

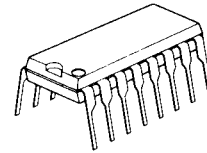
## SYNCHRONOUS SEPARATOR WITH AFC

### ■ GENERAL DESCRIPTION

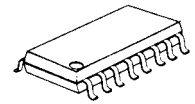
The **NJM2257** excutes Horizontal and Vertical synchronous signal separation, and odd / even field signal detection, from composit video signals.

Built-in 1 / 2 fH Killer Function circuit can make stabilization of the Horizontal signal oscillation output during the vertical period.

### ■ PACKAGE OUTLINE



NJM2257D



NJM2257M

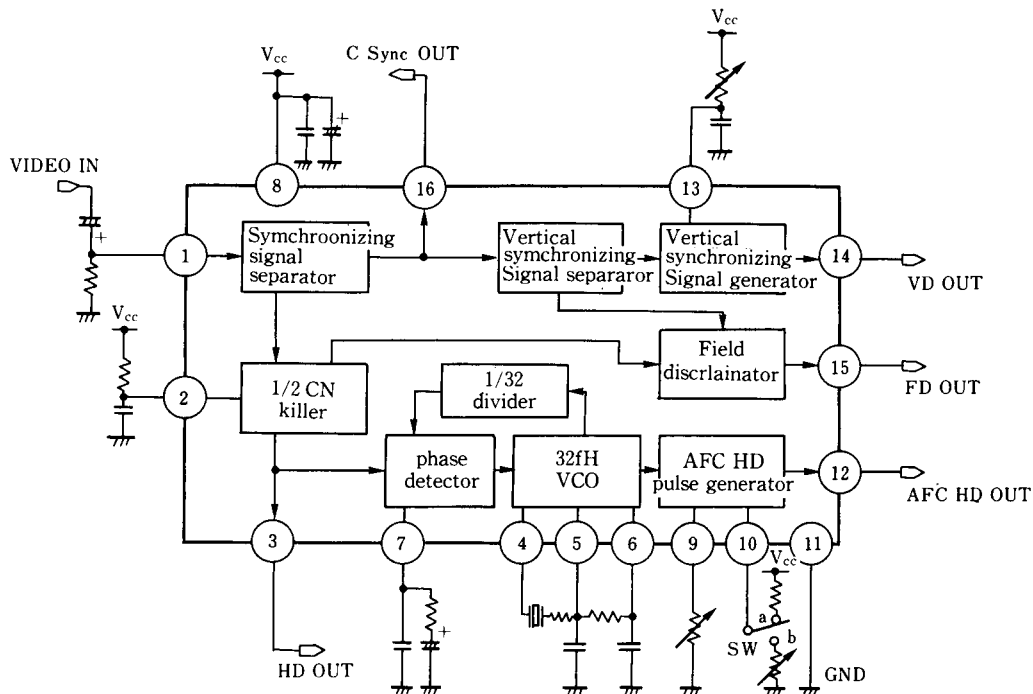
### ■ FEATURES

- Operating Voltage (+4.5 to +5.3V)
- Internal AFC circuit (Horizontal sync. signal.)
- Internal 1 / 2 fH Killer Function
- AFC output Pulse Delay time is Adjustable
- Vertical synchronous pulse width is Adjustable
- Internal Field Disclainat Function
- Package Outline DIP16, DMP16
- Bipolar Technology

### ■ APPLICATION

- VTR, TV, AV components etc.

