

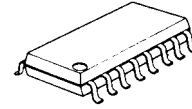
VIDEO SWITCH WITH 8dB AMPLIFIER

■ GENERAL DESCRIPTION

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

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

■ PACKAGE OUTLINE



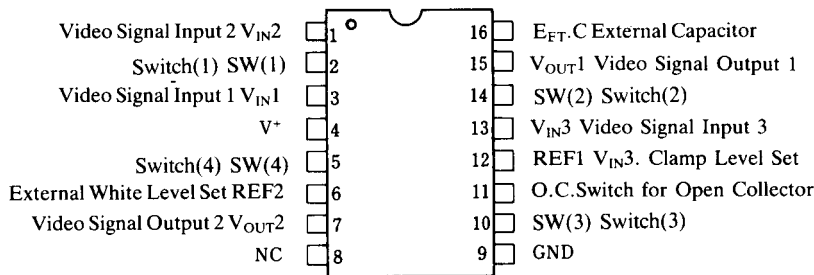
NJM2223M

■ FEATURES

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

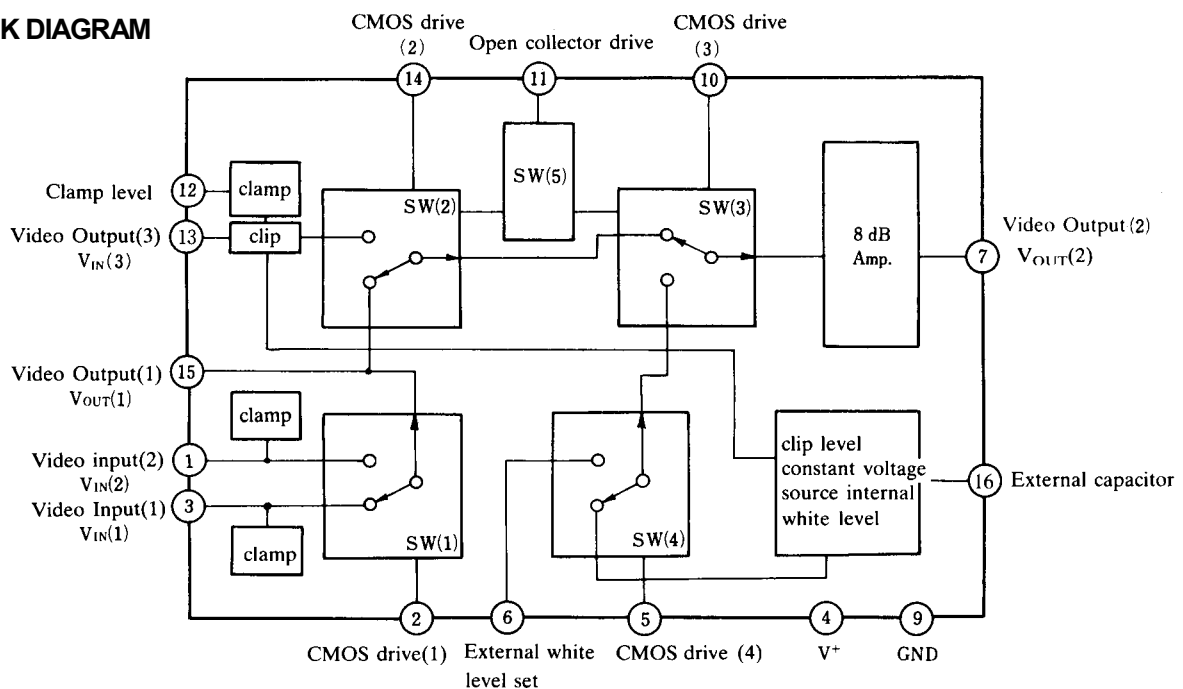
DMP16

■ PIN CONFIGURATION



NJM2223M

■ BLOCK DIAGRAM



NJM2223

■ ABSOLUTE MAXIMUM RATINGS

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

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V^+	15	V
Power Dissipation	P_D	(DMP16)350	mW
Operating Temperature Range	T_{opr}	-20 to +75	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-40 to +125	$^\circ\text{C}$

