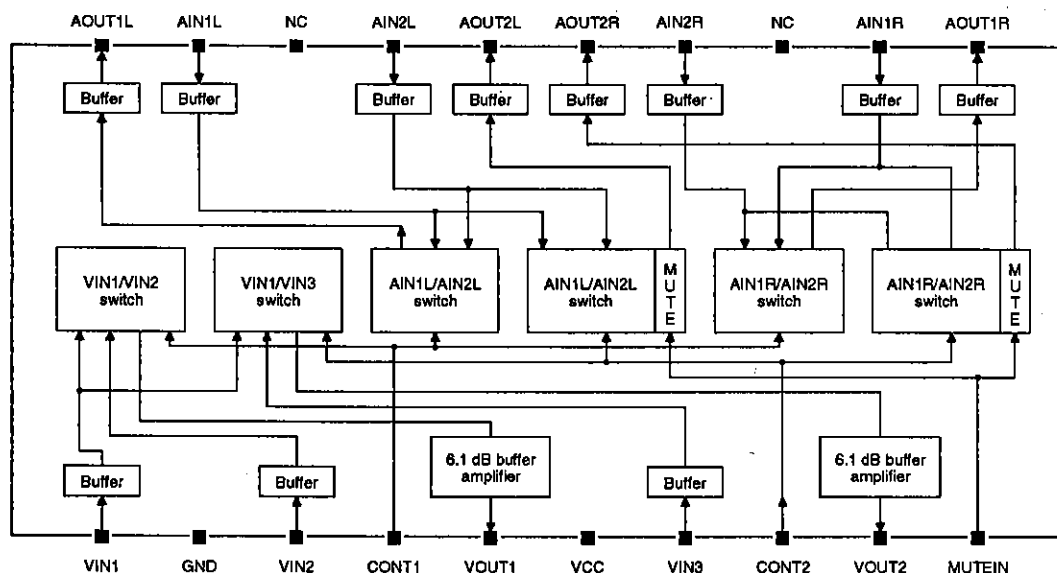




## Block Diagram



## Pin Functions

| Number | Name   | Description                                   |
|--------|--------|---|
| 1      | VIN1   | Video input channel 1                         |
| 2      | GND    | Ground  |
| 3      | VIN2   | Video input channel 2                         |
| 4      | CONT1  | Video and audio channel 1 source select input |
| 5      | VOUT1  | Video output channel 1                        |
| 6      | VCC    | Supply voltage                                |
| 7      | VIN3   | Video input channel 3                         |
| 8      | CONT2  | Video and audio channel 2 source select input |
| 9      | VOUT2  | Video output channel 2                        |
| 10     | MUTEIN | Mute control input                            |
| 11     | AOUT1R | Audio channel 1 right-channel output          |
| 12     | AIN1R  | Audio channel 1 right-channel input           |
| 13     | NC     | No connection                                 |
| 14     | AIN2R  | Audio channel 2 right-channel input           |
| 15     | AOUT2R | Audio channel 2 right-channel output          |
| 16     | AOUT2L | Audio channel 2 left-channel output           |
| 17     | AIN2L  | Audio channel 2 left-channel input            |
| 18     | NC     | No connection                                 |
| 19     | AIN1L  | Audio channel 1 left-channel input            |
| 20     | AOUT1L | Audio channel 1 left-channel output           |

## Specifications

### Absolute Maximum Ratings

| Parameter                       | Symbol    | Rating      | Unit |
|---------------------------------|-----------|-------------|------|
| Supply voltage                  | $V_{CC}$  | 14.4        | V    |
| CONT1, CONT2 and MUTEIN voltage | $V_I$     | 14.4        | V    |
| Power dissipation               | $P_D$     | 700         | mW   |
| Operating temperature range     | $T_{opr}$ | -20 to +70  | °C   |
| Storage temperature range       | $T_{stg}$ | -55 to +125 | °C   |

### Recommended Operating Conditions

$T_a = 25\text{ °C}$

| Parameter            | Symbol   | Rating      | Unit |
|----------------------|----------|-------------|------|
| Supply voltage       | $V_{CC}$ | 12          | V    |
| Supply voltage range | $V_{CC}$ | 8.0 to 13.2 | V    |

