

5-INPUT 3-OUTPUT VIDEO SWITCH

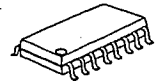
■ GENERAL DESCRIPTION

The NJM2296 is a 5-input 3-output video switch. Its switches select one from five signals received from VCR, TV, Video Disk Player and others. This IC is designed for audio items, such as AV amplifier and receivers, and others.

■ PACKAGE OUTLINE



NJM2296D

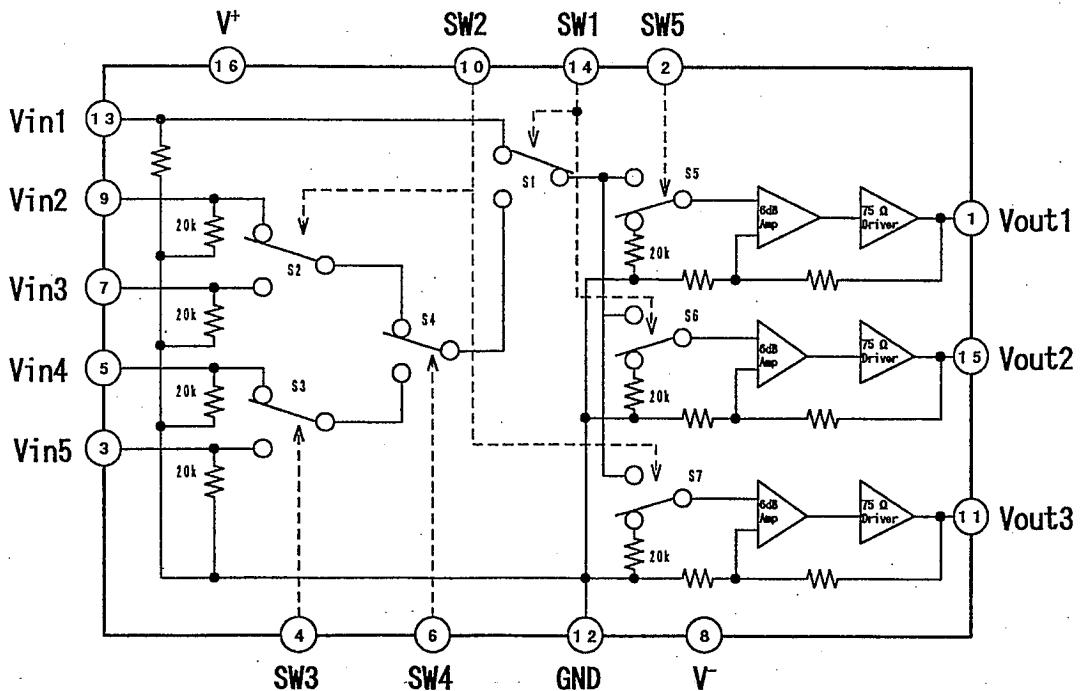


NJM2296M

■ FEATURES

- 5-input 3-output
- Operating Voltage $(\pm 4.0V \sim \pm 6.5V)$
- Crosstalk $(-65dB \text{ typ.})$
- Bipolar Technology
- Package Outline DIP16, DMP16

■ PIN CONFIGURATION AND BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATINGS

(Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V ⁺ /V ⁻	±7	V
Power Dissipation	P _D	(DIP16) 700 (DMP16) 700 (note)	mW
Operating Temperature Range	T _{OPR}	-20 ~ +75	°C
Storage Temperature Range	T _{STG}	-40 ~ +150	°C

(note) At on a Glass epoxy board (70×70×1.6mm)

■ ELECTRICAL CHARACTERISTICS (Ta=25°C, V⁺/V⁻=±5V, R_L=150Ω)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Positive Operating Current	I _{CC}	No signal	—	31.0	—	mA
Negative Operating Current	I _{EE}	No signal	—	-31.0	—	mA
Voltage Gain	G _V	V _{IN} =100kHz/1.0Vpp	6.0	6.3	6.8	dB
Frequency Characteristic	G _f	5MHz/100kHz, 1Vpp	-1.0	0.0	+1.0	dB
Differential Gain	DG	V _{IN} =1Vpp, Stair wave	—	0.2	—	%
Differential Phase	DP	V _{IN} =1Vpp, Stair wave	—	0.2	—	deg
Offset Output Voltage ₁	V _{OS1}	No Signal, Vin2-Vin3間	-40.0	0.0	+40.0	mV
Offset Output Voltage ₂	V _{OS2}	No Signal, Vin1-Vin2, Vin-Vin3	-60.0	0.0	+60.0	mV
Input Crosstalk	CT	V _{IN} =4.43MHz/1Vpp, V _O /V _{IN}	—	-65.0	—	dB
Mute Crosstalk	CTM	V _{IN} =4.43MHz/1Vpp, V _O /V _{IN}	—	-55.0	—	dB
Switch Change Voltage	V _{CH}		3.0	—	V ⁺	V
	V _{CL}		0.0	—	1.0	V
Total Harmonic Distortion	THD	V _{IN} =1kHz/1.25Vpp	—	0.1	—	%
Input Impedance	R _{IN}		—	20.0	—	KΩ

