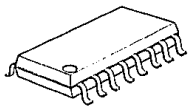
VIDEO SWITCH WITH 8dB AMPLIFIER

■ GENERAL DESCRIPTION

The NJM2223 is an integrated bipolar video switch with 8dB amplifier which selects one video signal from three different composit video signals.

The NJM2223 has also function of superimposer and synchronous signal clipping and is suit to picture in picture configuration

■ PACKAGE OUTLINE

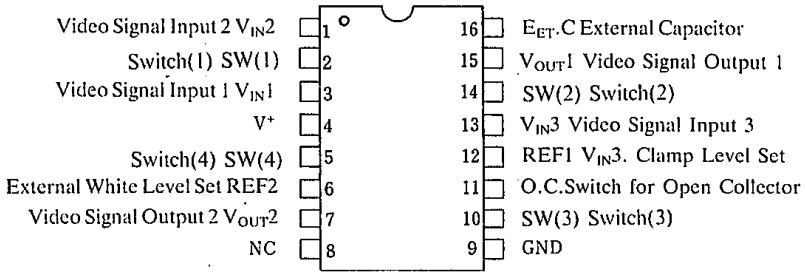


NJM2223M

■ FEATURES

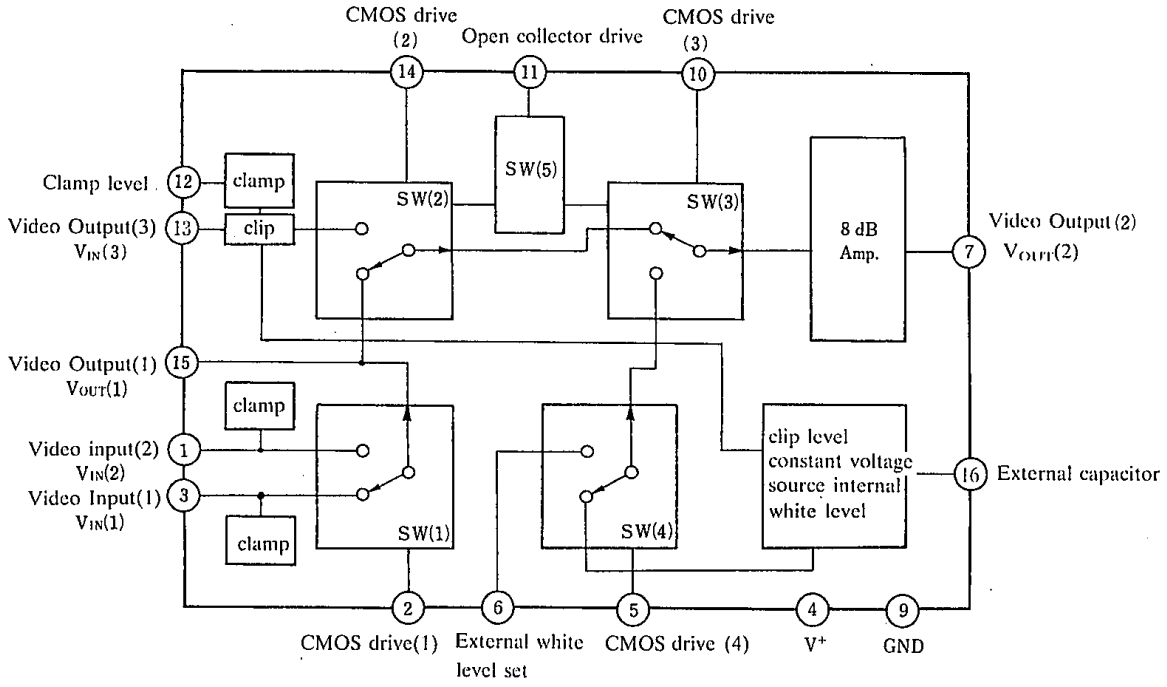
- 12V operation.
- 3 input video signal.
- 2 output video signal.
- Switch operates with CMOS level.
- Super imposer function.
- Intemal 8dB Amp.
- Package Outline DMP16
- Bipolar Technology