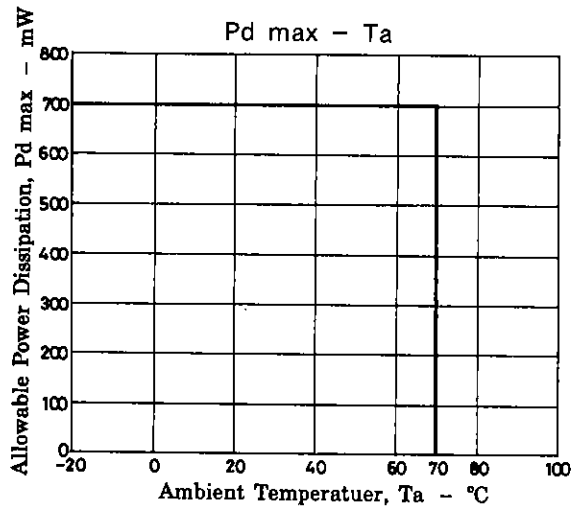
### Electrical Characteristics

$V_{CC} = 12\text{ V}$ ,  $T_a = 25\text{ °C}$

| Parameter  | Symbol    | Condition  | Rating |      |     | Unit              |
|--|-----------|--|--------|------|-----|-------------------|
|  |           |  | min    | typ  | max |                   |
| Supply current                                   | $I_{CC}$  |  | 35     | 43   | 57  | mA                |
| VIN1 to VIN3 input bias voltage                  | $V_{VB}$  |  | 4.4    | 4.7  | 5.0 | V                 |
| VOUT1 and VOUT2 output bias voltage              | $V_{OV}$  |  | 6.2    | 6.8  | 7.4 | V                 |
| VIN1 to VIN3 input impedance                     | $Z_{IV}$  | $f = 1\text{ kHz}$   | 15     | 21   | 27  | k $\Omega$        |
|  |           | $f = 1\text{ kHz}$ , VIN3 connected to VIN2                        | -      | 10.5 | -   |                   |
| Video-channel voltage gain                       | $A_V$     | $V_I = 1\text{ V}_{pp}$ sine wave,<br>$f = 0.1\text{ MHz}$         | 5.6    | 6.1  | 6.6 | dB                |
| Video-channel bandwidth                          | $BW_V$    | $V_I = 0.7\text{ V}_{pp}$ sine wave,<br>0.1 MHz to the -3 dB point | 10     | -    | -   | MHz               |
| Video-channel noise voltage                      | $V_{NV}$  | $R_g = 75\ \Omega$ , 10 MHz bandwidth                              | -      | 0.3  | 1.0 | mV <sub>rms</sub> |
| VIN1 to VIN2 crosstalk rejection                 | $CT_{V1}$ | $R_g = 75\ \Omega$ , $f = 3.58\text{ MHz}$                         | 45     | 50   | -   | dB                |
| VIN1 to VIN3 or VIN2 to VIN3 crosstalk rejection | $CT_{V2}$ | $R_g = 75\ \Omega$ , $f = 3.58\text{ MHz}$                         | 45     | 50   | -   | dB                |
| Video-channel hum rejection                      | $HR_V$    | $f = 50\text{ Hz}$ , $R_g = 75\ \Omega$                            | 18     | 23   | -   | dB                |
| AIN1L, AIN1R, AIN2L and AIN2R input bias voltage | $V_{IAB}$ |  | 4.5    | 5.1  | 5.7 | V                 |
| AOUT1 and AOUT2 output bias voltage              | $V_{OA}$  |  | 3.2    | 3.8  | 4.4 | V                 |
| AIN1L and AIN1R input impedance                  | $Z_{IA1}$ | $f = 1\text{ kHz}$   | 47     | 68   | 88  | k $\Omega$        |
| AIN2L and AIN2R input impedance                  | $Z_{IA2}$ | $f = 1\text{ kHz}$   | 51     | 74   | 95  | k $\Omega$        |