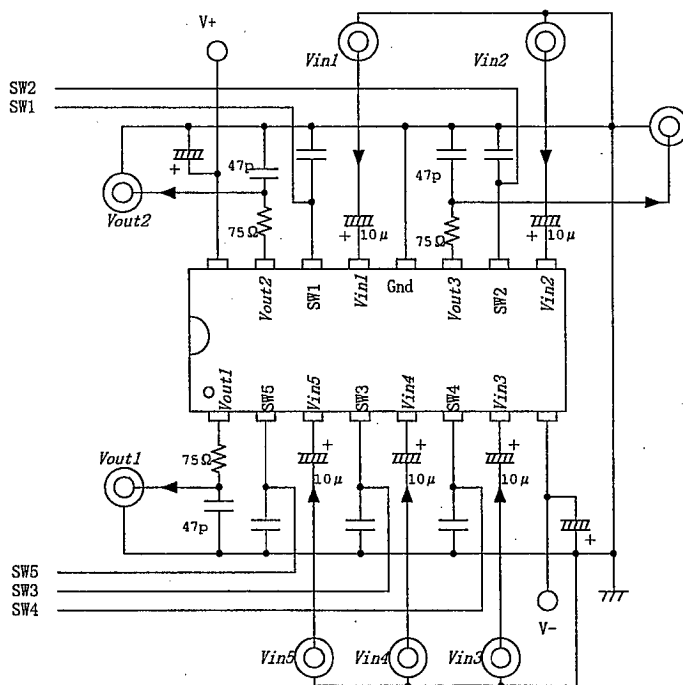
5

■ CONTROL SIGNAL - OUTPUT SIGNAL

(L=V_{CL}, H=V_{CH}, x=LorH)

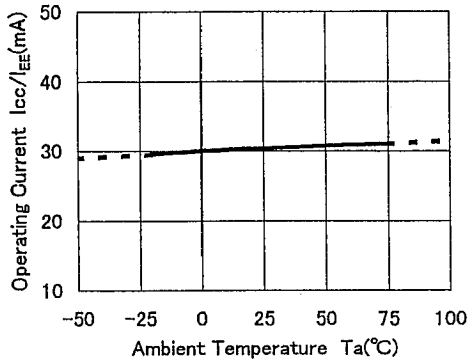
SW 1	SW 2	SW 3	SW 4	SW 5	V _{out} 1	V _{out} 2	V _{out} 3
L	H	x	x	H	V _{in} 1	mute	V _{in} 1
	L			H	V _{in} 1	mute	mute
	H			L	mute	mute	V _{in} 1
H	L	x	L	H	V _{in} 2	V _{in} 2	mute
				L	mute	V _{in} 2	mute
H	H	x	L	H	V _{in} 3	V _{in} 3	V _{in} 3
				L	mute	V _{in} 3	V _{in} 3
H	H	L	H	H	V _{in} 4	V _{in} 4	V _{in} 4
	H			L	mute	V _{in} 4	V _{in} 4
	L			H	V _{in} 4	V _{in} 4	mute
	L			L	mute	V _{in} 4	mute
H	H	H	H	H	V _{in} 5	V _{in} 5	V _{in} 5
	H			L	mute	V _{in} 5	V _{in} 5
	L			H	V _{in} 5	V _{in} 5	mute
	L			L	mute	V _{in} 5	mute
L	L	x	x	L	mute	mute	mute

