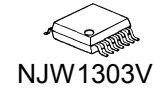


## SYNCHRONOUS SEPARATOR WITH COUNT DOWN

### ■GENERAL DESCRIPTION

The NJW1303 is a synchronous separator performs Horizontal and Vertical synchronous signal from composite video signals. It contains count down circuit for H,V keeping high sync separation in the weak signal. It is suitable for car navigation and LCD TV.

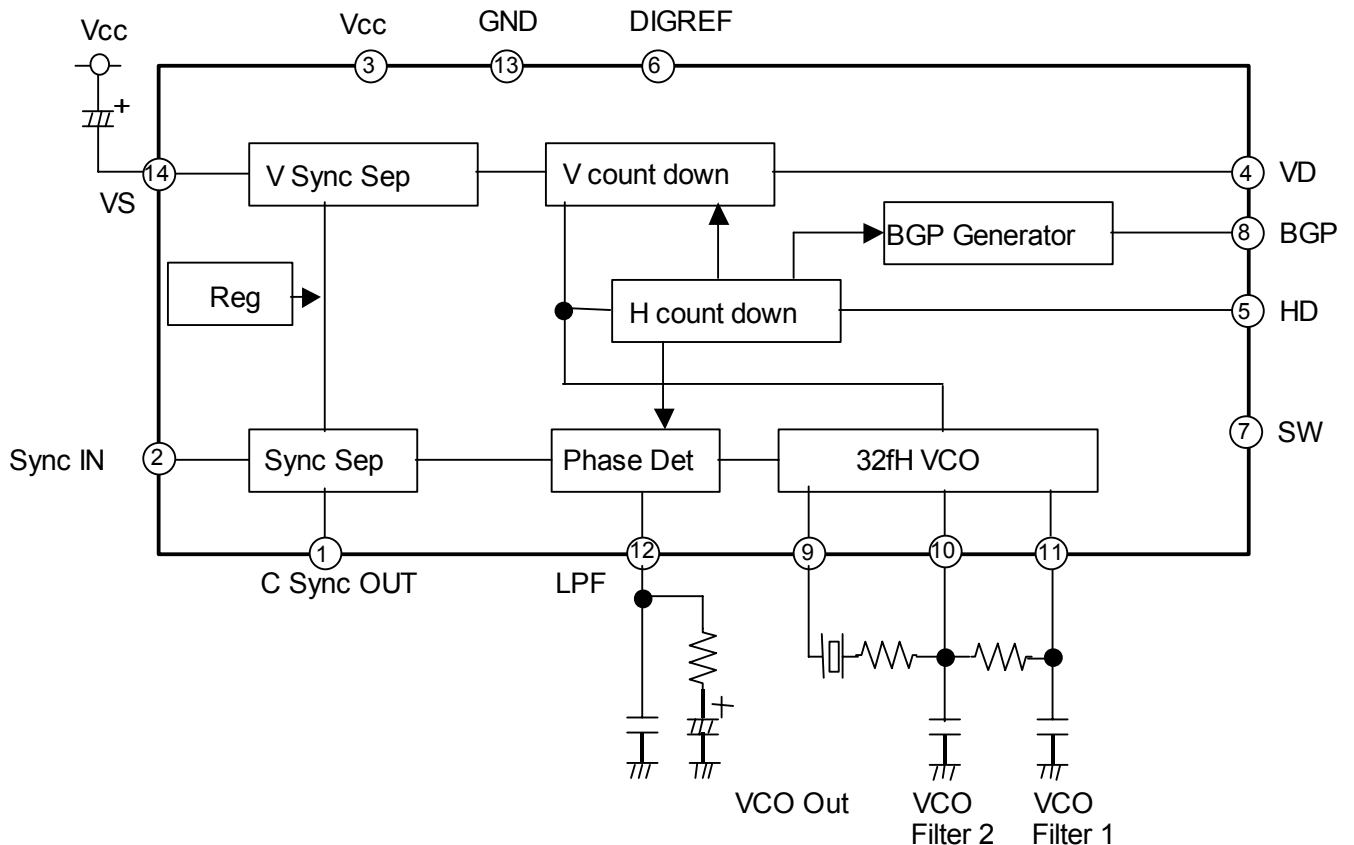
### ■PACKAGE OUTLINE



### ■FEATURES

- Operating Voltage  $V^+ = 2.7V$  to  $5.3V$
- Operating Current  $5mA$  typ. at  $V^+ = 5V$
- Output for HD, VD, C sync
- unnecessary adjustment of oscillation frequency for internal count down circuit
- Internal BGP
- Bi-CMOS Technology
- Package Outline SSOP14

