

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)

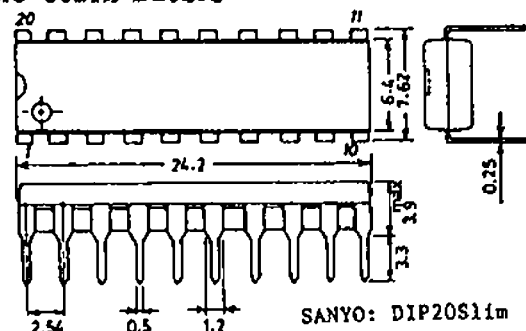
Features

- 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 $T_a = 25^\circ\text{C}$

		$T_a \leq 65^\circ\text{C}$	unit
Allowable Power Dissipation	$P_d \text{ max}$	770	mW
Operating Temperature	T_{opg}	-20 to +65	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55 to +125	$^\circ\text{C}$
[Band Switch Section]			
V_{CC1} Maximum Supply Voltage	$V_{13} \text{ max}$	15	V
Maximum Load Current	$I_{14}, I_{15}, I_{16}, I_{17} \text{ max}$	-50	mA
Maximum Applied Voltage	$V_{14}, V_{15}, V_{16}, V_{17} \text{ max}$	Output off	V
Maximum Applied Voltage (Input)	$V_6 \text{ max}, V_7 \text{ max}$	$V_{CC1} = 14V$	12
[+5V Power Supply Section]			
V_{CC2} Maximum Supply Voltage	$V_{10} \text{ max}$	15	V
+5V Output Current	$I_g \text{ max}$	-38	mA
[Tuning Detection Section]			
Maximum Input Voltage	$V_2 \text{ max}$	3.5	V
Maximum Input Voltage	$V_3 \text{ max}$	V_{CC1}	V
Maximum Input Voltage (Negative Polarity)	$-V_2 \text{ max}$	-1.4	V
Maximum Comparator Difference Voltage	$V_{19} - V_{20}$	6	V
Maximum Output Current	$I_1 \text{ max}$	-3	mA
[Operational Amplifier Section]			
Maximum Applied Voltage	$V_{12} \text{ max}$	35	V
Maximum Input Voltage	$V_{11} \text{ max}$	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.

Specifications and information herein are subject to change without notice.

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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 ₁₀	9.0	12	14.0	V
	V ₁₃	9.0	12	14.0	V
Recommended Output Current in Tuning Detection Section	I _{4,16}			3	mA
Recommended Load Current in OP Amp Section	I ₁₂		3	5	mA
Recommended Setting Range of Comparator Voltage in Tuning Detection Section	V ₁₉	2.7		7.0	V

Operating Characteristics at Ta = 25°C

[Band Switch Section]

			min	typ	max	unit
Quiescent Current Dissipation	I _{CC1}			16.0		mA
Output Saturation Voltage	F1 to 4 sat	I ₀ = -40mA	0		0.7	V
Input 'H'-Level Voltage	V _{6TH} , V _{7TH}		2.2			V
Input 'L'-Level Voltage	V _{6TL} , V _{7TL}		0		0.8	V
Output Leakage Current	I _{FL}	-15V			-50	μA

[+5V Power Supply Section]

Quiescent Current Dissipation	I _{CC2}			3.6		mA
+5V Output Voltage	V ₈	I ₈ = -30mA	4.5		5.5	V
RST Output Voltage	V _{9 sat}	I ₉ = -100μA	4.5		5.5	V

[Tuning Detection Section]

Input Threshold Voltage	V _{2TH}		0.4	0.72	1.5	V
Comparator Voltage	V _{C19}		3.7	4.0	4.3	V
Window Comparator 'H' Voltage	V _{CH}		7.7	8.0	8.3	V
Window Comparator 'L' Voltage	V _{CL}		3.7	4.0	4.3	V
Output Saturation Voltage	V _{4 sat}	I _{sink} = 2mA	0	0.33	0.7	V
	V _{5 sat}	I _{sink} = 2mA	0	0.33	0.7	V
Low-Pass Filter Output Current	I _{OL}		-1.18		-0.90	mA
Sync Separation Start Current	I _{1TH}		-150			μA

[Operational Amplifier Section]