■ ELECTRICAL CHARACTERISTICS

($T_a=25^\circ\text{C}$, $V^+=12\text{V}$)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Current	I_{CC}		-	14	19	mA
Voltage Gain (1)	G_1	$V_{IN}=1\text{MHz}$, $1V_{P,P}$	-1	0	1	dB
Voltage Gain (2)	G_2	$V_{IN}=1\text{MHz}$, $1V_{P,P}$	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 5MHz $G_{1-1}=G_1'-G_1$	-1	0	1	dB
Differential Gain	DG	Stair Case, $1V_{P,P}$	-	-	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
Cipping 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	$f_{in}=4\text{MHz}$	-	-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

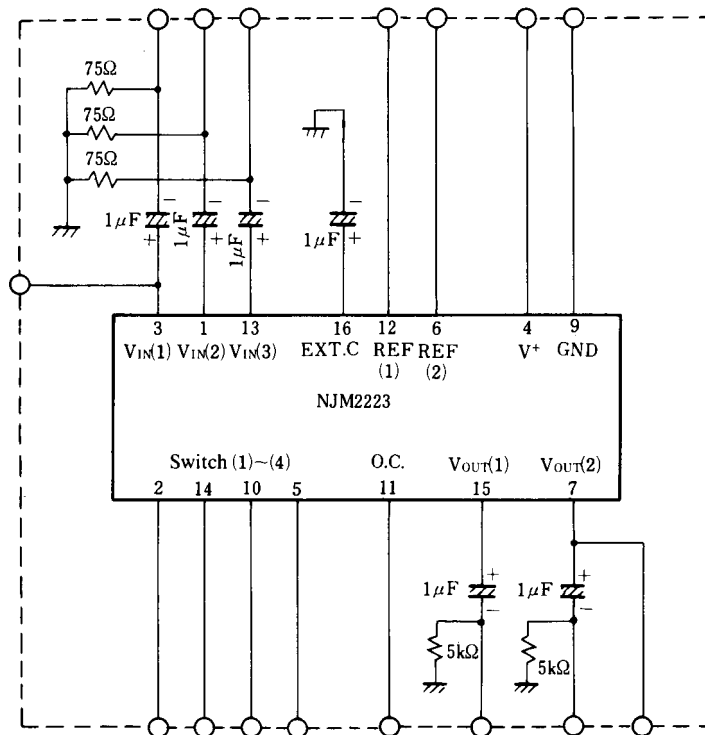
This switch has function to make SW (2), SW (3) no working And V_{OUT} (2) output signal to the same output signal of V_{OUT} (1). It operates in CMOS level.

NJM2223

■ TERMINAL FUNCTION

PIN.	EQUIVALENT CCT	PIN.	EQUIVALENT CCT
1 V_{IN2}		9	—
2 SW(1)		10 SW(3)	
3 V_{IN1}		11 open. O.C.	
4 V^+	—	12 REF1	
5 SW(4)		13 V_{IN3}	
6 REF2		14 SW(2)	
7 V_{OUT2}		15 V_{OUT1}	
8 NC	—	16 $E_{FT.C}$	

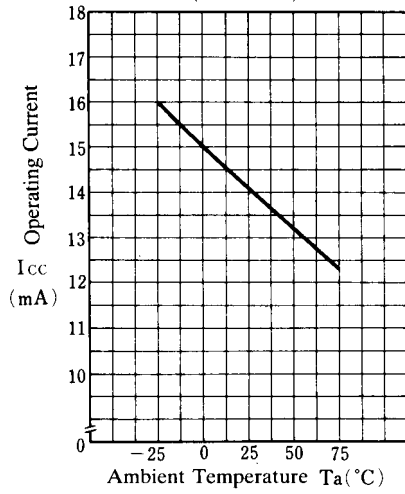
■ TEST CIRCUIT



■ TYPICAL CHARACTERISTICS

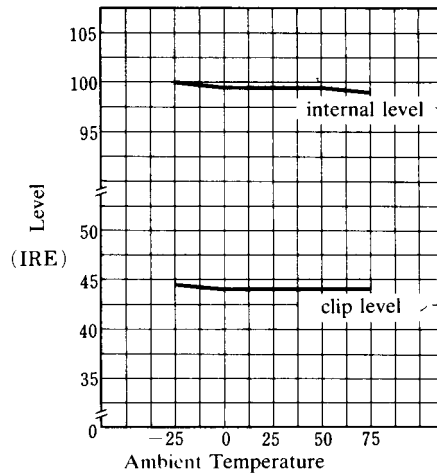
Operating Current

($V^+ = 12V$)