■ TEST CIRCUIT

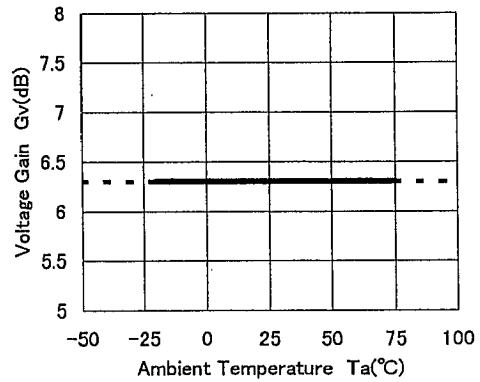


■ TYPICAL CHARACTERISTICS

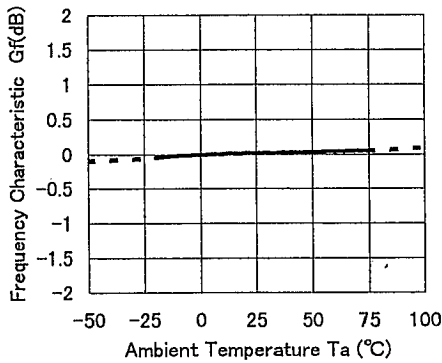
Operating Current vs. Temperature



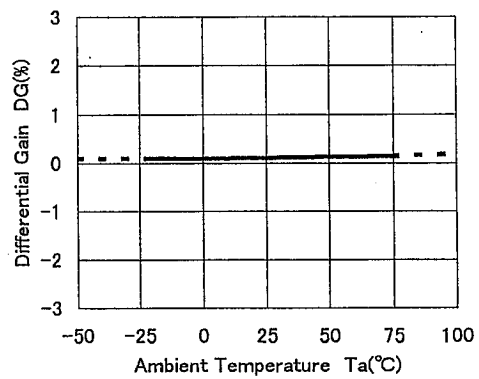
Voltage Gain vs. Temperature



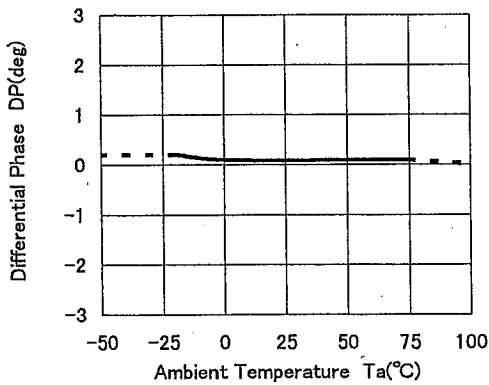
Frequency Characteristic vs. Temperature



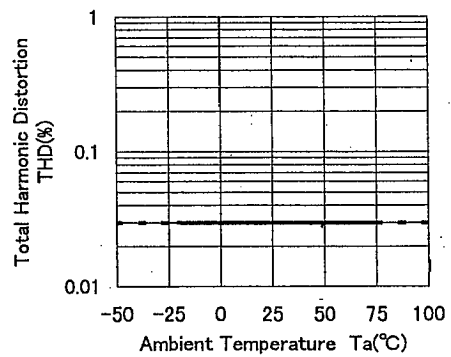
Differential Gain vs. Temperature



Differential Phase vs. Temperature

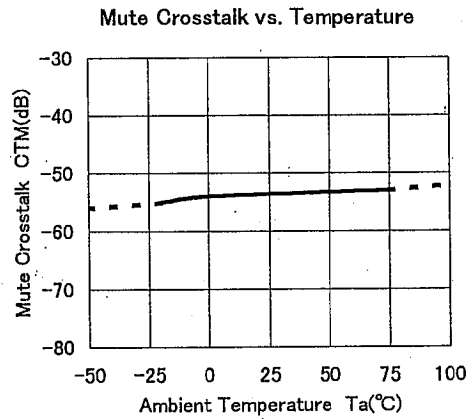
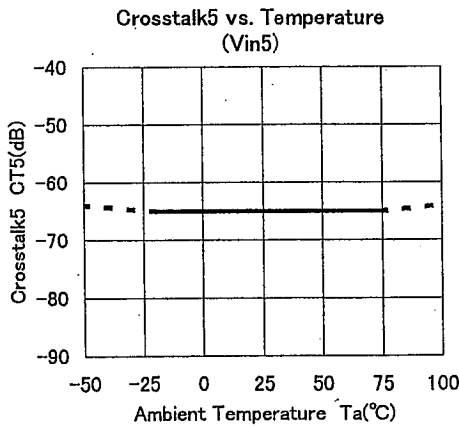
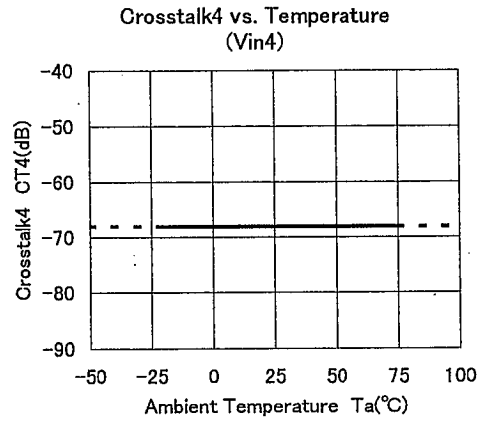
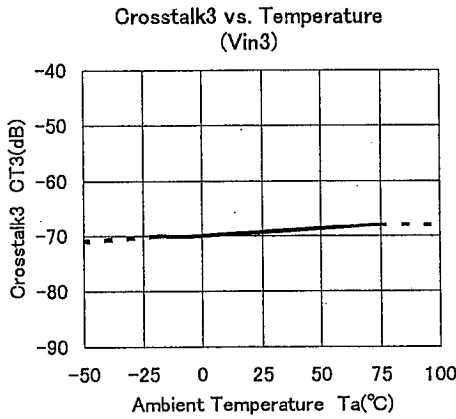
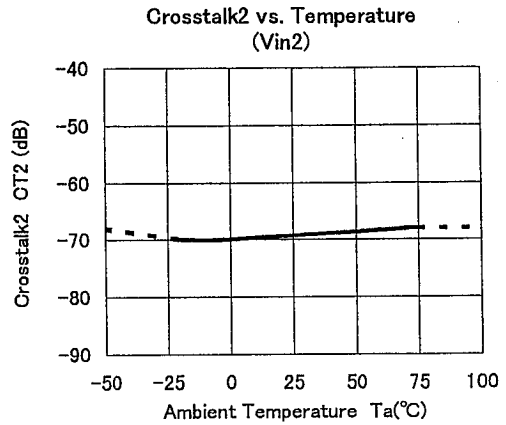
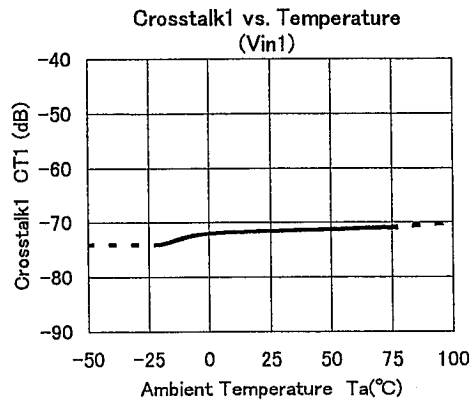


