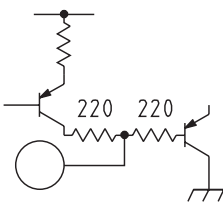
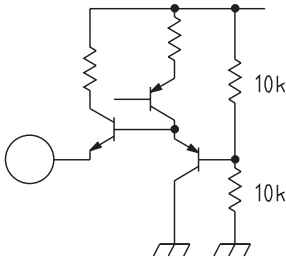
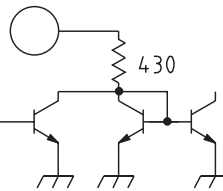
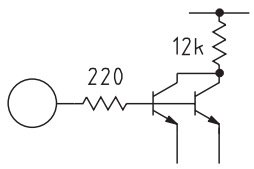
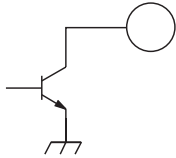
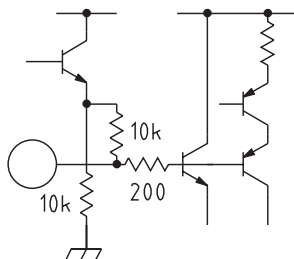
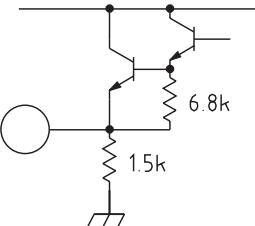


Pin Description

Pin no.	Pin name	Internal equivalent circuit diagram	Pin no.	Pin name	Internal equivalent circuit diagram
1	CR		6	VIDEO IN	
2	GAIN		7	OSC IN1	
3	SYNC.DET		8	OSC IN2	
4	GND		9	LPF	
5	OSC OUT		10	V _{CC}	

Absolute Maximum Ratings (Ta=25°C)

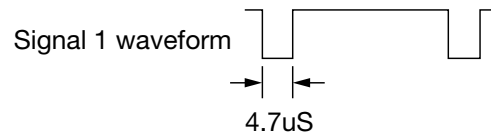
Item	Symbol	Ratings	Units
Storage temperature	T _{STG}	-40~+125	°C
Operating temperature	T _{OPR}	-20~+75	°C
Power supply voltage	V _{CC} max.	7	V
Allowable loss	P _d	500	mW

Electrical Characteristics

(Except where noted otherwise, $T_a=25^{\circ}\text{C}$, $V_{CC}=5.0\text{V}$, $X=\text{CSB503F2}$, $R=390\text{ [OHM]}$, $C=3300\text{pF}$, $\text{SW1}=\text{OFF}$)

Item	Symbol	Measurement circuit	Measurement conditions	Min.	Typ.	Max.	Units
Operating power supply voltage	V_{CC}	V_{CC}		4.7	5.0	5.3	V
Consumption current	I_d	I_d			7.5	11.0	mA
32fH VCO free-running frequency NTSC	f_{o1}	TP3		497.1	503.5	509.9	kHz
Horizontal sync signal acquisition range NTSC	f_{CAP}	V_{IN}	V_{IN} : signal 1 *1 *2	300	500		Hz
32fH VCO free-running frequency PAL	f_{o2}	TP3	$X=\text{CSB500F40}$, $R=200\text{OHM}$, $C=4700\text{pF}$	493.6	500.0	506.4	kHz
Horizontal sync signal acquisition range PAL	f_{CAP2}	V_{IN}	$X=\text{CSB500F40}$, $R=200\text{OHM}$, $C=4700\text{pF}$, V_{IN} : signal 1 *1 *3	300	500		Hz
LPF pin DC level	V_{LPF}	TP4	$\text{SW1} : \text{ON}$	0.9	1.4	1.9	V
Sync separation level	V_{SEPA}	V_{IN}	V_{IN} : staircase wave $1V_{P-P}$ *4	20	50	80	mV
Sync discrimination output voltage L	V_{L4}	TP2	V_{IN} : staircase wave $1V_{P-P}$ *5		0.2	0.4	V
Sync discrimination output voltage H	V_{H4}	TP2	V_{IN} : no input signal *5	4.8	5.0		V
Sync discrimination switching voltage L	V_{THL4}	TP1	TP1 : DC voltage $5\text{V} \rightarrow \text{Low}$ *5	2.0	2.3	2.6	V
Sync discrimination switching voltage H	V_{THH4}	TP1	TP1 : DC voltage $0\text{V} \rightarrow \text{High}$ *5	2.7	3.0	3.3	V

*1 Signal 1 : Pulse signal with 0.3V amplitude and pulse width 4.7μs



*2 Measuring horizontal sync signal pull-in range for NTSC

Adjust signal 1 frequency toward 15.734kHz. The measurement value is the smaller of signal 1 frequency when TP2 level switches from high to low, and the difference from 15.734.

