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New Japan Radio Co.,Ltd.

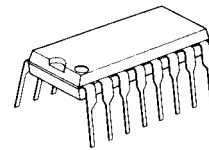
<http://www.njr.com/>

3-INPUT / 2-INPUT VIDEO SWITCH

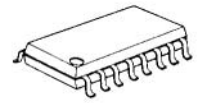
■ GENERAL DESCRIPTION

The NJU2503 is a switching IC for switching over from one audio or video input signal to another. Internalizing 3 input-1 output, and 2 input-1 output and then each set can be operated independently. It is a higher efficiency video switch, featuring the operating voltage 4.75 to 13V, the frequency feature 10MHz, and then the Crosstalk 75dB (at 4.43MHz).

■ PACKAGE OUTLINE



NJM2503D



NJM2503M

■ FEATURES

- Operating Voltage (+4.75V to +13V)
- 3 Input-1 Output / 2 Input output
- Crosstalk 75dB (at 4.43MHz)
- Wide Bandwidth Frequency 10MHz (2V_{P-P} Input)
- Package Outline DIP16, DMP16
- Bipolar Technology

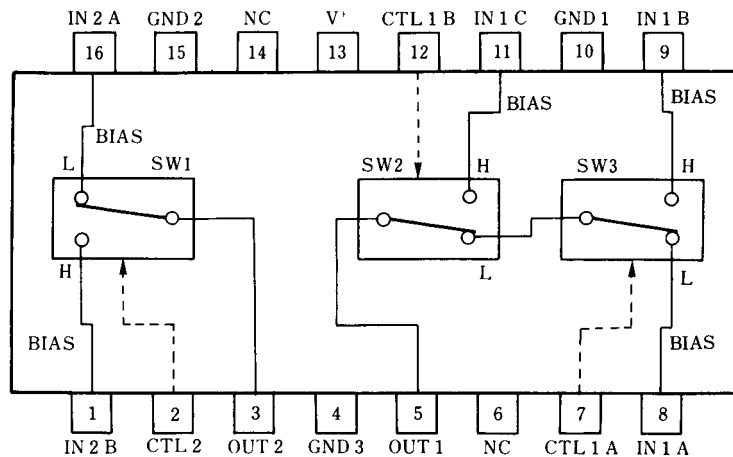
■ RECOMMENDED OPERATING CONDITION

- Operating Voltage V⁺ +4.75V to +13V

■ APPLICATIONS

- VCR, Video Camera, AV-TV, Video Disk Player.

■ BLOCK DIAGRAM



NJM2503D

NJM2503M

NJM2503

■ MAXIMUM RATINGS

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

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V^+	14	V
Power Dissipation	P_D	(DIP16) 700 (DMP16) 300	mW mW
Operating Temperature Range	T_{opr}	-40 to +85	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-40 to +125	$^\circ\text{C}$

■ ELECTRICAL CHARACTERISTICS

($V^+ = 5\text{V}$, $T_a = 25^\circ\text{C}$)