### ■PIN FUNCTION, BLOCK DIAGRAM



# NJW1303

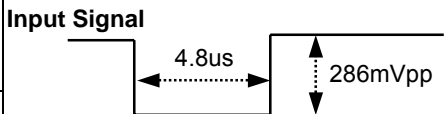

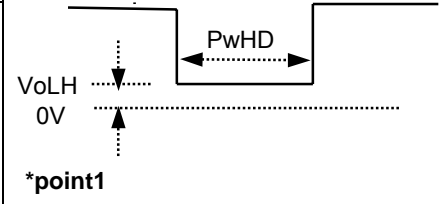
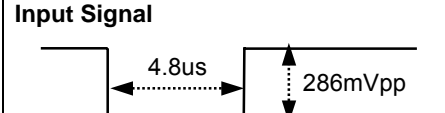
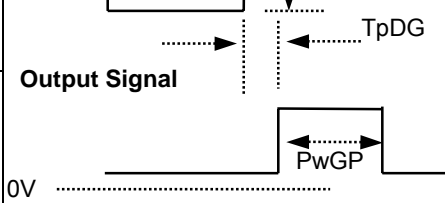
## ■ ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V <sup>+</sup>	8.0	V
Power Dissipation	P <sub>D</sub>	300	mW
Operating Temperature Range	T <sub>opr</sub>	-40 to +85	°C
Storage Temperature	T <sub>stg</sub>	-40 to +125	°C

## ■ RECOMMENDED OPERATING CONDITION

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V <sub>opr</sub>	2.7 to 5.3	V

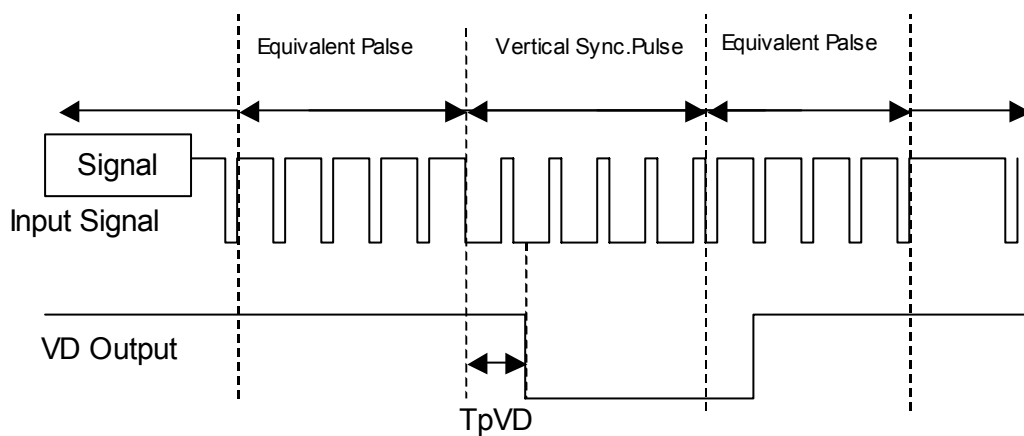
## ■ ELECTRICAL CHARACTERISTICS (V<sup>+</sup>=5V, Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Current	I <sub>CC</sub>	No input signal	3.3	5.0	7.5	mA
AFC Free Run Frequency	f <sub>OH</sub>	Measure the Input connect to GND under 300ohm	15.654	15.734	15.814	kHz
AFC Lock Range	Δf <sub>HL1</sub>	Miss lock to high frequency	+600	+700	-	Hz
	Δf <sub>HL2</sub>	Miss lock to Low frequency	-	-700	-600	
AFC Capture Range	Δf <sub>HP1</sub>	Capture from high frequency	+600	+700	-	Hz
	Δf <sub>HP2</sub>	Capture from Low frequency	-	-700	-600	
Horizontal Output Pulse Width	PwHD	<p><b>Input Signal</b></p> 	3.5	3.9	4.3	us
Horizontal Output Delay	TpDH	<p><b>Output Signal</b></p> 	0.48	0.64	0.8	us
Horizontal Output Saturation Level	VoLH	 <p>*point1</p>	-0.2	0.1	0.3	V
Horizontal AFC Keep Limit Input	V <sub>INGM</sub>	Input is Color Bar of 1Vpp, and Horizontal signal of 4.8 uS pulth width. ATT less of miss lock Sync at valuabe of input signal level.	-	-	-20	dB
BGP Pulse Width	PwGP	<p><b>Input Signal</b></p> 	3.1	3.6	4.1	us
BGP Delay	TpDG	<p><b>Output Signal</b></p>  <p>*point1</p>	0.35	0.6	0.85	us
BGP Limit Input	V <sub>MINBGP</sub>	Input is Color Bar of 1Vpp, and Horizontal signal of 4.8 uS pulth width. ATT less of changeable BGP output at less of input signal level.	-	-	-17	dB