### ■ BLOCK DIAGRAM



# NJM2257

## ■ ABSOLUTE MAXIMUM RATINGS

(T<sub>a</sub> = 25°C)

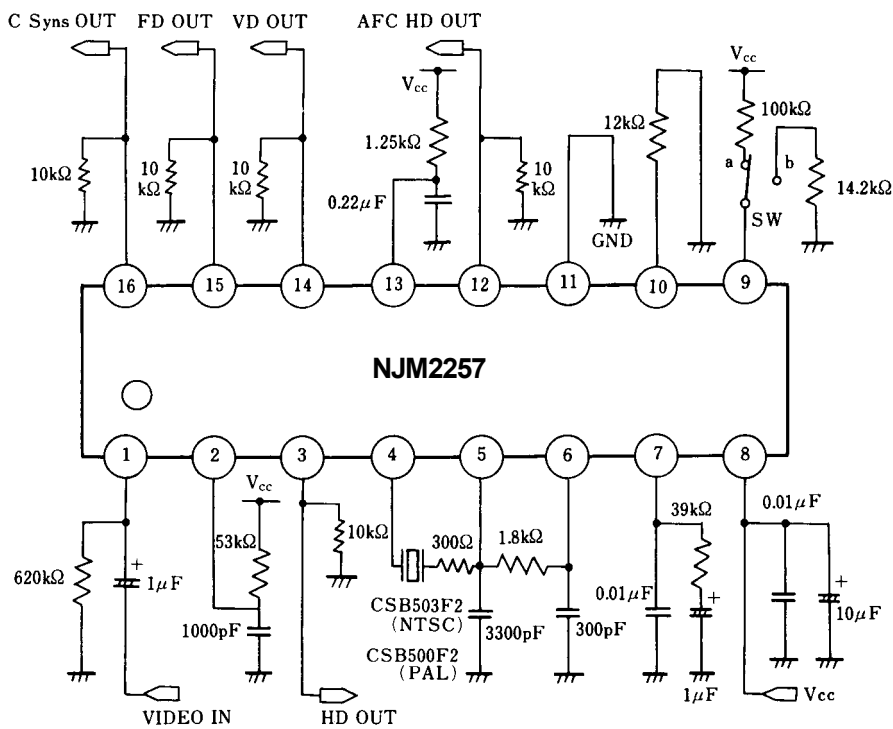
PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V <sup>+</sup>	+7	V
Power Dissipation	P <sub>D</sub>	(DIP16) 500 (DMP16) 350	mW mW
Operating Temperature Range	T <sub>opr</sub>	-20 to +75	°C
Storage Temperature Range	T <sub>stg</sub>	-40 to +125	°C

## ■ ELECTRICAL CHARACTERISTICS

(V<sub>CC</sub> = 5V, T<sub>a</sub> = 25°C)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Quiescent Current	I <sub>Q</sub>		-	23.0	30.0	mA
AFC Free Run Frequency	f <sub>OH</sub>		15.54	15.74	15.94	KHz
AFC HD pulse width	none adjust	T <sub>AHW1</sub> SW=a	3.5	4.0	4.5	μS
	adjust	T <sub>AHW2</sub> SW=b	2.5	4.0	5.5	
AFC HD Delet Time	T <sub>AHD</sub>		-1.0	0.5	2.0	μS
AFC Lock Range	Δf <sub>HL</sub>		500	700	-	Hz
AFC Cap Charange	Δf <sub>HP</sub>		400	600	-	Hz
AFC Output Voltage	H	V <sub>HAH</sub>	4.0	4.2	-	V
	L	V <sub>HAL</sub>	-	0	0.1	
Sync Sepa Sync. Separation Level	V <sub>HSR</sub>		-	0.16	0.18	V
Sync Sepa Delay Time	T <sub>HCD</sub>		0.05	0.20	0.35	μS
Sync Sepa Output Voltage	H	V <sub>HCH</sub>	4.0	4.2	-	V
	L	V <sub>HCL</sub>	-	0	0.1	
HD Output Palth Width	T <sub>HPW</sub>		4.0	5.5	7.0	μS
HD Output Delay Time	T <sub>HPD</sub>		0.35	0.6	0.8	μS
HD Output Voltage	H	V <sub>HHH</sub>	4.0	4.2	-	V
	L	V <sub>HHL</sub>	-	0	0.1	
V Sync Palth Width	V <sub>VW</sub>		170	190	210	μS
V Sync Delay Time	T <sub>VD</sub>		7.0	10.0	13.0	μS
V Sync Output Voltage	H	T <sub>VH</sub>	4.0	4.2	-	V
	L	V <sub>VL</sub>	-	0	0.1	
Field Distinction Delay Time	odd	T <sub>FOD</sub>	246	256	266	μS
	even	T <sub>FED</sub>	216	226	236	
Fideld Distinction Output Voltage	odd	V <sub>FOR</sub>	4.0	4.2	-	V
	even	V <sub>FER</sub>	-	0	0.1	

