



SANYO Semiconductors

DATA SHEET

LA7956

Monolithic Linear IC
For TV/VCR Use
Video Switch

Features

- 4 inputs, 1 output, 75Ω termination, driver on-chip.
- 6dB amplifier on-chip.
- Excellent crosstalk characteristic.
- Wide band.

Specifications

Maximum Ratings at Ta = 25°C

| Parameter | Symbol | Conditions | Ratings | Unit |
|--------------------------------|--|-----------------------|-------------|------|
| Maximum supply voltage | V ₇ max | | 14 | V |
| Maximum input supply voltage 1 | V ₄ max, V ₆ max V ₈ max, V ₉ max | | 8 | V |
| Maximum input supply voltage 2 | V ₂ max, V ₃ max | V _{CC} = 14V | 14 | V |
| Maximum output current | I ₁ max | | 10 | mA |
| Allowable power dissipation | P _d max | T _a ≤ 65°C | 540 | mW |
| Operating temperature | T _{opr} | | -20 to +65 | °C |
| Storage temperature | T _{stg} | | -55 to +150 | °C |

Operating Conditions at Ta = 25°C

| Parameter | Symbol | Conditions | Ratings | Unit |
|----------------------------|--------------------|------------|--------------|------|
| Operating voltage range | V _{CC op} | | 10.5 to 13.5 | V |
| Recommended supply voltage | V _{CC} | | 12 | V |

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LA7956

Electrical Characteristics at Ta = 25°C, VCC = 12V

| Parameter | Symbol | Conditions | Ratings | | | Unit |
|---------------------------|---|--|---------|---------|-----|------|
| | | | min | typ | max | |
| Quiescent current drain | I _{CC} | | 15 | 21 | 30 | mA |
| Input bias voltage | V ₄ , V ₆ , V ₈ , V ₉ | | 3.5 | 3.8 | 4.1 | V |
| Output bias voltage | V ₁ | | 4.6 | 6.1 | 7.6 | V |
| Output DC offset voltage | V _{OS} | (Note 1) | -50 | 0 | +50 | mV |
| Control threshold voltage | V _{2H} , V _{3H} | | 2.3 | | | V |
| | V _{2L} , V _{3L} | | | | 0.7 | V |
| Control input current | I ₂ , I ₃ | | -20 | -6 | | μA |
| Voltage gain | GV | f = 1MHz, V _{IN} = 2Vp-p (Note 1) | 5.6 | 6.1 | 6.4 | dB |
| Frequency characteristics | GV-f | 0dB at f = 100kHz (Note 1) f = 10MHz, V _{IN} = 1Vp-p | -3 | 0 | | dB |
| Output dynamic range | V _{DR} | f = 15kHz, V _{IN} = 1.5Vp-p (Note 1) | 1.4 | 1.5 | | Vp-p |
| Crosstalk (Note 2) | C _T | V _{IN} = 1Vp-p, f = 3MHz (Note 1) | 50 (48) | 58 (55) | | dB |
| | | V _{IN} = 1Vp-p, f = 5MHz (Note 1) | 45 (45) | 55 (52) | | dB |

The current flowing into the IC is defined as positive and current from the IC is defined as negative.

Video Switch Truth Table

| S2 (Pin 2) | S3 (Pin 3) | V _{IN1} (Pin 4) | V _{IN2} (Pin 6) | V _{IN3} (Pin 8) | V _{IN4} (Pin 9) |
|---------------|---------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| H | H | ON | OFF | OFF | OFF |
| L | H | OFF | ON | OFF | OFF |
| H | L | OFF | OFF | ON | OFF |
| L | L | OFF | OFF | OFF | ON |

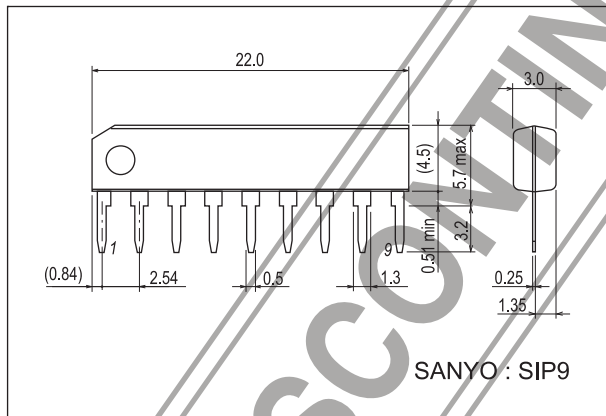
Note 1 : Refer to this Truth Table and make measurements by switching S2, S3.