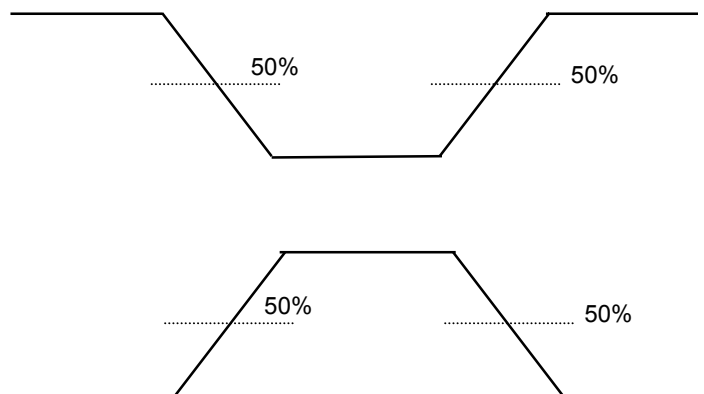
■ ELECTRICAL CHARACTERISTICS (  $V^+=5V, T_a=25^\circ C$  )

PARAMETER	SYMBOLS	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Vertical Output Pulse Width	PwVD	*point	2.5	3.0	3.5	H
Vertical Output Delay	TpVD		0.47	0.66	0.85	H
Vertical Output Saturation Level	$V_{LVD}$	Low level of Vertical output	-	0.2	0.5	V
C.SYNC Output Delay	TpCS		0.32	0.5	0.64	us
C.SYNC Output Saturation Voltage	$V_{LCS}$		-	0.2	0.5	V

