

VIDEO ON-SCREEN DISPLAY

■ GENERAL DESCRIPTION

The NJM2214 is a video display convertive integrated circuit. Its function is below.

- Character superimpose.
- 8 color generating function.
- Luminance signal wave shape-up function.
- Video effector function of painting to background, superimposed character or some part of video signal.

■ FEATURES

- Operating Voltage (+4.7V~+5.3V)
- Internal 8 Color Generating Circuit
- Package Outline SDIP22, DMP24
- Bipolar Technology

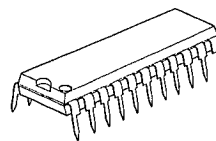
■ RECOMMENDED OPERATING CONDITION

- Operating Voltage 4.7~5.3V

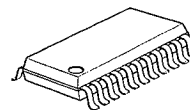
■ APPLICATION

- VCR, Video Camera

■ PACKAGE OUTLINE



NJM2214L



NJM2214M

■ ABSOLUTE MAXIMUM RATINGS

(Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V*	10	V
Power Dissipation	P _d	(SD1P22) 700 (DMP24) 700	mW
Operating Temperature Range	T _{opr}	-20~+75	°C
Storage Temperature Range	T _{stg}	-40~+125	°C

■ ELECTRICAL CHARACTERISTICS

(Ta=25°C, V*=5V)

PARAMETER	SYMBOL	TEST CONDITION†	MIN.	TYP.	MAX.	UNIT
Operating Current	I _{CC}	No signal, No load	17	25	33	mA
Video Switch Voltage Gain	G _V	10,11,15,22(11,12,17)Pin =Low 10STEP Stair wave, 2.2V _{p-p} , R1=5K	-1	0	+1	dB
Frequency Characteristics	G _F	10,11,15,22(11,12,17)Pin =Low 2V _{p-p} , 4MHz, R1=5K	-1	0	+1	dB
Differential Gain	DG	10,11,15,22(11,12,17)Pin =Low 10STEP Stair wave, 2.2V _{p-p} , R1=5K	-3	0	+3	%
Differential Phase	DP	10 STEP Stair wave, 2.2V _{p-p} , R1=5K	-3	0	+3	degree
8 Color Output		15(17)Pin=High, 10,11,22(11,12)Pin =Low (Note)				
White	Amplitude	C _{1A}	—	0	100	mV _{p-p}
	Luminance	C _{1D}	1.56	1.66	1.76	V
	Phase	C _{1P}	—	—	—	degree
Yellow	Amplitude	C _{2A}	810	900	990	mV _{p-p}
	Luminance	C _{2D}	1.45	1.55	1.65	V
	Phase	C _{2P}	Phase: Ref. to Yellow	-10	0	10
Cyan	Amplitude	C _{3A}	1160	1290	1420	mV _{p-p}
	Luminance	C _{3D}	1.26	1.36	1.46	V
	Phase	C _{3P}		106	116	126

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■ ELECTRICAL CHARACTERISTICS

(T_a=25°C, V⁺=5V)

PARAMETER		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Green	Amplitude	C _{4A}		1080	1200	1320	mV _{p-p}
	Luminance	C _{4D}		1.14	1.24	1.34	V
	Phase	C _{4P}		63	73	83	degree
Magenta	Amplitude	C _{5A}		1080	1200	1320	mV _{p-p}
	Luminance	C _{5D}		0.96	1.06	1.16	V
	Phase	C _{5P}		243	253	263	degree
Red	Amplitude	C _{6A}		1160	1290	1420	mV _{p-p}
	Luminance	C _{6D}		0.85	0.95	1.05	V
	Phase	C _{6P}		286	296	306	degree
Blue	Amplitude	C _{7A}		810	900	990	mV _{p-p}
	Luminance	C _{7D}		0.66	0.76	0.86	V
	Phase	C _{7P}		170	180	190	degree
Black	Amplitude	C _{8A}		—	0	100	mV _{p-p}
	Luminance	C _{8D}		0.54	0.64	0.74	V
	Phase	C _{8P}		—	—	—	degree
Blanking Pulse Input Threshold Voltage		V _{TH-19}	Pin 19 (21)	1.0	1.5	2.0	V
HD		V _{TH-18}	Pin 18 (20)	1.0	1.5	2.0	V
Invert		V _{TH-11}	Pin 11 (12)	1.0	1.5	2.0	V
2 value Selection		V _{TH-10}	Pin 10 (11)	1.0	1.5	2.0	V
Background ON/OFF		V _{TH-15}	Pin 15 (17)	1.0	1.5	2.0	V
Matrix 1		V _{TH-M1}	Pin 1 (1)	3.3	3.9	4.5	V
Matrix 2		V _{TH-M2}	Pin 2 (2)	3.3	3.9	4.5	V
Matrix 3		V _{TH-M3}	Pin 3 (3)	3.3	3.9	4.5	V
Character Input		V _{TH-21}	Pin 21 (23)	0.5	1.0	1.5	V
EXT/Character Selection		V _{TH-20}	Pin 20(22)	1.0	1.5	2.0	V

(Note): f_{SC1}, f_{SC2}=3.58MHz, 300mV_{pp}

f_{SC1}: same phase of color burst signal.

f_{SC2}: 90 degree phase lag from f_{SC1}.