## APPLICATION CIRCUIT



## APPLICATION NOTES

It shows the characteristics by changing of the following resistor.

- The resistance between 9 Pin and GND
  - High resistance ——— AFC HD pulse is wide
  - Low resistance ——— AFC HD pulse is narrow
- The resistor between 9 Pin and V<sup>+</sup>
  - At the resistor is 100Ω. AFC HD Delay adjustment is off, and AFC HD output width is 4μs (typ.)
- The resistor between 9 Pin and GND is fundamentally 14.2kΩ, because the purpose of this resistor is pulse width adjusts 4μs.
- The resistor between 10 Pin and GND
  - High resistance ——— AFC HD Delay time gains
  - Low resistance ——— AFC HD Delay time loses
- The resistor between 13 Pin and GND
  - High resistance ——— Vsync pulse is wide
  - Low resistance ——— Vsync pulse is narrow
- The resistor joint 2 Pin
  - Please adjust the wide of following W is from 33 μs to 37 μs ( $W = -(C \cdot R) \ln 0.5$ )

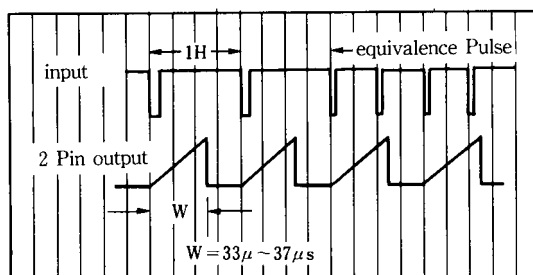
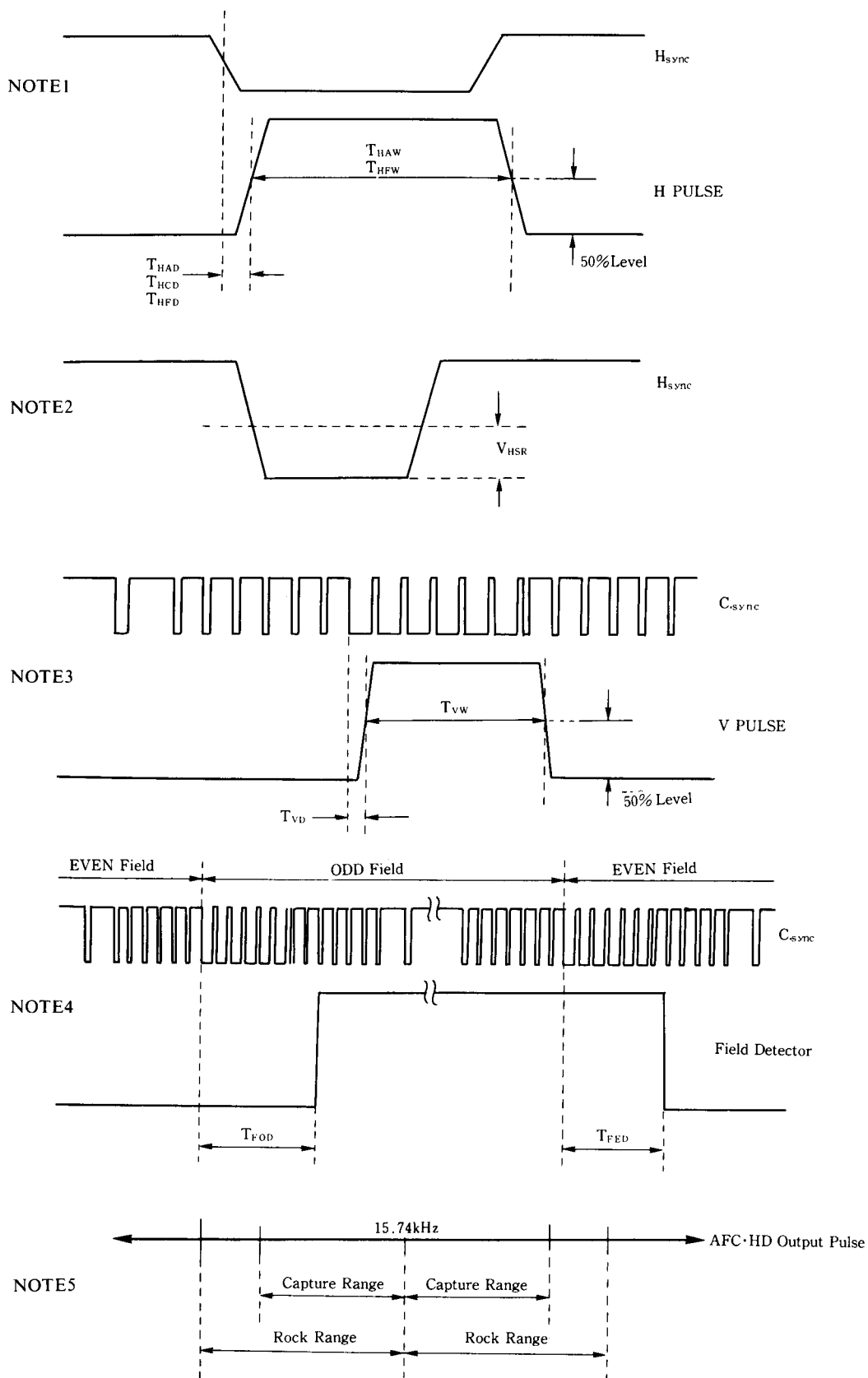


