

**SANYO**

No.1767A

**LA7915**

Monolithic Linear IC

Peripheral Circuit for TV/VTR Frequency  
Synthesizer Channel Select System

The LA7915 contains CPU/PLL-excluded peripheral circuits such as switch, +5V power supply (with  $\overline{RST}$ ), sync detector, low-pass filter for color TV/VTR frequency synthesizer channel select system use.

**Functions**

- Band switch (2-input 4-output)
- Video signal, flyback pulse, AFT output-used detection of tuning mode and horizontal sync mode
- +5V power supply, with  $\overline{RST}$  output (for CPU)
- OP amp for low-pass filter (for frequency synthesizer)

**Features**

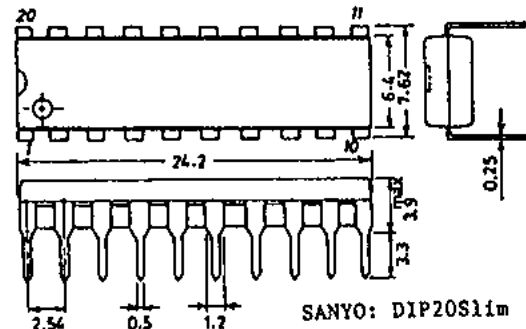
- The band switch truth table can be changed in a short period of time at the user's option.
- The band switch is of pnp output type which need not be driven externally.
- The OP amp for low-pass filter is excellent in pulse response because of its high-impedance input pin.

**Maximum Ratings at Ta = 25°C**

		Ta ≤ 65°C	unit
Allowable Power Dissipation	Pd max	770	mW
Operating Temperature	Topg	-20 to +65	°C
Storage Temperature	Tstg	-55 to +125	°C
<b>[Band Switch Section]</b>			
VCC1 Maximum Supply Voltage	V13 max	15	V
Maximum Load Current	I14, I15, I16, I17 max	-50	mA
Maximum Applied Voltage	V14, V15, V16, V17 max	-15	V
Maximum Applied Voltage (Input)	V6 max, V7 max	12	V
<b>[+5V Power Supply Section]</b>			
VCC2 Maximum Supply Voltage	V10 max	15	V
+5V Output Current	I8 max	-38	mA
<b>[Tuning Detection Section]</b>			
Maximum Input Voltage	V2 max	3.5	V
Maximum Input Voltage	V3 max	VCC1	V
Maximum Input Voltage (Negative Polarity)	-V2 max	-1.4	V
Maximum Comparator Difference Voltage	V19-V20	6	V
Maximum Output Current	I1 max	-3	mA
<b>[Operational Amplifier Section]</b>			
Maximum Applied Voltage	V12 max	35	V
Maximum Input Voltage	V11 max	5.9	V

**Case Outline 3021B-D20SIC**

(unit: mm)



The application circuit diagrams and circuit constants herein are included as an example and provide no guarantee for designing equipment to be mass-produced. The information herein is believed to be accurate and reliable. However, no responsibility is assumed by SANYO for its use, nor for any infringements of patents or other rights of third parties which may result from its use.

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N288TA/3265MW, TS No.1767-1/3.

**Operating Conditions at Ta = 25°C**

		min	typ	max	unit
Supply Voltage Range	V <sub>10</sub>	9.0	12	14.0	V
	V <sub>13</sub>	9.0	12	14.0	V
Recommended Output Current in Tuning Detection Section	I <sub>4,16</sub>			3	mA
Recommended Load Current in OP Amp Section	I <sub>12</sub>		3	5	mA
Recommended Setting Range of Comparator Voltage in Tuning Detection Section	V <sub>19</sub>	2.7		7.0	V

**Operating Characteristics at Ta = 25°C**

			min	typ	max	unit
<b>[Band Switch Section]</b>						
Quiescent Current Dissipation	I <sub>CC1</sub>			16.0		mA
Output Saturation Voltage	F1 to 4 sat	I <sub>o</sub> = -40mA	0		0.7	V
Input 'H'-Level Voltage	V <sub>6TH</sub> , V <sub>7TH</sub>		2.2			V
Input 'L'-Level Voltage	V <sub>6TL</sub> , V <sub>7TL</sub>		0		0.8	V
Output Leakage Current	I <sub>FL</sub>	-15V			-50	μA
<b>[+5V Power Supply Section]</b>						
Quiescent Current Dissipation	I <sub>CC2</sub>			3.6		mA
+5V Output Voltage	V <sub>8</sub>	I <sub>8</sub> = -30mA	4.5		5.5	V
RST Output Voltage	V <sub>9 sat</sub>	I <sub>9</sub> = -100μA	4.5		5.5	V
<b>[Tuning Detection Section]</b>						
Input Threshold Voltage	V <sub>2TH</sub>		0.4	0.72	1.5	V
Comparator Voltage	V <sub>C19</sub>		3.7	4.0	4.3	V
Window Comparator 'H' Voltage	V <sub>CH</sub>		7.7	8.0	8.3	V
Window Comparator 'L' Voltage	V <sub>CL</sub>		3.7	4.0	4.3	V
Output Saturation Voltage	V <sub>4 sat</sub>	I <sub>sink</sub> = 2mA	0	0.33	0.7	V
	V <sub>5 sat</sub>	I <sub>sink</sub> = 2mA	0	0.33	0.7	V
Low-Pass Filter Output Current	I <sub>OL</sub>		-1.18		-0.90	mA
Sync Separation Start Current	I <sub>1TH</sub>		-150			μA
<b>[Operational Amplifier Section]</b>						
Output Saturation Voltage	V <sub>12 sat</sub>		0		0.3	V
Input Threshold Voltage	V <sub>11TH</sub>		2.0		2.4	V
Input Current	I <sub>11</sub>				20	nA

