

**LA7911****TV Tuner Controller****Overview**

The LA7911 is a tuner controller IC having such functions as band switch, inverter, low-pass filter, 33V reference Zener. It can be used for frequency synthesizer or voltage synthesizer according to external application.

Functions

- Band switch (Equivalent to LA7900, LA7910 : Refer to the truth table).
- Inverter.
- Low-pass filter (Voltage follower, operational amplifier).
- 33V reference Zener.

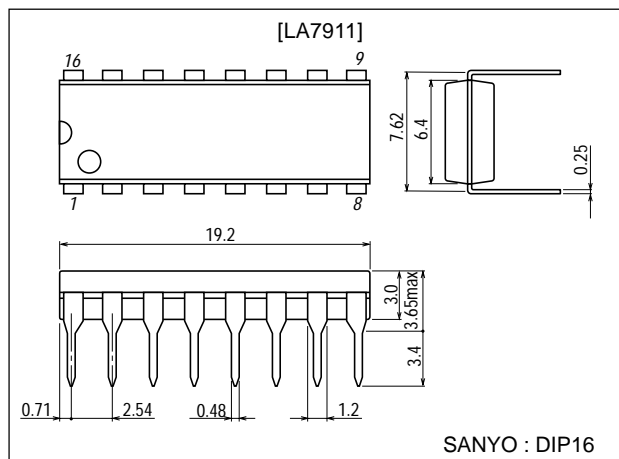
Features

- 2-input 5-output band switch.
- Band switches of 2 types (LA7900 type or LA7910 type) available by changing-over C pin.
- Large maximum output current and small saturation voltage.
- Meets CATV tuner requirements.
- Usable for frequency synthesizer or voltage synthesizer by changing connection of inverter and operational amplifier.

Package Dimensions

unit:mm

3006B-DIP16

**Band Switch Truth Table**

| Input | | | Output | | | | |
|-------------|-------------|-------------|------------|------------|------------|------------|------------|
| (Pin3) A | (Pin2) B | (Pin4) C | F1 (Pin15) | F2 (Pin14) | F3 (Pin13) | F4 (Pin12) | SW (Pin11) |
| L | L | Open | H | Z | Z | Z | Z |
| H | L | Open | Z | H | Z | Z | L |
| L | H | Open | Z | Z | H | Z | L |
| H | H | Open | Z | Z | Z | H | L |
| L | L | GND | H | Z | Z | H | Z |
| H | L | GND | Z | H | Z | H | L |
| L | H | GND | Z | Z | H | Z | L |
| H | H | GND | Z | Z | H | H | L |

Z : High impedance

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Specifications

Maximum Ratings at $T_a = 25^\circ\text{C}$

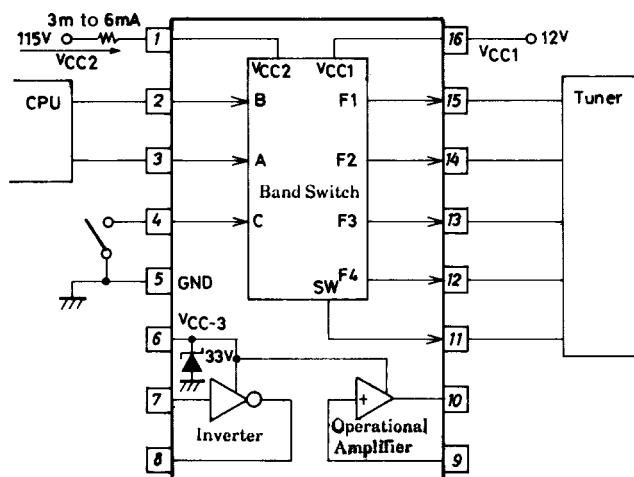
| Parameter | Symbol | Conditions | Ratings | Unit |
|-----------------------------------|----------------------|-----------------------------|-------------|------------------|
| [Band switch] | | | | |
| V_{CC1} maximum supply voltage | V_{16} max | | 18 | V |
| V_{CC2} maximum supply current | I_1 max | | 10 | mA |
| Maximum load current | I_{12}, I_{13} max | $I_1=6\text{mA}$ | -60 | mA |
| | I_{14}, I_{15} max | $V_{CC1}=12\text{V}$ | | |
| Maximum load current | I_{11} max | | 25 | mA |
| Maximum AB input current | I_2, I_3 max | | 2 | mA |
| Maximum applied voltage (SW) | V_{11} max | | 35 | V |
| Maximum applied voltage | V_{12}, V_{14} max | | -18 | V |
| [Inverter, operational amplifier] | | | | |
| V_{CC3} maximum supply current | I_6 max | | 8 | mA |
| Maximum applied voltage | V_8 max | | 35 | V |
| Maximum load current | I_8 max | | 5 | mA |
| Maximum input voltage | V_7 max | | 8 | V |
| Maximum input current | I_7 max | | 1 | mA |
| Maximum input voltage | V_9 max | | $V_{CC}-1$ | V |
| [Common to 1.2] | | | | |
| Allowable power dissipation | P_d max | $T_a \leq 65^\circ\text{C}$ | 600 | mW |
| Operating temperature | T_{opr} | | -20 to +65 | $^\circ\text{C}$ |
| Storage temperature | T_{stg} | | -55 to +125 | $^\circ\text{C}$ |

