

# Sync Detector Monolithic IC MM1021

## Outline

This IC is a sync detection circuit for obtaining the best reception state on VCR and TV channel selection systems. A system with high detection precision and no adjustment required can be configured due to the PLL format using a ceramic resonator. It can also be used in OSD circuits for blue-back switching and the like.

## Features

1. High precision due to use of PLL format
2. Ceramic resonator means no adjustment required
3. Ceramic resonator can be selected for use in either PAL or NTSC
4. Designed for use in video equipment channel selection systems
5. Can also be used as an OSD circuit for blue back switching, etc.

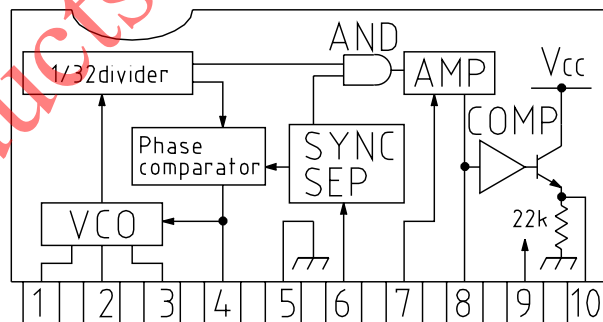
## Package

SIP-10A (MM1021XS)

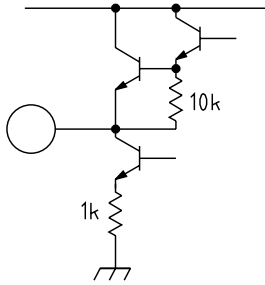
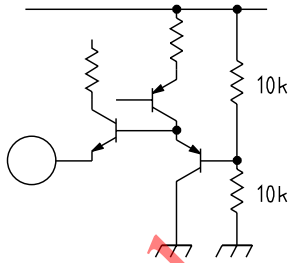
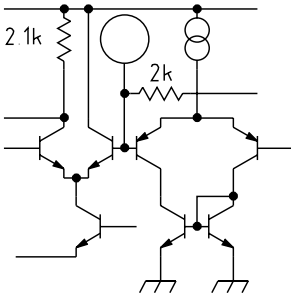
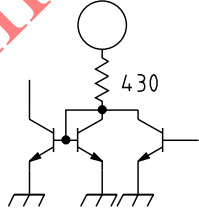
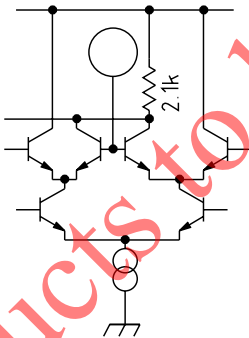
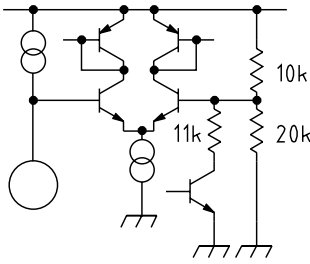
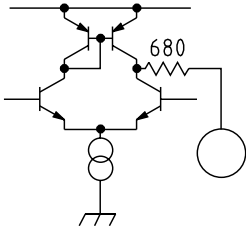
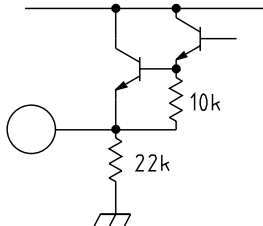
## Applications

1. TV
2. VCR
3. Other video equipment

## Block Diagram



Pin Description

Pin no.	Pin name	Internal equivalent circuit diagram	Pin no.	Pin name	Internal equivalent circuit diagram
1	OSC OUT		6	VIDEO IN	
2	OSC IN1		7	Discrimination of sync sensor adjustment	
3	OSC IN2		8	COMP IN	
4	Phase comparison output		9	Vcc	
			10	COMP OUT	
5	GND				

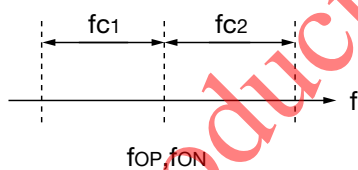
**Absolute Maximum Ratings** (Ta=25°C)

Item	Symbol	Ratings	Units
Storage temperature	T <sub>STG</sub>	-40~+125	°C
Operating temperature	T <sub>OPR</sub>	-20~+75	°C
Power supply voltage	V <sub>CC</sub>	14.0	V
Allowable loss	P <sub>d</sub>	500	mW

