



LA7051

Video, Audio Signal Processor for UHF Band RF Modulator

Overview

The LA7051 is a video, audio signal processor IC for UHF band RF modulator. It performs the functions of audio FM modulator, video clamp circuit, white clip circuit.

Applications

- VCRs.

Features

- 5.5MHz/6.0MHz audio modulation frequency selectable with control pin.
- Contains white clip circuit.
- Minimum number of external parts required.

Specifications

Maximum Ratings at Ta=25°C

| Parameter | Symbol | Conditions | Ratings | Unit |
|-----------------------------|---------------------|------------|-------------|------|
| Maximum supply voltage | V _{CC} max | V8 | 12 | V |
| Allowable power dissipation | Pd max | Ta≤60°C | 250 | mW |
| Operating temperature | T _{opr} | | -20 to +85 | °C |
| Storage temperature | T _{stg} | | -55 to +125 | °C |

Operating Conditions at Ta=25°C

| Parameter | Symbol | Conditions | Ratings | Unit |
|----------------------------|--------------------|------------|------------|------|
| Recommended supply voltage | V _{CC} | V8 | 7.5 | V |
| Operating voltage range | V _{CC} op | | 7.0 to 8.0 | V |

Operating Characteristics at Ta=25°C, V_{CC} (V8)=7.5V

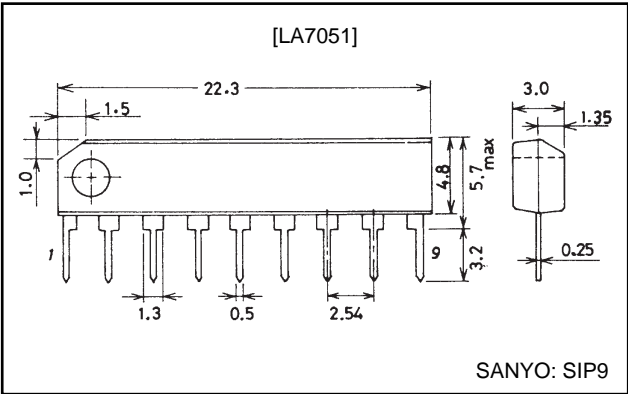
| Parameter | Symbol | Conditions | Ratings | | | Unit |
|--|--------------------|--|---------|------|-------|-------|
| | | | min | typ | max | |
| V _{CC} 8 current drain | I _{CC} 8 | | 9.5 | 14.5 | 19.5 | mA |
| Video clamp voltage | V _{VC} | | 3.6 | 3.8 | 4.0 | V |
| Audio FM sensitivity | Δf _{fm} 6 | f _m : 1kHz, 4.5Vp-p input, f _C : 5.5MHz | 900 | 1250 | 1600 | Hz/mV |
| | Δf _{fm} 7 | f _m : 1kHz, 4.5Vp-p input, f _C : 5.5MHz, R* : 15kΩ | 900 | 1250 | 1600 | Hz/mV |
| Audio distortion | THD6 | At deviation width ±50kHz | | 1.6 | 2.5 | % |
| | THD7 | f _m : 1kHz, f _C : 5.5MHz | | 1.6 | 2.5 | % |
| Video clamp output amplitude deviation | | At 1Vp-p stair step signal input | -5 | | +5 | % |
| Audio output amplitude | V _O 6 | f _C : 5.5MHz | 0.79 | 1.0 | 1.26 | Vp-p |
| | V _O 7 | | 0.79 | 1.0 | 1.26 | Vp-p |
| White clip level | V _{WC} | At 1.5Vp-p stair step signal input | 1.100 | | 1.189 | Vp-p |

*Note : Resistance value of 50kΩ variable resistor in Test Circuit.