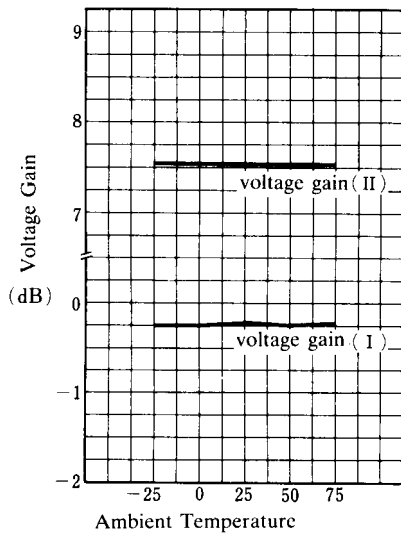
Clipping/Internal Level

($V^+ = 12V$)



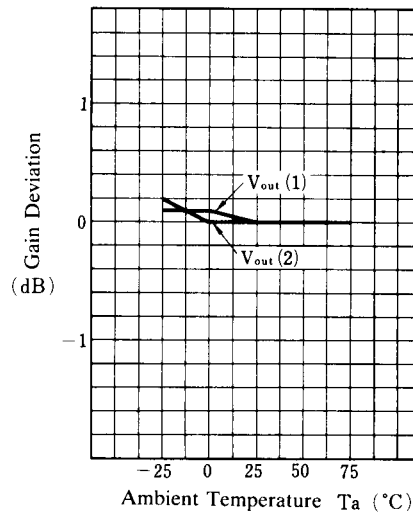
Voltage Gain (1)(2)

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



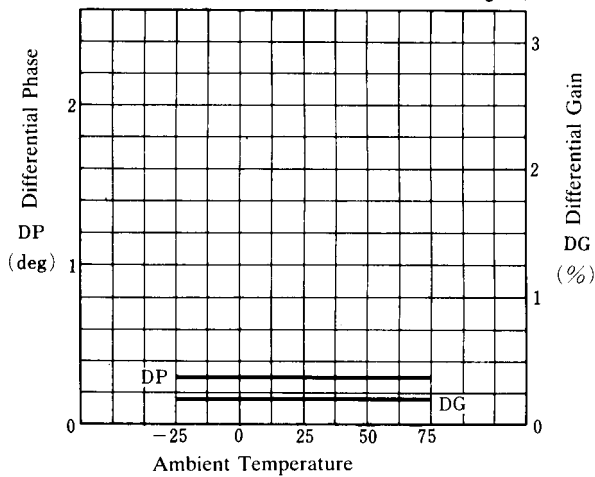
Gain Change Ratio (5MHz/1MHz)

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



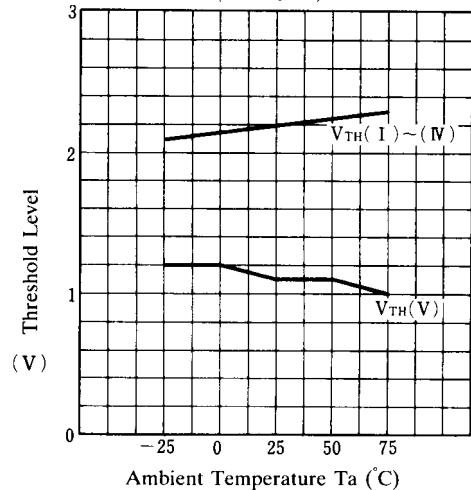
Differential Gain/Differential Phase

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



Threshold Level

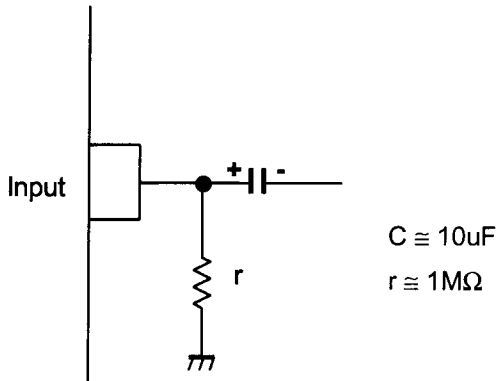
($V^+ = 12V$)



NJM2223

■ APPLICATION

This IC requires $1\text{M}\Omega$ resistance between INPUT and GND pin for clamp type input since the minute current causes an unstable pin voltage.



[CAUTION]

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