**Electrical Characteristics** (Except where noted otherwise, Ta=25°C, V<sub>CC</sub>=9.0V, SW1=ON, SW2~SW7=1)

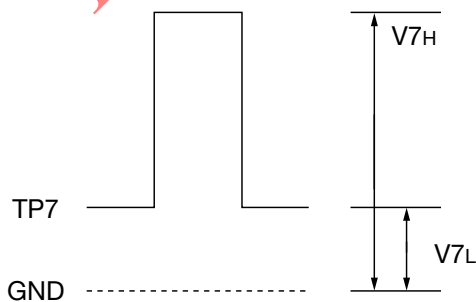
Item	Symbol	Measurement circuit	Measurement conditions	Min.	Typ.	Max.	Units	
Operating power supply voltage range	V <sub>CC</sub>	-	-	7.0	9.0	13.0	V	
Consumption current	I <sub>d</sub>	-	SW1=OFF, SW7=2		6.5	11.0	mA	
Comparator input voltage	H	V <sub>IH</sub>	TP8	SW6=2, TP5=H→L	5.8	6.0	6.2	V
	L	V <sub>IL</sub>	TP8	SW6=2, TP5=L→H	3.6	3.8	4.0	V
Comparator output voltage	H	V <sub>OH</sub>	TP5	SW6=2, TP8=3.0V		8.1	8.9	V
	L	V <sub>OL</sub>	TP5	SW6=2, TP8=6.5V		0	0.1	V
Free-running frequency	PAL	f <sub>OP</sub>	TP1			500	kHz	
	NTSC	f <sub>ON</sub>	TP1	SW3=SW4=2		503	kHz	
Oscillation output voltage	V <sub>O</sub>	TP1			1.9		V <sub>P-P</sub>	
Sync discrimination input level	V <sub>IN</sub>	TP2	• SW2=2, TP5=H→L		-12		dB	
Sync separation working current	I <sub>IN</sub>	TP4	• SW5=2, TP5=L→H	100	125	150	μA	
Sync discrimination voltage	V <sub>8H</sub>	TP8	SW2=2, TP2=0dB		7.2		V	
	V <sub>8L</sub>	TP8	SW2=2, TP2=-20dB		0		V	
Capture range	PAL	f <sub>CP</sub>	TP3	SW2=3, SW4=1, TP5=H→L *1	150	200		Hz
	NTSC	f <sub>CN</sub>	TP3	SW2=3, SW4=2, TP5=H→L *1	150	200		Hz
Pin 7 output voltage	H	V <sub>7H</sub>	TP7		0.87	0.90	0.93	V
	L	V <sub>7L</sub>	TP7	SW2=2 *2		0.20	0.40	V
Pin 6 voltage	V <sub>6</sub>	TP6	SW5=3		6.7		V	

Note : \*1

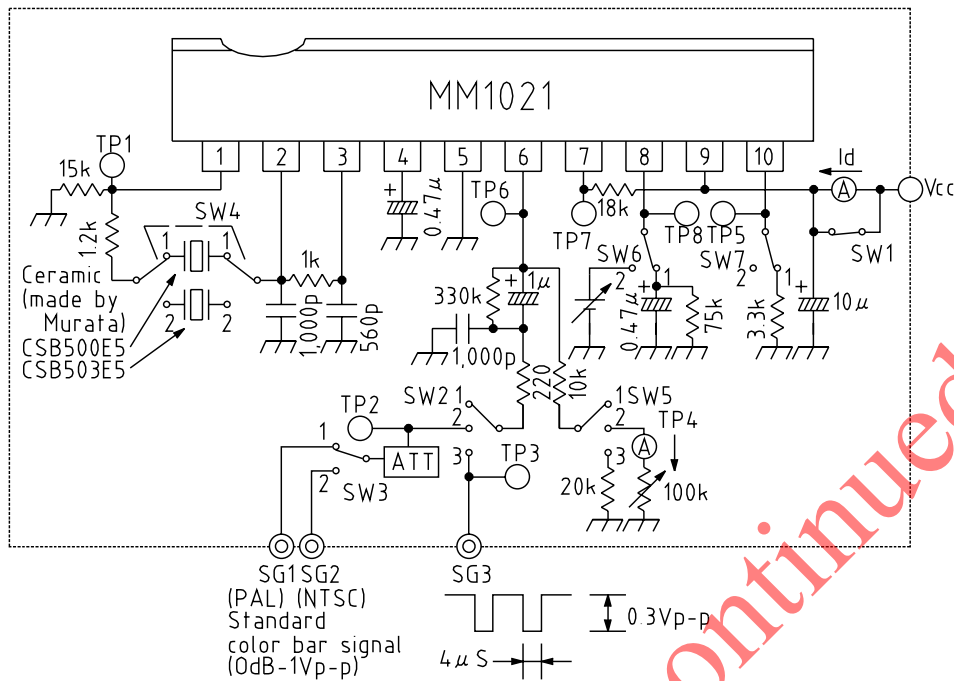


Capture range : f<sub>cp</sub>, f<sub>cn</sub>  
 The smaller of f<sub>c1</sub> and f<sub>c2</sub> values are f<sub>cp</sub> and f<sub>cn</sub>.

Note : \*2



Measuring Circuit



Application Circuits