Package Dimensions

unit: mm

3017C-SIP9



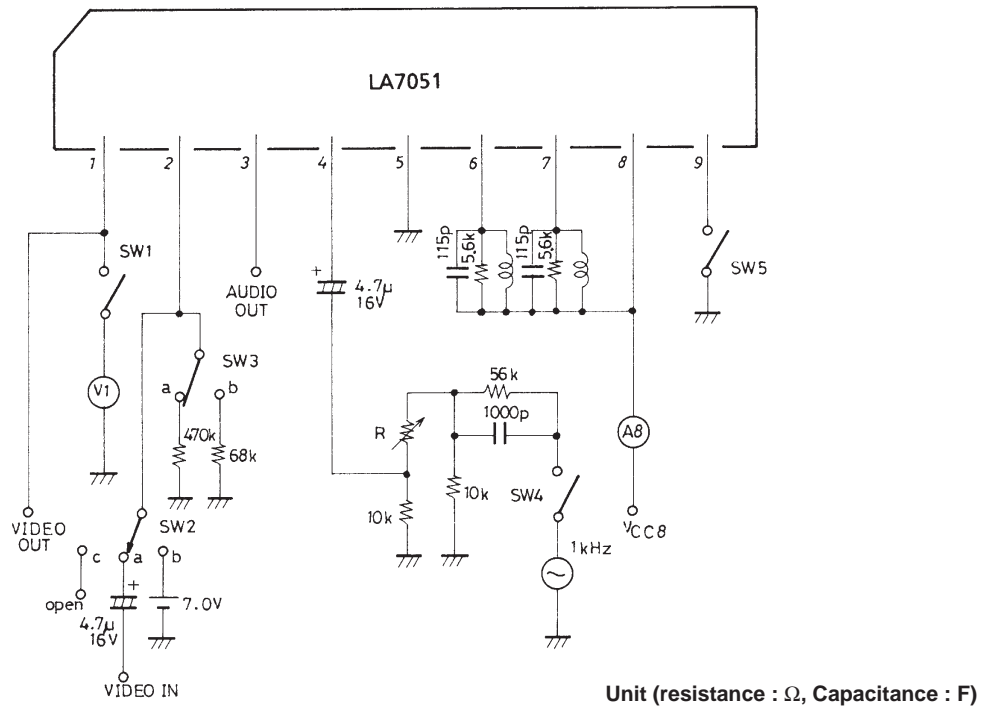
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LA7051

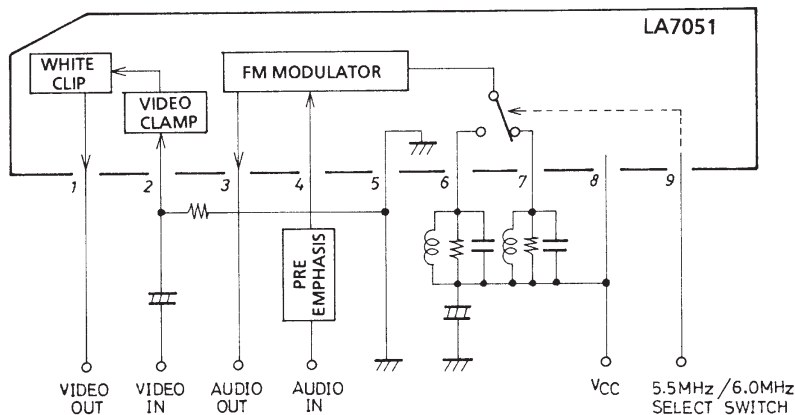
LA7051 Test Condition

| Parameter | Symbol | SW Mode | | | | | Test point | Remarks |
|--|-------------------|---------|-----|-----|-----|-----|------------|---|
| | | SW1 | SW2 | SW3 | SW4 | SW5 | | |
| V _{CC8} current drain | I _{CC8} | OFF | c | a | OFF | ON | Pin 8 | |
| Video clamp voltage | V _{VC} | ON | c | a | OFF | OFF | Pin 1 | |
| Audio FM sensitivity | Δf _{fm6} | OFF | c | a | ON | ON | Pin 3 | |
| | Δf _{fm7} | OFF | c | a | ON | OFF | Pin 3 | |
| Audio distortion | THD6 | OFF | c | a | ON | ON | pin 3 | |
| | THD7 | OFF | c | a | ON | OFF | pin 3 | |
| Video clamp output amplitude deviation | | OFF | a | a | OFF | OFF | Pin 1 | |
| Audio output amplitude | V _{O6} | OFF | c | a | OFF | ON | Pin 3 | |
| | V _{O7} | OFF | c | a | OFF | OFF | pin 3 | |
| White clip level | V _{WC1} | ON | b | a | OFF | OFF | Pin 1 | V _{WC} =V _{WC1} -V _{WC2} |
| | V _{WC2} | ON | c | b | OFF | OFF | Pin 1 | |

Test Circuit



Equivalent Circuit Block Diagram



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