  | -40  | dB               | f=4.43MHz, V <sub>IN</sub> =2V <sub>P-P</sub> ,<br>Switch operation 3        |
| Frequency characteristic | ΔG <sub>v</sub> | -0.5 | 0.0  | +0.5 | dB               | f=4.43MHz / 1MHz, V <sub>IN</sub> =2V <sub>P-P</sub> ,<br>Switch operation 1 |
| CTL pin switch level     | V <sub>TH</sub> | 0.1  | 0.7  | 2.0  | V                | 2pin, 4pin, 7pin                                                             |

## ● Measurement circuit

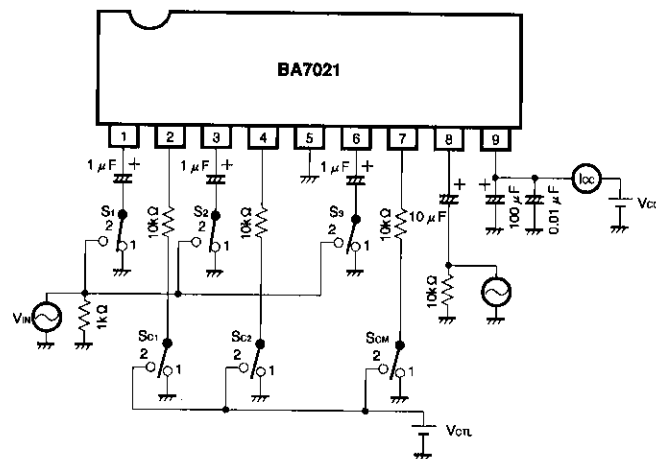
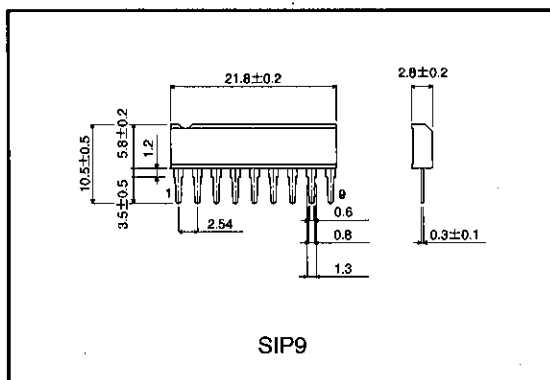


Fig.1

## ● Switch table

| Measurement parameter | Input mode                  | S <sub>1</sub> | S <sub>2</sub> | S <sub>3</sub> | S <sub>C1</sub> | S <sub>C2</sub> | S <sub>CM</sub> | Remarks          |
|-----------------------|-----------------------------|----------------|----------------|----------------|-----------------|-----------------|-----------------|------------------|
| 1                     | Input/output characteristic | 1pin           | 2              | 1              | 1               | 2               | 1               | 1pin→8pin        |
|                       |                             | 3pin           | 1              | 2              | 1               | 1               | 2               | 3pin→8pin        |
|                       |                             | 6pin           | 1              | 1              | 2               | 1               | 1               | 6pin→8pin        |
| 2                     | Crosstalk                   | 1pin           | 1              | 2              | 1               | 2               | 1               | Input from pin 3 |
|                       |                             |                | 1              | 1              | 2               | 1               | 1               | Input from pin 6 |
|                       |                             | 3pin           | 2              | 1              | 1               | 2               | 1               | Input from pin 1 |
|                       |                             |                | 1              | 2              | 1               | 2               | 1               | Input from pin 6 |
|                       |                             | 6pin           | 2              | 1              | 1               | 1               | 1               | Input from pin 1 |
|                       |                             |                | 1              | 2              | 1               | 1               | 1               | Input from pin 3 |
| 3                     | Muting                      | 1pin           | 2              | 1              | 1               | 2               | 1               | 2                |
|                       |                             | 3pin           | 1              | 2              | 1               | 1               | 2               | 2                |
|                       |                             | 6pin           | 1              | 1              | 2               | 1               | 1               | 2                |

## ● External dimensions (Units: mm)



Video signal selection switches

AV switches