

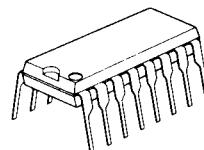
## SYNCHRONOUS SEPARATOR WITH AFC

### ■ GENERAL DESCRIPTION

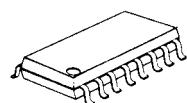
The NJM2257 executes Horizontal and Vertical synchronous signal separation, and odd / even field signal detection, from composite video signals.

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

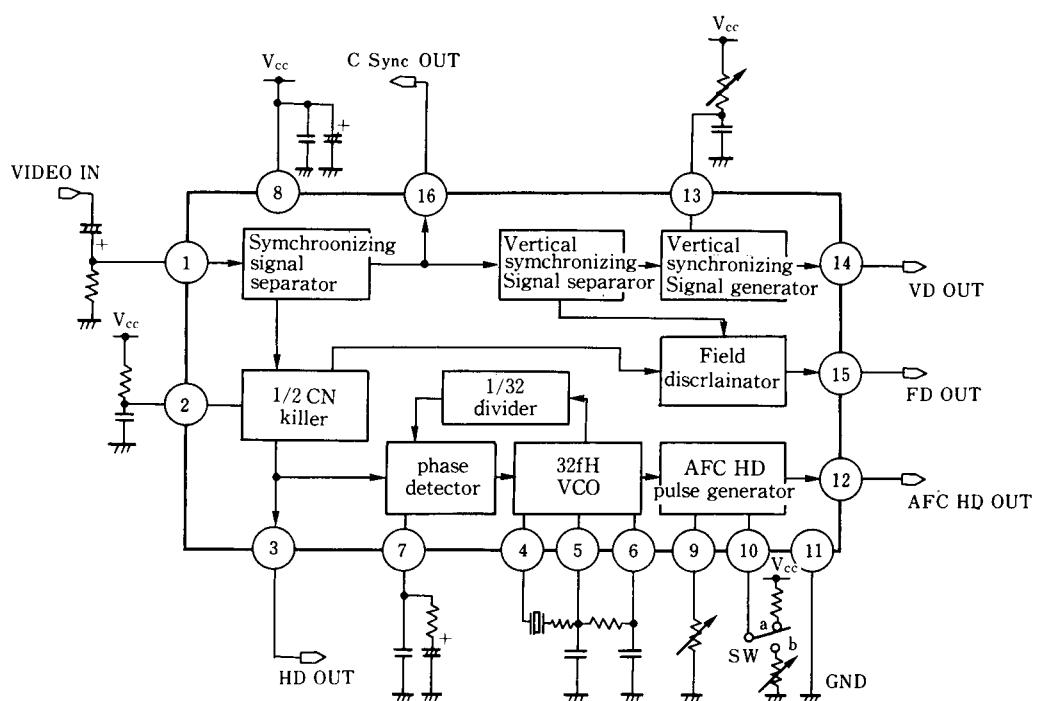
### ■ FEATURES

- 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 Disrlainat Function
- Package Outline DIP16, DMP16
- Bipolar Technology

### ■ APPLICATION

- VTR, TV, AV components etc.

### ■ BLOCK DIAGRAM



# NJM2257

## ■ ABSOLUTE MAXIMUM RATINGS

( $T_a = 25^\circ\text{C}$ )