■ PIN CONFIGURATION



NJM2232M

■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATINGS

(Ta=25℃)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V^+	15	V
Power Dissipation	P_D	(DMP16)350	mW
Operating Temperature Range	T_{opr}	−20～+75	℃
Storage Temperature Range	T_{stg}	−40～+125	℃

■ ELECTRICAL CHARACTERISTICS

(Ta=25℃, V^+=12V)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Current	I_{CC}		—	14	19	mA
Voltage Gain (1)	G_1	V_{IN}=1MHz, $1V_{P-P}$	−1	0	1	dB
Voltage Gain (2)	G_2	V_{IN}=1MHz, $1V_{p-p}$	7	8	9	dB
Frequency Charact. (1)	G_{1-1}	G_2 ':voltage gain at V_{IN}=$1V_{p-p}$, 5MHz 5MHz $G_{2-2}=G_2'-G_2$	−1	0	1	dB
Frequency Charact. (2)	G_{2-2}	G_1': voltage gain at V_{IN}=$1V_{P-P}$, 5MHz $G_{1-1}=G_1'-G_1$	−1	0	1	dB
Differential Gain	DG	Stair Case, 1 V_{p-p}	—	—	3	%
Differential Phase	DP	Stair Case, $1V_{P-P}$	—	—	3	deg
Threshold Level (1)	V_{TH-1}	SW (1) input	1.4	2.2	3.0	V
Threshold Level (2)	V_{TH-2}	SW (2) input	1.4	2.2	3.0	V
Threshold Level (3)	V_{TH-3}	SW (3) input	1.4	2.2	3.0	V
Threshold Level (4)	V_{TH-4}	SW (4) input	1.4	2.2	3.0	V
Threshold Level (5)	V_{TH-5}	Open collector input	0.5	1.0	2.0	V
Clipping Level	V_{CLIP}	SW (2) — ON V_{IN} (1) = $1V_{P-P}$, stair case	32	40	48	IRE
Inside White Level	V_{IN}	SW (3) — ON $V_{IN}(1)$=$1V_{P-P}$	92	100	108	IRE
Cross-talk	CT	f_{IN}=4MHz	—	−50	—	dB

■ OUTPUT SELECT CODE

• Video Output (1)

SW (1)	V_{OUT} (1) Output Signal
0	V_{IN} (1)
1	V_{IN} (2)

• Video Output (2)

SW (1)	SW (2)	SW (3)	V_{OUT}(2) Output Signal
0	0	0	V_{IN} (1)
0	1	0	V_{IN} (3)
1	0	0	V_{IN} (2)
1	1	0	V_{IN} (2)

• Super Imposer

1. Switching of SW (3), it imposes DC level in video signal regardless to SW (1), SW (2) Condition.

SW (3)	V_{OUT} (2) Output Signal
0	Video Signal
1	DC Level

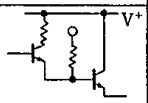
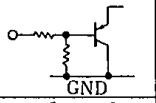
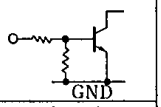
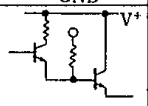
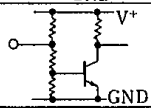
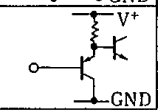
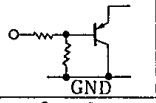
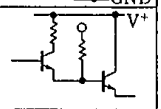
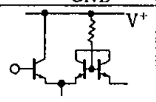
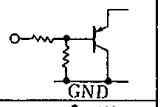
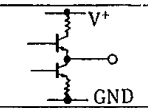
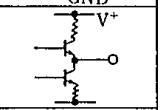
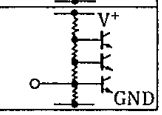
2. Switching of SW (4), it selects DC level at internal white level (100 IRE) or external setting level.