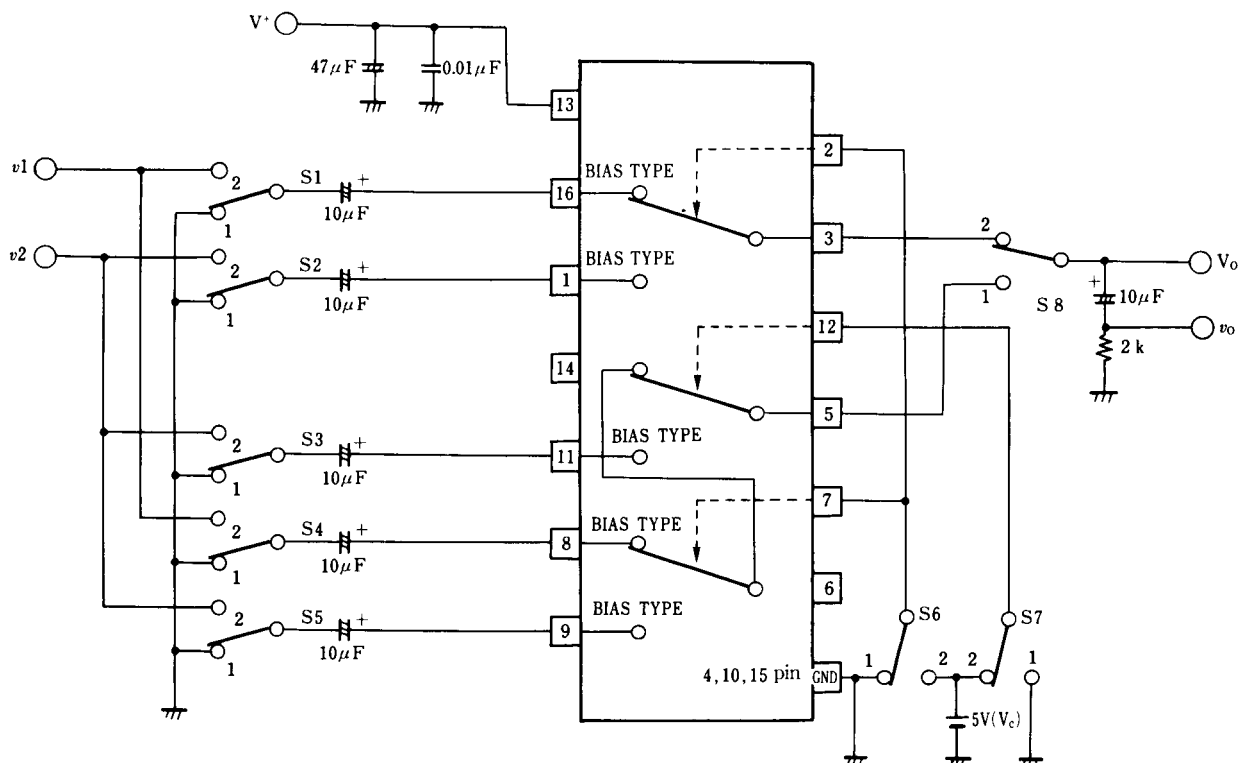
PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Current (1)	I_{CC1}	$V^+ = 5\text{V}$ (Note1)	6.8	9.8	12.8	mA
Operating Current (2)	I_{CC2}	$V^+ = 9\text{V}$ (Note1)	8.7	12.5	16.3	mA
Voltage Gain	G_V	$V_i = 100\text{kHz}$, $2V_{P-P}$, V_O / V_i	-0.6	-0.1	+0.4	dB
Frequency Gain	$G_F 1$	$V_i = 2V_{P-P}$, $V_O (10\text{MHz}) / V_O (100\text{kHz})$	-1.0	0	+1.0	dB
Differential Gain	DG	$V_i = 2V_{P-P}$, Standard Staircase Signal	-	0.3	-	%
Differential Phase	DP	$V_i = 2V_{P-P}$, Standard Staircase Signal	-	0.3	-	deg
Output offset Voltage (1)	V_{OS1}	(Note2)	-10	0	+10	mV
Output offset Voltage (2)	V_{OS2}	(Note2)	-25	0	+25	mV
Crosstalk	CT	$V_i = 2V_{P-P}$, 4.43MHz, V_O / V_i	-	-7.5	-	dB
Switch Change Over Voltage	V_{CH}	All inside Switches ON	2.5	-	-	V
Switch Change Over Voltage	V_{CL}	All inside Switches OFF	-	-	1.0	V

(Note1) $S1 = S2 = S3 = S4 = S5 = S6 = S7 = 1$

(Note2) $S1 = S2 = S3 = S4 = S5 = 1$, $S8 = 2$, $S6 = 1 \rightarrow 2$ Measure the output DC voltage difference