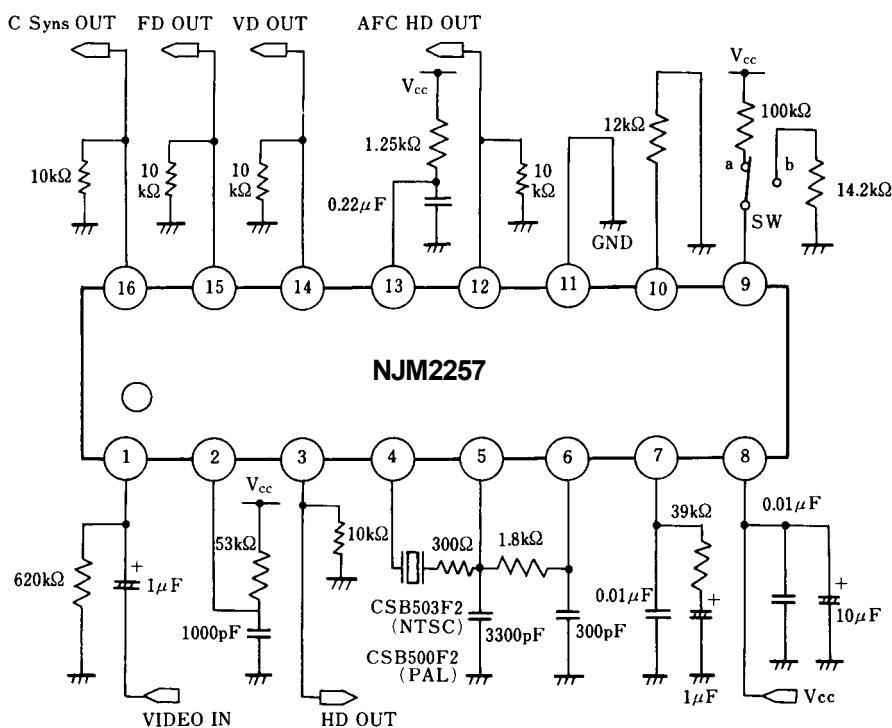
PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	$V^+$	+7	V
Power Dissipation	$P_D$	(DIP16) 500 (DMP16) 350	mW mW
Operating Temperature Range	$T_{opr}$	-20 to +75	°C
Storage Temperature Range	$T_{stg}$	- 40 to +125	°C

## ■ ELECTRICAL CHARACTERISTICS

( $V_{CC} = 5\text{V}$ ,  $T_a = 25^\circ\text{C}$ )

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Quiescent Current	$I_Q$		-	23.0	30.0	mA
AFC Free Run Frequency	$f_{OH}$		15.54	15.74	15.94	KHz
AFC HD pulse width	none adjust	$T_{AHW1}$	SW=a	3.5	4.0	4.5
	adjust	$T_{AHW2}$	SW=b	2.5	4.0	5.5
AFC HD Delet Time	$T_{AHD}$		-1.0	0.5	2.0	μs
AFC Lock Range	$\Delta f_{HL}$		500	700	-	Hz
AFC Cap Charange	$\Delta f_{HP}$		400	600	-	Hz
AFC Output Voltage	H	$V_{HAD}$		4.0	4.2	-
	L	$V_{HAL}$		-	0	0.1
Sync Sepa Sync. Separation Level	$V_{HSR}$		-	0.16	0.18	V
Sync Sepa Delay Time	$T_{HCD}$		0.05	0.20	0.35	μs
Sync Sepa Output Voltage	H	$V_{HCH}$		4.0	4.2	-
	L	$V_{HCL}$		-	0	0.1
HD Output Palth Width	$T_{HPW}$		4.0	5.5	7.0	μs
HD Output Delay Time	$T_{HPD}$		0.35	0.6	0.8	μs
HD Output Voltage	H	$V_{HFH}$		4.0	4.2	-
	L	$V_{HFL}$		-	0	0.1
V Sync Palth Width	$V_{VW}$		170	190	210	μs
V Sync Delay Time	$T_{VD}$		7.0	10.0	13.0	μs
V Sync Output Voltage	H	$T_{VH}$		4.0	4.2	-
	L	$V_{VL}$		-	0	0.1
Field Distinction Delay Time	odd	$T_{FOD}$		246	256	266
	even	$T_{FED}$		216	226	236
Fideld Distinction Output Voltage	odd	$V_{FOR}$		4.0	4.2	-
	even	$V_{FER}$		-	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  $V^+$   
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 joined 2 Pin  
Please adjust the wide of following W is from 33 μs to 37 μs ( $W = - (C \cdot R) \ln 0.5$ )