SW (4)	V_{OUT} (2) Output Signal
0	Internal White Level
1	External Set Level

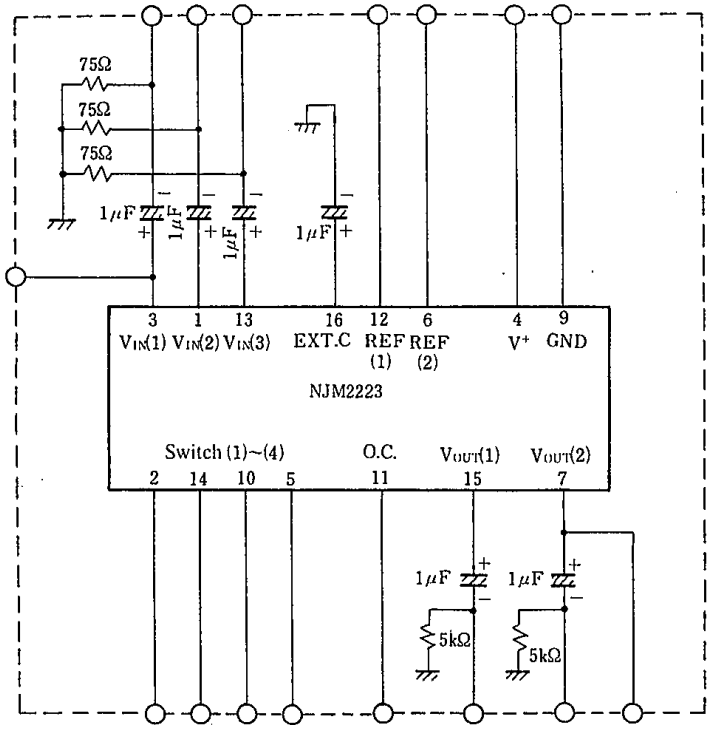
• Open Collector Drive Switch

This switch has function to make SW (2), SW (3) no working and V_{OUT} (2) output signal to the same output signal of V_{OUT} (1). It operates in CMOS level.

■ TERMINAL FUNCTION

PIN.	EQUIVALENL CCT	PIN.	EQUIVALENT CCT
1 $V_{IN}2$		9 GND	
2 SW(1)		10 SW(3)	
3 $V_{IN}1$		11 open. O.C.	
4 V^+		12 REF1	
5 SW(4)		13 $V_{IN}3$	
6 REF2		14 SW(2)	
7 $V_{OUT}2$		15 $V_{OUT}1$	
8 NC		16 E_{ET}.C	

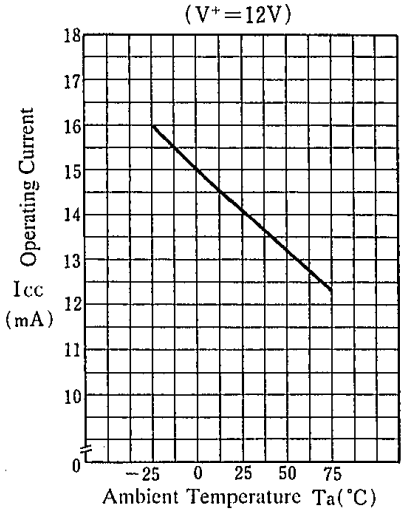
■ TEST CIRCUIT



■ TYPICAL CHARACTERISTICS

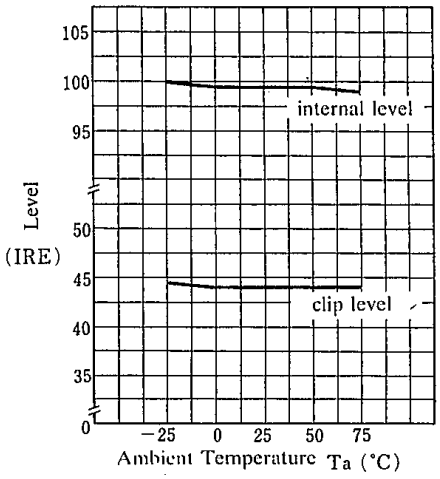
Operating Current

(V^+=12V)