\*point

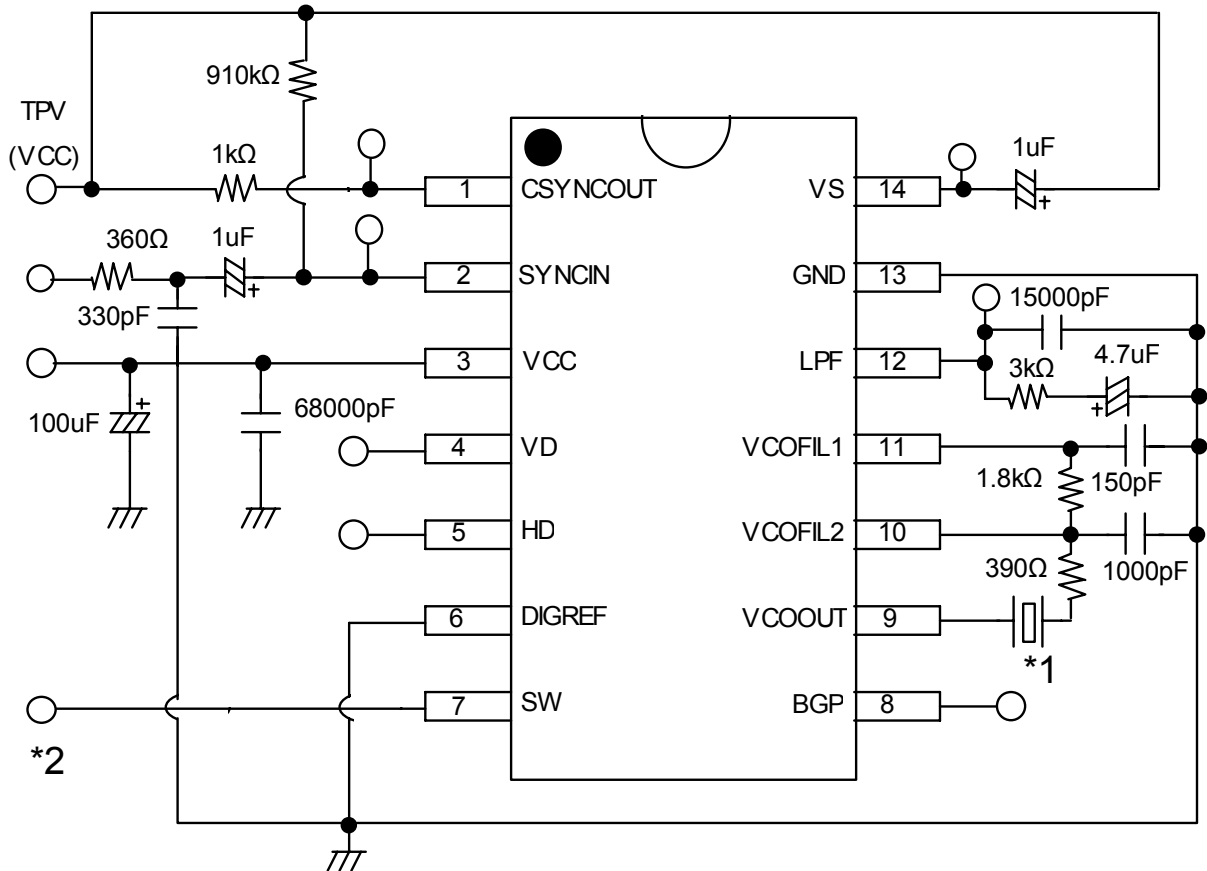


\*When measure of pulse timing



# NJW1303

## TEST CIRCUIT



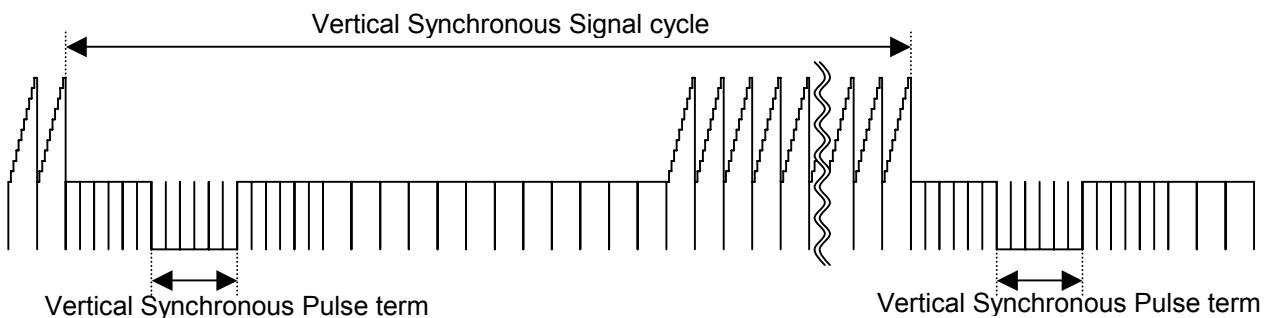
\*1: CSBLA503KE5ZF10 at MURATA

\*2: NTSC/PAL SW  
 NTSC : GND  
 PAL : Vcc, and 9 to 10pin is 360 ohm, 10 to 11pin is 2 k ohm

## APPLICATION NOTES

- The ratio of the vertical synchronous pulse term and the vertical synchronous signal cycle  
 Please adjust following expression.

The vertical synchronous signal cycle / The vertical synchronous pulse term  $\geq 75$  (see following figure)



- The pulse width of horizontal synchronous signal shall be set 3.7 to 5.7μs

## ■ EQUIVALENT CIRCUIT

No.	NAME	INSIDE EQUIVALENT CIRCUIT	No.	NAME	INSIDE EQUIVALENT CIRCUIT
1	Csync. Out		10	VCO Filter 2	
2	Sync. In		11	VCO Filter 1	
3	Vcc	_____	12	LPF	
4 5 7 8	VD HD SW BGP		6 13	DIGREF GND	_____
9	VCO Out		14	VS	

## MEMO

[CAUTION]

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