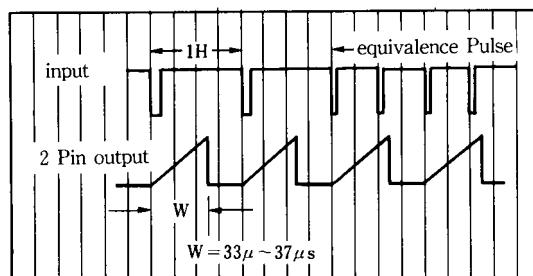
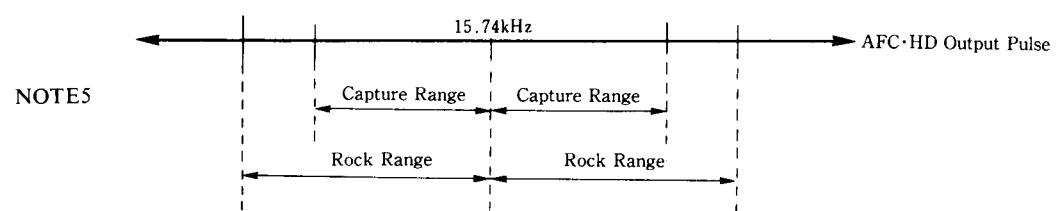
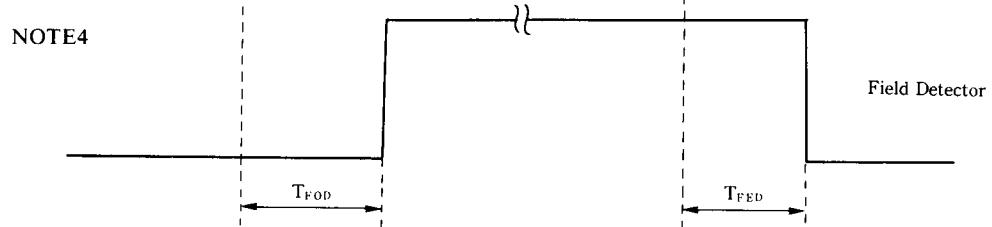
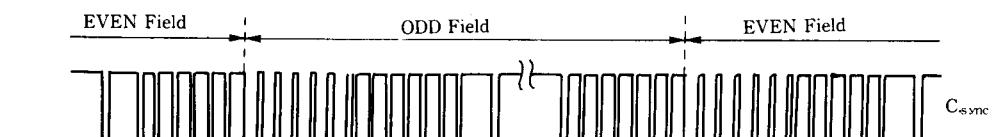
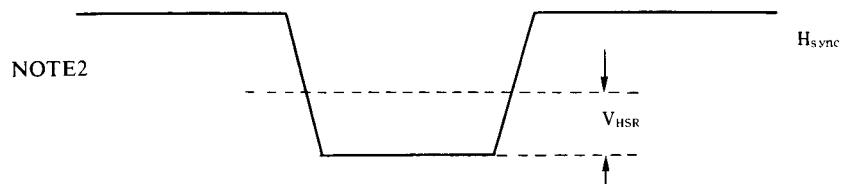
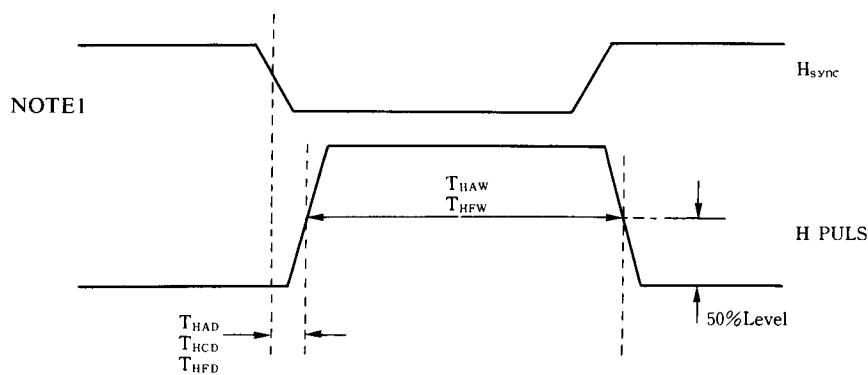
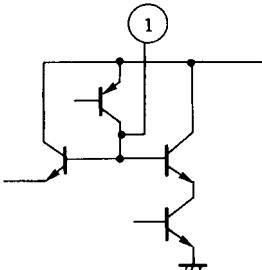
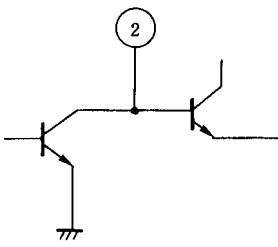
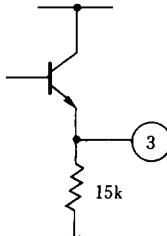
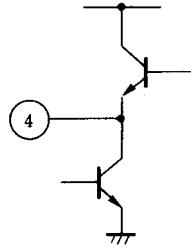
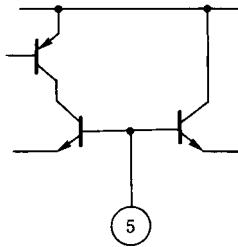