Note 2 : () : Crosstalk between pins 8 and 9.

Package Dimensions

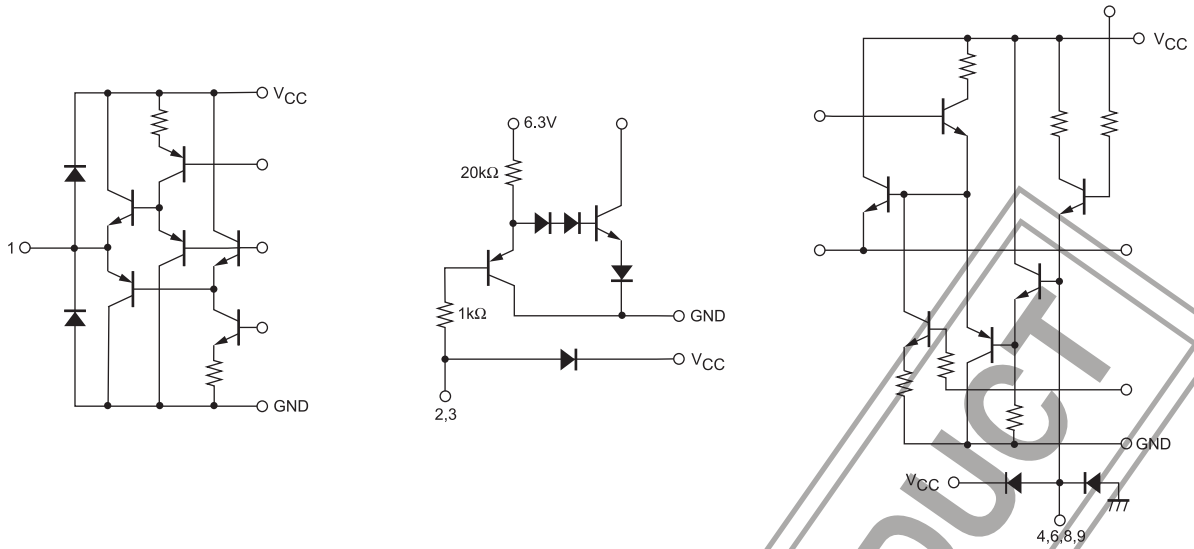
unit : mm (typ)

3017D

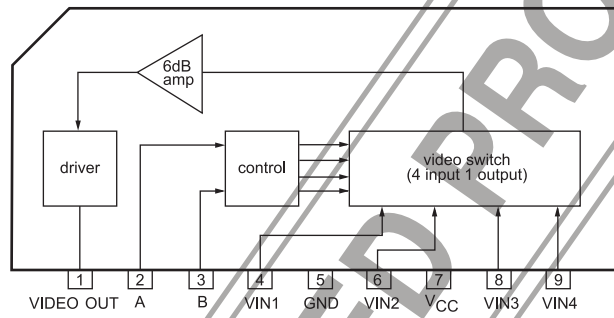


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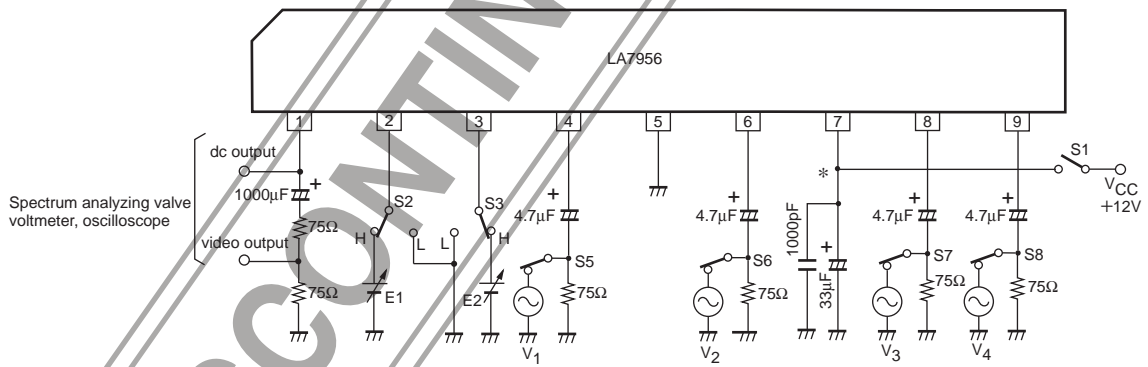
Input/ Output Equivalent Circuit