Fig 11 / O PULSE



## ■ TERMINAL EXPLANATION

PIN NO.	PIN NAME	FUNCTION	INSIDE EQUIVALENT CIRCUIT
1	VIDEO-IN	Composit Video Signal Input	
2	MM-HT	HD & FD pulse are Controlled by setting mono multi	
3	HD-OUT	1 / 2 f <sub>H</sub> Killer D Output	
4	VCO-OUT	VCO Output is to be given to Ceramic Oscillator	
5	VCO-FILTER 1	Decide the Volume to be transfered shall by decided of Ceramic Oscillator. (90°late)	

# NJM2257

## ■ TERMINAL EXPLANATION

PIN NO.	PIN NAME	FUNCTION	INSIDE EQUIVALENT CIRCUIT
6	VCO-FILTER 2	Decide the Volume to be transferred shall by decided of Cramic Oscillator. (90°late)	
7	L. P. F	L. P. F. of AFC	
8	V <sup>+</sup>	Supply Voltage	
9	VR-1	AFC-HD Output Can be adjusted by putting resistor between 9 to GND (9 to V <sub>CC</sub> no adjustment). The pulse width can be adjusted by making changeable of resistor (Adjusting mode)	
10	VR-2	AFC-HD Output delay adjustment by putting 10 pin resistor changeable at 9 pin adjustment mode.	
11	GND	Ground	

## ■ TERMINAL EXPLANATION

PIN NO.	PIN NAME	FUNCTION	INSIDE EQUIVALENT CIRCUIT
12	AFC, HD-OUT	AFC·HD Output	
13	MM-VT	Pulse Width of Vsync-OUT is adjusted by setting mono multi time constant.	
14	Vsync-OUT	Vertical Synchronous Signal Output.	
15	FD-OUT discrimination	Field Distinction Signal Output.	
16	Csyne-OUT	Synchronous Separation Output	