**Band Switch Truth Table**

Input		Output			
A (Pin 7)	B (Pin 6)	F1 (Pin 14)	F2 (Pin 15)	F3 (Pin 16)	F4 (Pin 17)
L	L	H	Z	Z	Z
H	L	Z	H	Z	Z
L	H	Z	Z	H	Z
H	H	Z	Z	Z	H

Z : High impedance

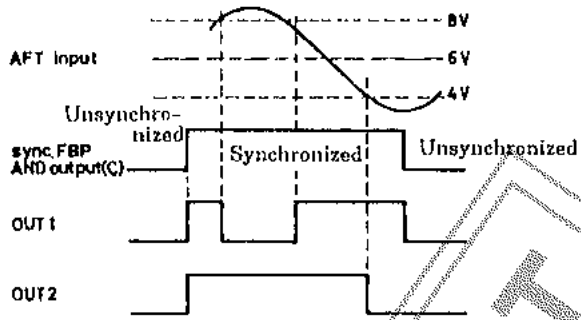
**Operation of Tuning Detection Section**

Tuning Mode	LPF Output	AFT	OUT 1	OUT 2
Unsynchronized	L	AFT-L	L	L
		AFT-C	L	L
		AFT-H	L	L
Synchronized	H	AFT-L	H	L
		AFT-C	H	H
		AFT-H	L	H

AFT-L : V<sub>AFT</sub> < V<sub>CL</sub>

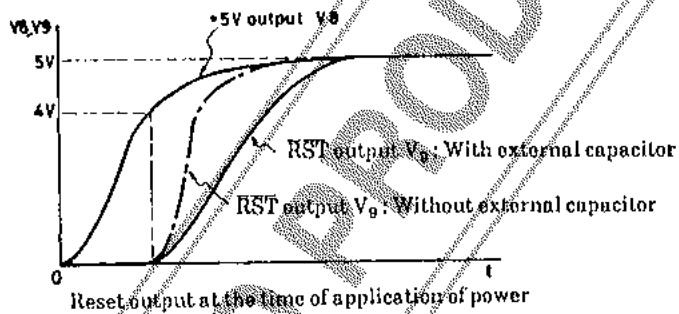
AFT-C : V<sub>CL</sub> < V<sub>AFT</sub> < V<sub>CH</sub>

AFT-H : V<sub>AFT</sub> > V<sub>CH</sub>

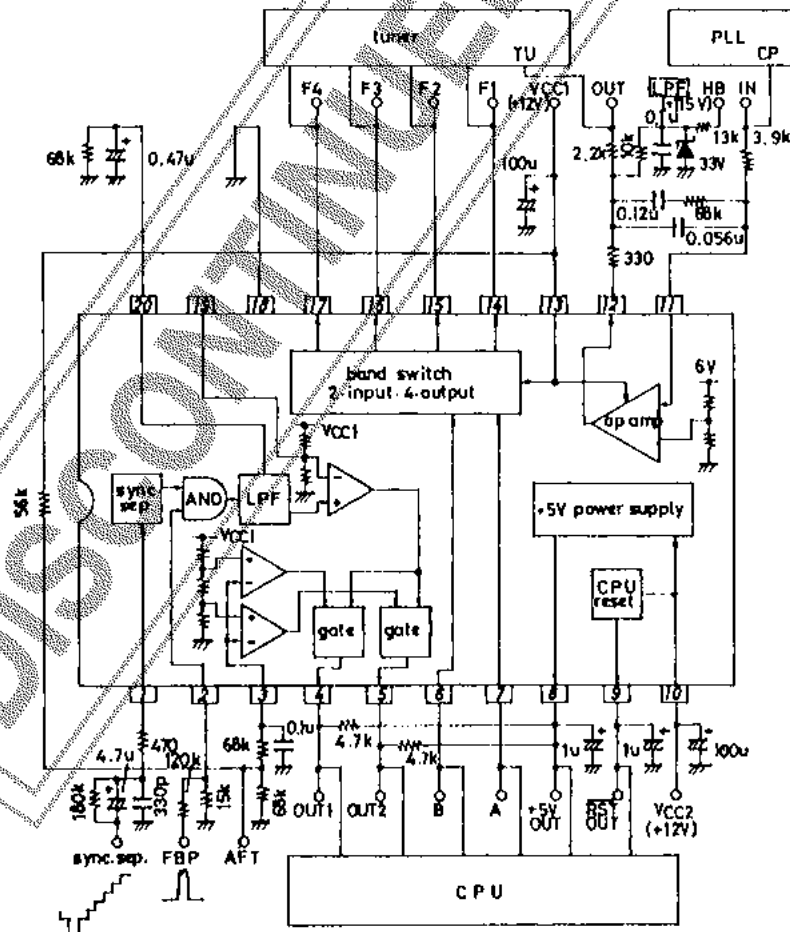


**+5V Power Supply,  $\overline{RST}$  Output**

When +5V output  $V_8$  becomes approximately 4V at the time of application of power, the reset signal is delivered at pin 9. The reset signal can be delayed by a capacitor (recommended value : 1 $\mu$ F) externally connected to  $\overline{RST}$  output  $V_9$ .



**Sample Application Circuit**



VTR application: In VTR applications without flyback pulse, connected pin 2 to  $V_{CC}$  through a resistor