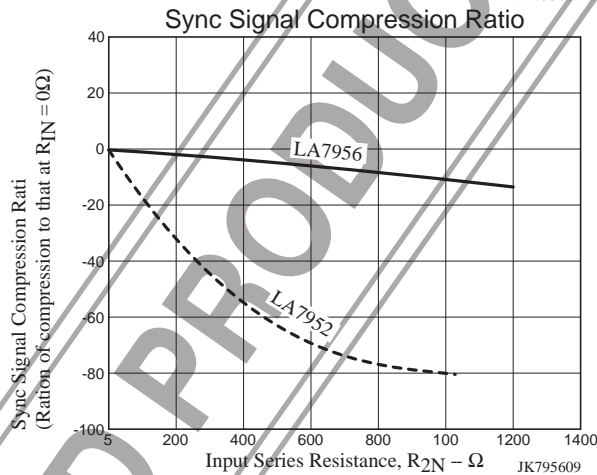
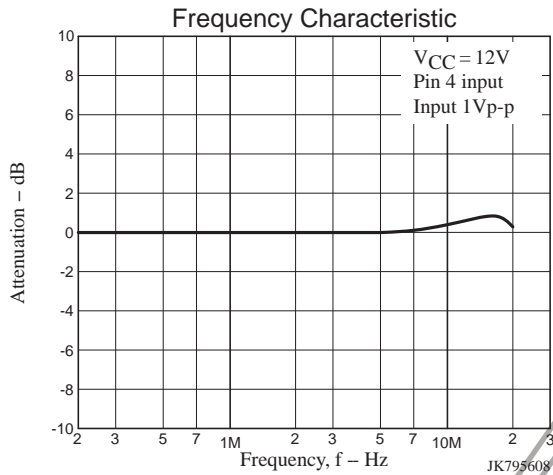
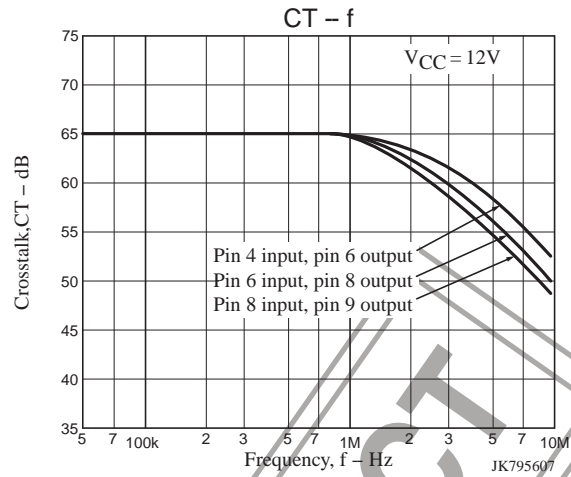
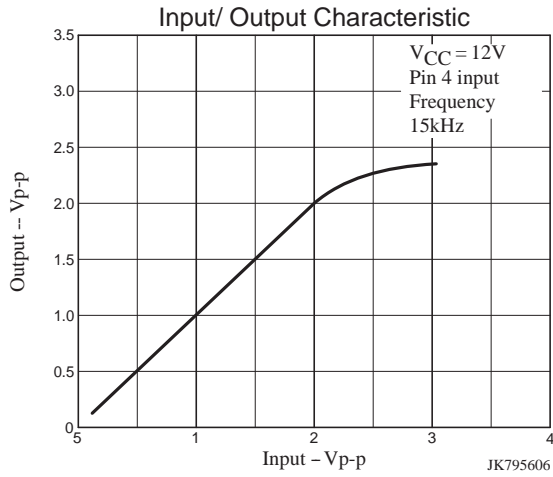
Block Diagram



Test Circuit



* : Connect the bypass capacitor for V_{CC} as close to pin 7 as possible.



Design Notes

An improvement in the DC clamp circuit has improved the sync signal compression attributable to the signal source impedance, but the response time of the DC clamp is made longer accordingly than that of the LA7952. Make adjustments by connecting a high resistance (several hundred k Ω) across input pin and GND (decreasing the resistance makes the sync signal compression larger).

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