Fig 1 I/O PULSE

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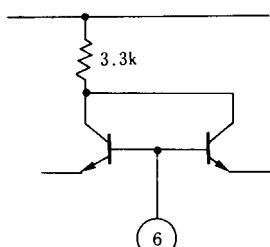
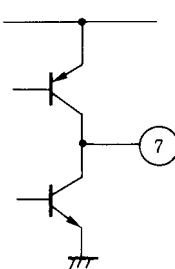
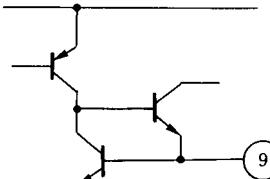
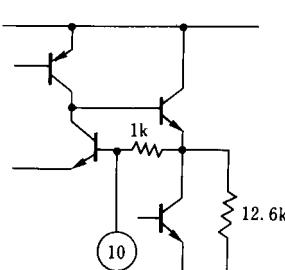


## ■ TERMINAL EXPLANATION

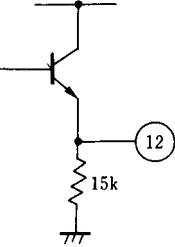
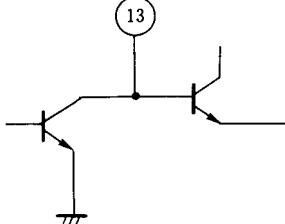
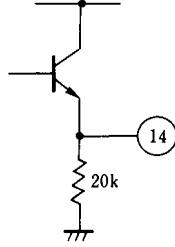
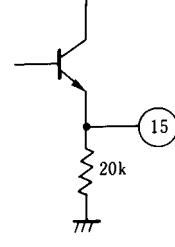
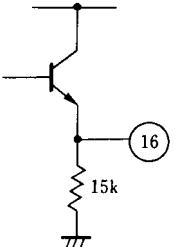
PIN NO.	PIN NAME	FUNCTION	INSIDE EQUIVALENT CIRCUIT
1	VIDEO-IN	Composit Video Signal Input	
2	MM-HT	HD & FD pulse are Controlled by setting mono multi	
3	HD-OUT	1 / 2 f_H Killer D Output	
4	VCO-OUT	VCO Output is to be given to Ceramic Oscillator	
5	VCO-FILTER 1	Decide the Volume to be transferred shall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

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## ■ 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 resister changeable at 9 pin ajustment 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	

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## ■ PIN FUNCTION

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

[CAUTION]  
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ООО "ЛайфЭлектроникс"

"LifeElectronics" LLC

ИНН 7805602321 КПП 780501001 Р/С 40702810122510004610 ФАКБ "АБСОЛЮТ БАНК" (ЗАО) в г.Санкт-Петербурге К/С 30101810900000000703 БИК 044030703

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- Работу по проектам и поставку образцов.
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- Защиту от снятия компонента с производства.
- Оценку стоимости проекта по компонентам.
- Изготовление тестовой платы монтаж и пусконаладочные работы.



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