Operating Characteristics at $T_a = 25^\circ\text{C}$

| Parameter | Symbol | Conditions | Ratings | | | Unit |
|---|----------------------|------------|---------|-----|------|------|
| | | | min | typ | max | |
| [Band switch] | | | | | | |
| Quiescent current | I _{CC} | | 0 | | 9 | mA |
| Output saturation voltage | F(sat) | | 0 | | 0.7 | V |
| Output saturation voltage | SW(sat) | | 0 | | 0.7 | V |
| Input threshold voltage | V _{TH} | | 0.8 | 1.5 | 3 | V |
| Output leakage current | I _L | | 0 | | −50 | μA |
| [Inveter, operational amplifier, reference zener] | | | | | | |
| Zener voltage | V _Z | | 31 | 33 | 35 | V |
| Output saturation voltage | V ₈ (sat) | | 0 | | 0.3 | V |
| Input threshold voltage | V _{TH} | | 2.5 | | 4.5 | V |
| Input offset voltage 1 | V ₁₀₋₁ | | −100 | | +100 | mV |
| Input offset voltage 2 | V ₁₀₋₂ | | −100 | | +100 | mV |
| Input bias current | I _{BIAS} | | | | −190 | nA |

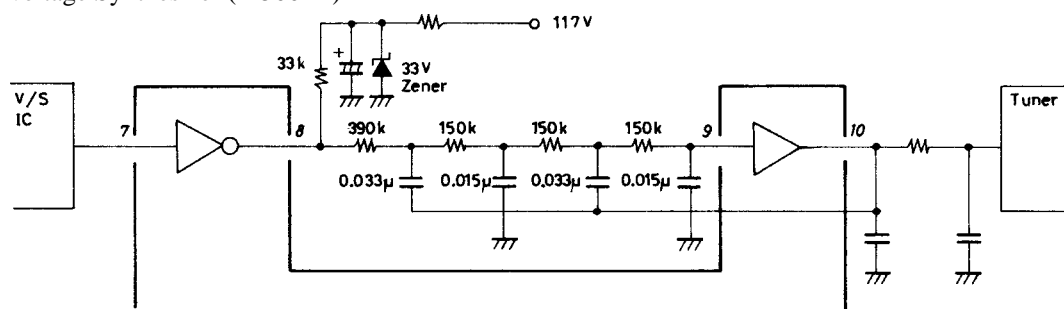
Note) Current flowing into IC : Pulse (No sign)
Current flowing out of IC : Minus (-)

Equivalent Circuit Block Diagram



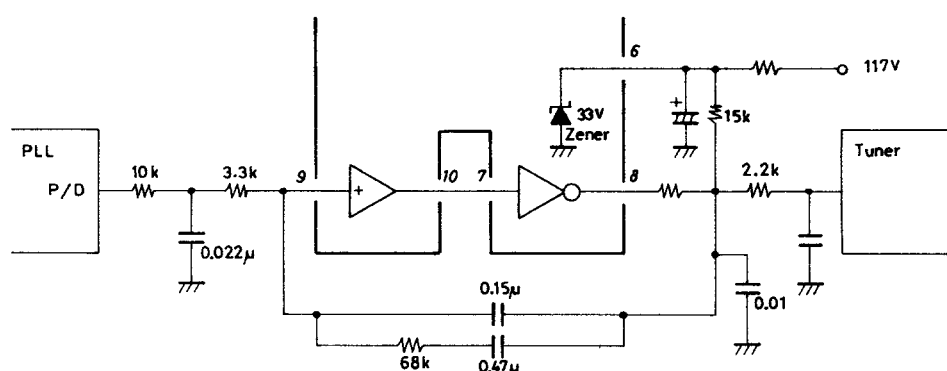
Sample Application Circuit

1. Voltage Synthesizer ($f=500\text{Hz}$)



Unit (resistance:Ω, capacitance:F)

2. Frequency Synthesizer ($f_f=1\text{kHz}$)



Unit (resistance:Ω, capacitance:F)

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