Output Saturation Voltage	V _{12 sat}		0		0.3	V
Input Threshold Voltage	V _{13TH}		2.0		2.4	V
Input Current	I ₁₁				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

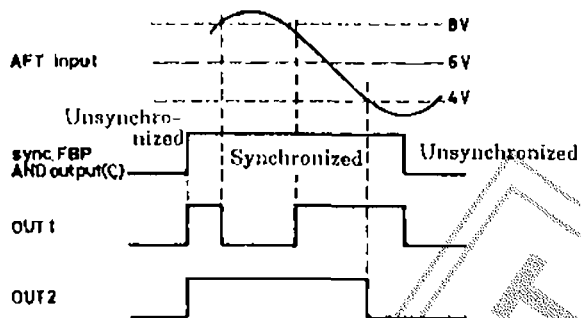
Operation of Tuning Detection Section

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_{AFT} < V_{CL}

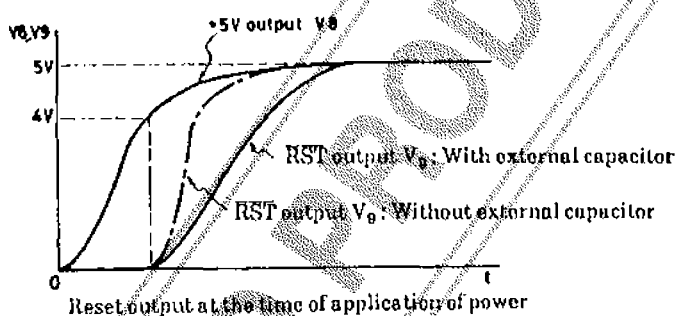
AFT-C : V_{CL} < V_{AFT} < V_{CH}

AFT-H : V_{AFT} > V_{CH}

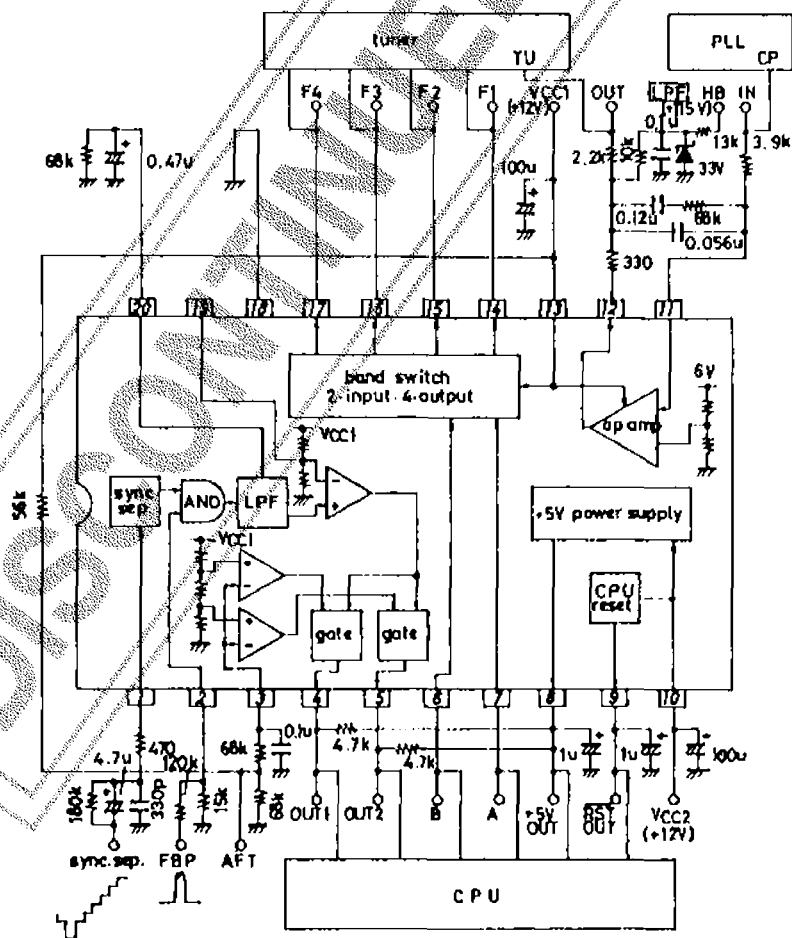


+5V Power Supply, \overline{RST} Output

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 μ 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