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| Parameter                                  | Symbol    | Condition   | Rating |       |      | Unit              |
|--|-----------|---|--------|-------|------|-------------------|
|  |           |   | min    | typ   | max  |                   |
| Audio-channel voltage gain                 | $A_A$     | $f = 1 \text{ kHz}$ ,<br>$V_i = 500 \text{ mV}_{rms}$   | -0.5   | -0.02 | +0.5 | dB                |
| Audio-channel bandwidth                    | $BW_A$    | $V_i = 500 \text{ mV}_{rms}$ , 1 kHz to the -1 dB point | 100    | -     | -    | kHz               |
| Audio-channel total harmonic distortion    | THD       | $V_i = 500 \text{ mV}_{rms}$ ,<br>$f = 1 \text{ kHz}$   | -      | 0.03  | 0.2  | %                 |
| Audio-channel noise voltage                | $V_{NA}$  | $R_g = 600 \Omega$ , $f = 20 \text{ Hz}$ to 20 kHz      | -      | 10    | 50   | $\mu V_{rms}$     |
| AIN1 to AIN2 crosstalk rejection           | $CT_{A1}$ | $R_g = 4.7 \text{ k}\Omega$ , $f \leq 1 \text{ kHz}$    | 75     | 90    | -    | dB                |
| Left- to right-channel crosstalk rejection | $CT_{AS}$ | $R_g = 4.7 \text{ k}\Omega$ , $f \leq 1 \text{ kHz}$    | 72     | 82    | -    | dB                |
| Mute output noise voltage                  | $V_{OAM}$ | $V_i = 500 \text{ mV}_{rms}$ ,<br>$f = 1 \text{ kHz}$   | -      | 0.02  | 0.1  | $\text{mV}_{rms}$ |
| Audio-channel hum rejection                | $HR_A$    | $R_g = 4.7 \text{ k}\Omega$                             | 40     | 46    | -    | dB                |
|  |           | Input open or mute ON                                   | 28     | 39    | -    |                   |
| CONT1 and CONT2 HIGH-level input voltage   | $V_{IH1}$ |   | 1.1    | 1.4   | 1.7  | V                 |
| CONT1 leakage current                      | $I_{L1}$  | $V_{CONT1} = 0 \text{ V}$                               | -      | -     | -3   | $\mu A$           |
| CONT2 leakage current                      | $I_{L2}$  | $V_{CONT2} = 0 \text{ V}$                               | -      | -     | -3   | $\mu A$           |
| MUTEIN HIGH-level input voltage            | $V_{IH2}$ |   | 1.1    | 1.4   | 1.7  | V                 |
| MUTEIN leakage current                     | $I_{L3}$  | $V_{MUTEIN} = 0 \text{ V}$                              | -      | -     | -3   | $\mu A$           |



## Output Selection

| CONT1 | CONT2 | MUTEIN | VOUT1 | VOUT2 | AOUT1L/R | AOUT2L/R |
|-------|-------|--------|-------|-------|----------|----------|
| LOW   | LOW   | LOW    | VIN1  | VIN1  | AIN1L/R  | AIN1L/R  |
| LOW   | HIGH  | LOW    | VIN1  | VIN3  | AIN1L/R  | AIN2L/R  |
| HIGH  | LOW   | LOW    | VIN2  | VIN1  | AIN2L/R  | AIN1L/R  |
| HIGH  | HIGH  | LOW    | VIN2  | VIN3  | AIN2L/R  | AIN2L/R  |
| LOW   | LOW   | HIGH   | VIN1  | VIN1  | AIN1L/R  | -        |
| LOW   | HIGH  | HIGH   | VIN1  | VIN3  | AIN1L/R  | -        |
| HIGH  | LOW   | HIGH   | VIN2  | VIN1  | AIN2L/R  | -        |
| HIGH  | HIGH  | HIGH   | VIN2  | VIN3  | AIN2L/R  | -        |

### Note

When using the two-input, two-output configuration, VIN2 and VIN3 should be connected externally.

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