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■ RELATION BETWEEN 8 COLOR OUTPUT AND MATRIX INPUT

COLOR	MATRIX 1	MATRIX 2	MATRIX 3
White	L	L	L
Yellow	H	L	L
Cyan	L	H	L
Green	H	H	L
Magenta	L	L	H
Red	H	L	H
Blue	L	H	H
Black	H	H	H

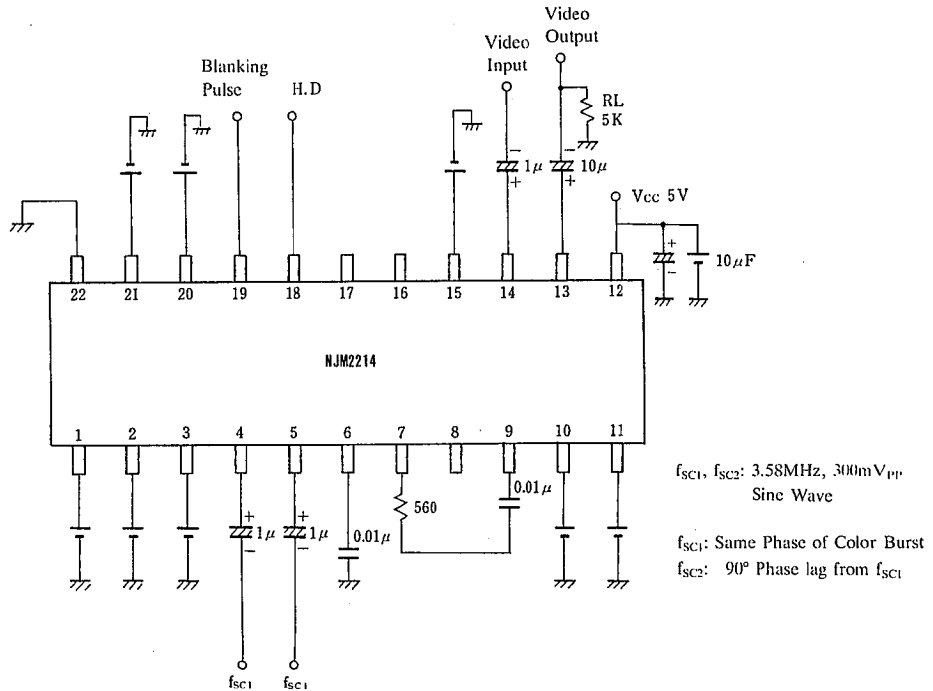
L=0V (DC)

H=5V (DC)

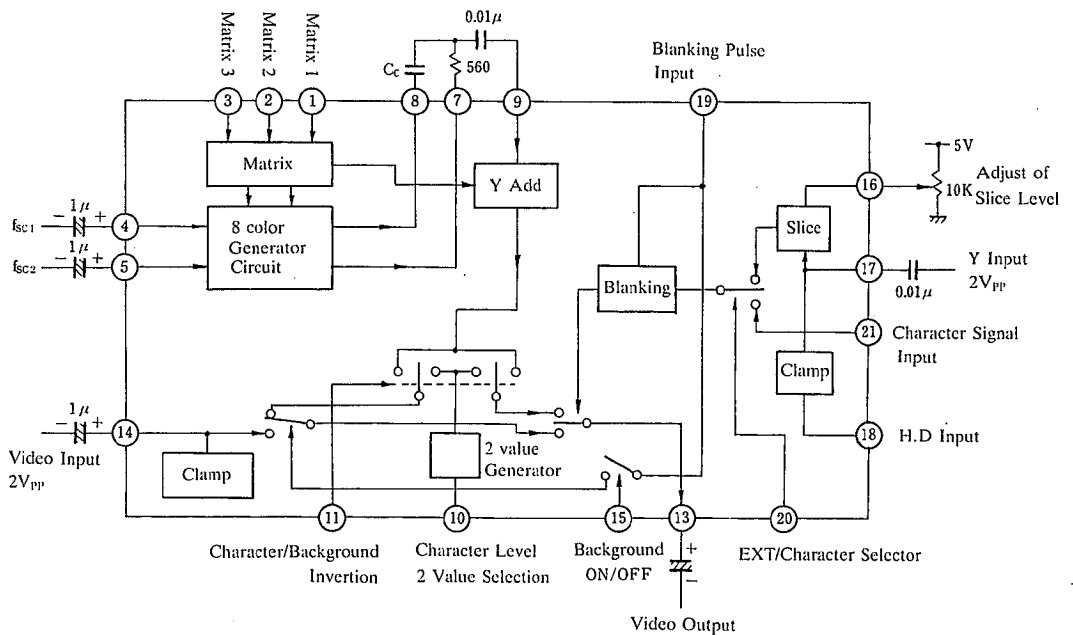
■ CONTROL SIGNAL AND FUNCTION

15 PIN	10 PIN	11 PIN	20 PIN	
L	L/H	L	L	Character superimposer (White/Black) on video through signal output.
H	L/H	L	L	Character superimposer (White/Black) on background (8 color)
H	L/H	H	L	Character superimposer (color) on background (White/Black)
L	L	H	L	Character superimposer (color) on video through signal
L	L/H	L	H	Luminance modification. Strong bright point is White/Black.
H	L/H	L	H	Colored except strong bright point.
H	L/H	H	H	Colored at strong bright point and others is White/Black.
L	H	H	H	Colored at strong bright point and others is video through.

TEST CIRCUIT



TYPICAL APPLICATION



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

MEMO

[CAUTION]

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