*3 Measuring horizontal sync signal pull-in range for PAL

Adjust signal 1 frequency toward 15.625kHz. The measurement value is the smaller of signal 1 frequency when TP2 level switches from high to low, and the difference from 15.625.

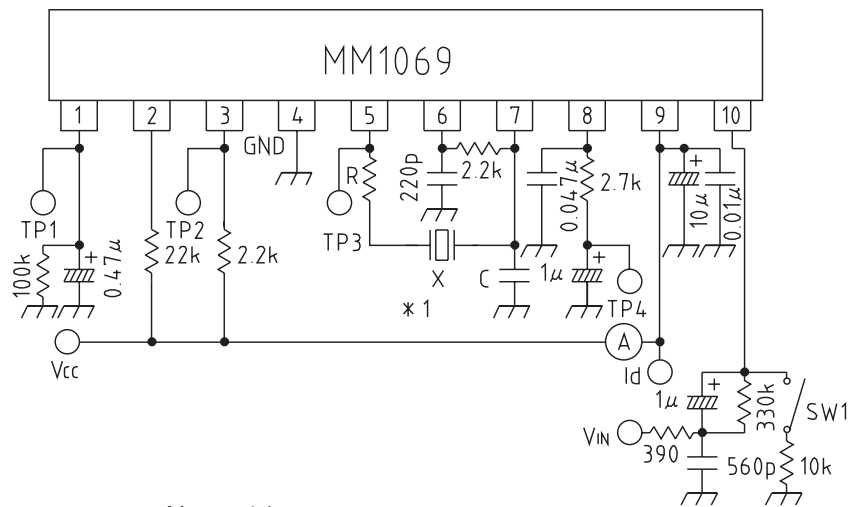
*4 Measuring sync separation level

Gradually lower staircase wave signal sync tip level, and measure sync tip level when TP2 level switches from low to high.

*5 Sync discrimination switching voltage measurement

Gradually change the voltage impressed on TP1, and measure TP5 voltage when TP2 output switches.

Measuring Circuit

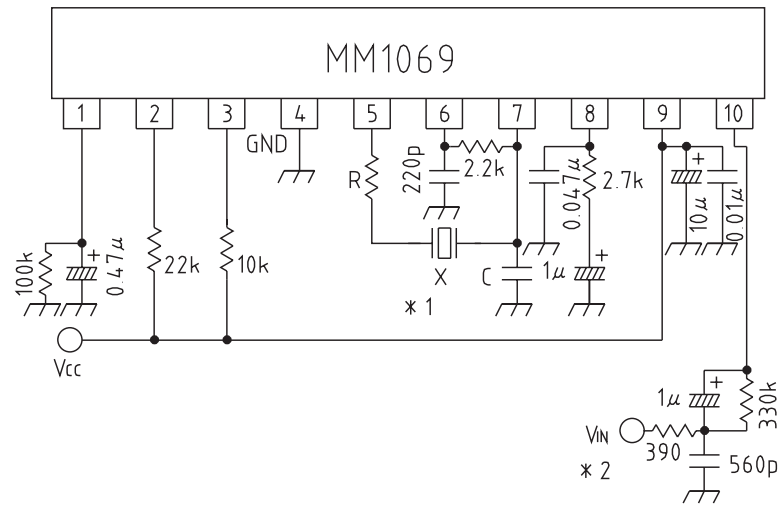


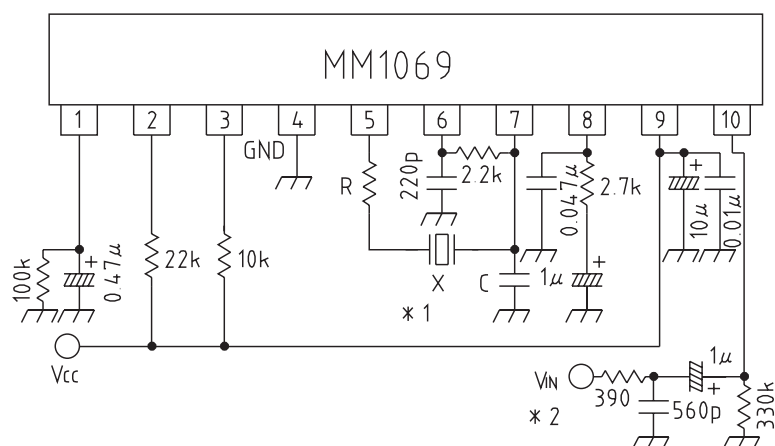
Note : *1

	NTSC	PAL
X	CSB503F2	CSB500F40
R	390Ω	220Ω
C	3300pF	4700pF

Application Circuits

■ Application Circuit 1





1. Input signal sync tip must be less than 1V for application circuit 1 Pin 10 external circuit.
2. The above 1. does not apply for application circuit 2 Pin 10 external circuit. Pin 10 is clamped at approximately 2.5V.

	NTSC	PAL
X	CSB503F2	CSB500F40
R	390Ω	220Ω
C	3300pF	4700pF