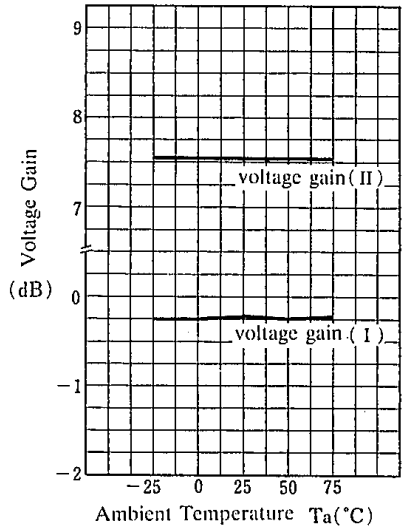
Clipping/Internal Level

(V^+=12V)



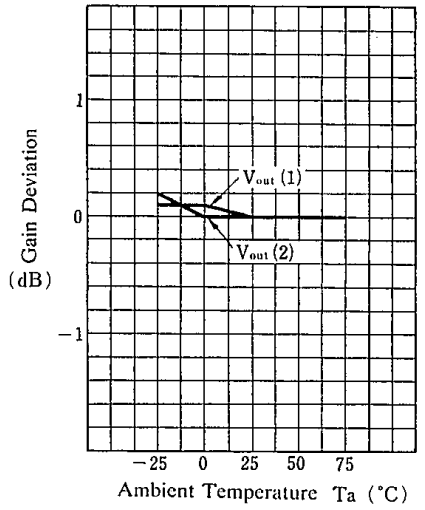
Voltage Gain (1),(2)

(V^+=12 V, V_{IN}(1) : 1 V_{P-P} 1 MHz)



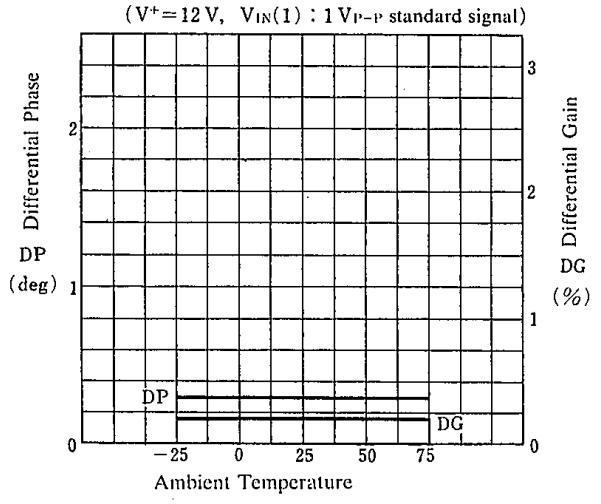
Gain Change Ratio (5MHz/1MHz)

(V^+=12 V, V_{OUT}(1)/V_{OUT}(2) Gain deviation



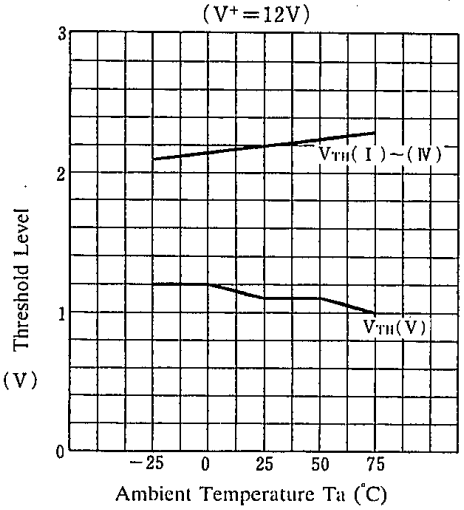
Differential Gain/Differential Phase

(V^+=12 V, V_{IN}(1) : 1 V_{P-P} standard signal)



Threshold Level

(V^+=12V)



■APPLICATION

This IC requires 1MΩ resistance between INPUT and GND pin for clamp type input since the minute current causes an unstable pin voltage.