(Note3) $S1 = S2 = S3 = S4 = S5 = 1$, $S8 = 1$, $S6 = 1 \rightarrow 2$ ($S6 = 1$, $S7 = 1 \rightarrow 2$) Measure the output DC voltage difference

■ TEST CIRCUIT



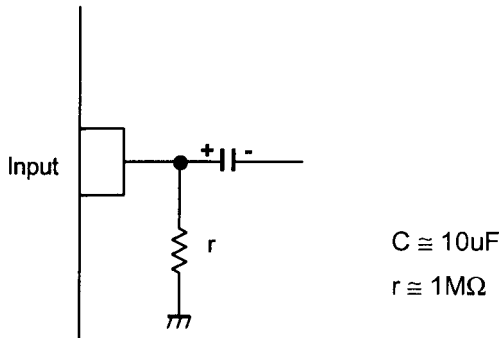
■ TERMINAL EXPLANATION

PIN No.	PIN NAME	VOLTAGE	INSIDE EQUIVALENT CIRCUIT
8 9 11 16 1	IN 1 A IN 1 B IN 1 C IN 2 A IN 2 B [Input]	2.5V $\left(\frac{1}{2}V^+\right)$	<p>The diagram shows an input terminal 'IN' connected to a 500 ohm resistor. This resistor is connected to a node that is also connected to a 15k resistor leading to a 2.5V DC source. A lamp symbol is connected to the input terminal.</p>
7 12 2	CTL 1A CTL 1B CTL 2 [Switching]		<p>The diagram shows a complex switching circuit. It includes a 2.3V source, a 1.9V source, a lamp symbol, and two resistors of 20k and 8k. The output is labeled 'CTL'.</p>
5	OUT1 [Output]	1.8V $\left(\frac{1}{2}V^+ - 0.7\right)$	<p>The diagram shows an output terminal 'OUT' connected to a lamp symbol.</p>
3	OUT2 [Output]	1.8V $\left(\frac{1}{2}V^+ - 0.7\right)$	
13	V ⁺	5V	
15 4 10	GND 1 GND 2 GND 3		

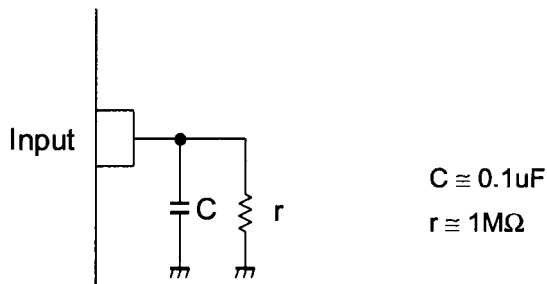
NJM2503

■ APPLICATION

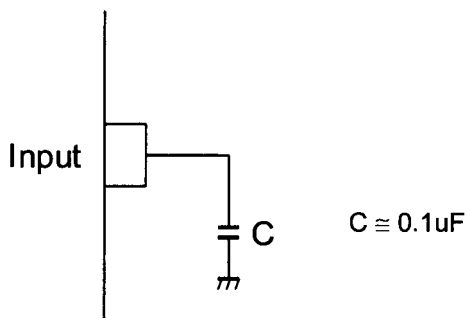
This IC requires $1M\Omega$ resistance between INPUT and GND pin for clamp type input since the minute current causes an unstable pin voltage.



This IC requires $0.1\mu\text{F}$ capacitor between INPUT and GND, $1M\Omega$ resistance between INPUT and GND for clamp type input at mute mode.



This IC requires $0.1\mu\text{F}$ capacitor between INPUT and GND for bias type input at mute mode.



[CAUTION]
The specifications on this databook are only given for information, without any guarantee as regards either mistakes or omissions. The application circuits in this databook are described only to show representative usages of the product and not intended for the guarantee or permission of any right including the industrial rights.