# NJM2257

## ■ PIN FUNCTION

PIN NO.	FUNCTION BLOCK	OPERATIONAL DESCRIPTION	NOTE
① Pin	Signal Input	Video Signal input	Sync tip clump
② Pin	HD pulse control	HD pulse and FD pulse control by time constant of CR	
③ Pin	HD pulse output	1 / 2 $f_H$ killer HD pulse output	In a period of vertical synchronizing, a $f_H$ is converted to $f_H$
④ Pin	AFC Oscillation	Oscillation of 503KHz by a ceramic oscillator, and divided by 32 to get down to 15.74KHz	
⑤ Pin			
⑥ Pin			
⑦ Pin	AFC control	Leg Lead filter for phase detection	
⑧ Pin	$V_{CC}$	$V_{CC}$	
⑨ Pin	AFC HD output Switch (AFC HD pulse width adjustment)	The case that R is connected between 9pin and $V_{CC}$ ...Fixed output The case that R is connected between 9pin and GND...Adjustable AFC HD Delay Mode	High Resistance → Wide pulse width Low Resistance → Narrow pulse width
⑩ Pin	AFC HD Delay adjustment	The case that R is connected between 9pin and GND...Adjustable AFC HD Delay output	High Resistance → AFC HD Delay time gains Low Resistance → AFC HD Delay time loses
⑪ Pin	GND	GND	
⑫ Pin	AFC HD output	AFC HD pulse output	Positive polarity
⑬ Pin	VD pulse width adjustment	VD pulse width control by time constant of CR	
⑭ Pin	VD output	Vertical synchronizing signal output	Positive polarity
⑮ Pin	FD output	Field discriminating signal output	odd field → High Output even field → Low Output
⑯ Pin	C Sync. output	Composite Sync Signal output	Positive polarity

**[CAUTION]**

The specifications on this databook are only given for information, without any guarantee as regards either mistakes or omissions. The application circuits in this databook are described only to show representative usages of the product and not intended for the guarantee or permission of any right including the industrial rights.



## X-ON Electronics

Largest Supplier of Electrical and Electronic Components

*Click to view similar products for [Video ICs category](#):*

*Click to view products by [NJR manufacturer](#):*

Other Similar products are found below :

[ADV7343WBSTZ](#) [TW2964-LA2-CR](#) [TW9903-FB](#) [TW9919-PE1-GR](#) [TW9960-TA1-GR](#) [LA9520V-TLM-E](#) [TW9910-NA2-GR](#) [TW9900-TA1-GR](#) [ADV7625KBCZ-8](#) [MAX9406ETM+T](#) [PI3HDX414FCEEX](#) [PI3HDX511FZLEX](#) [M31245G-15](#) [PI3HDX511DZLEX](#)  
[MAX4895EETE+T](#) [M23428G-33](#) [PI7VD9008ABHFDE](#) [TW2984-NA2-CR](#) [ADV7186BBCZ-RL](#) [ADV7186BBCZ-TL](#) [PI3HDMI521FBE](#)  
[ADV7186BBCZ-T-RL](#) [ADV8003KBCZ-7C](#) [LT6554IGN#PBF](#) [M21324G-13](#) [GS12181-INE3](#) [PI3VDP411LSAZBEX](#) [PI3VDP411LSTZBEX](#)  
[M23145G-14](#) [PI3VDP411LSRZBEX](#) [PI3HDX511EZLSEX](#) [TW2835-BA1-GR](#) [ISL59913IRZ](#) [TW9910-NB2-GR](#) [CM5100-01CP](#)  
[ADV7610BBCZ-RL](#) [BA7653AFV-E2](#) [BA7654F-E2](#) [BA7657F-E2](#) [BH76331FVM-TR](#) [BH76332FVM-TR](#) [BH76363FV-E2](#) [TVP5160PNP](#)  
[MAX9597CTI+](#) [BA7602F-E2](#) [BA7606FS-E2](#) [BA7612F-E2](#) [BA7626F-E2](#) [BA7653AF-E2](#) [BH76112HFV-TR](#)