Total Harmonic Distortion vs. Temperature
($V_{in}=1\text{ kHz}/1.25\text{ Vpp}$)



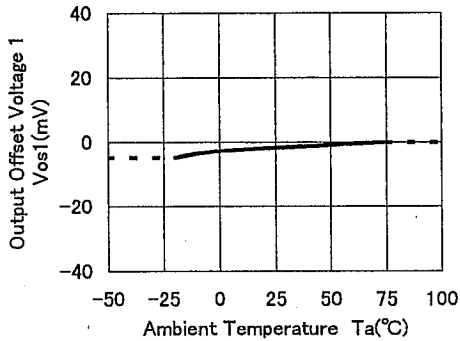
5

TYPICAL CHARACTERISTICS

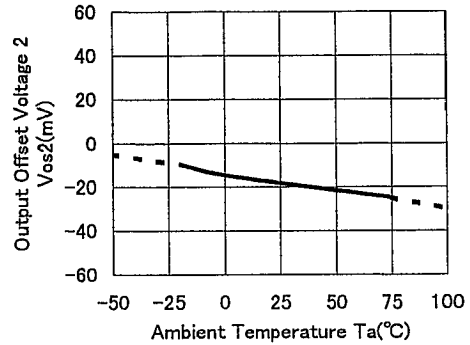


■ TYPICAL CHARACTERISTICS

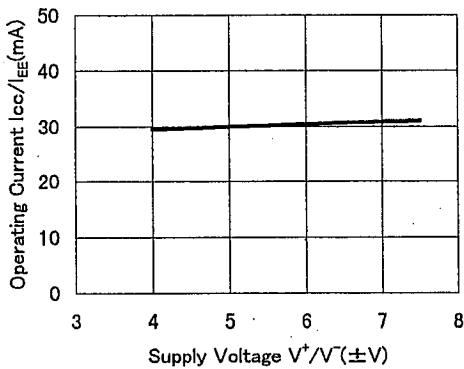
Output Offset Voltage 1 vs. Temperature
(No Signal, $V_{in2} \rightarrow V_{in3}$)



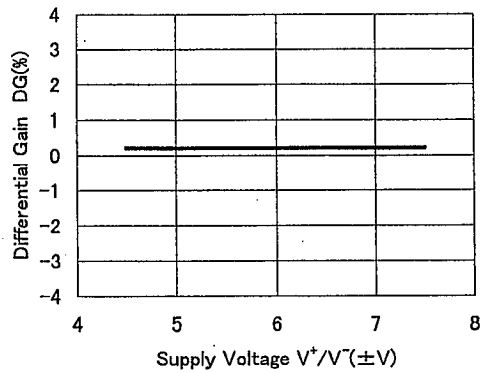
Output Offset Voltage 2 vs. Temperature
(No Signal, $V_{in1} \rightarrow V_{in2}$)



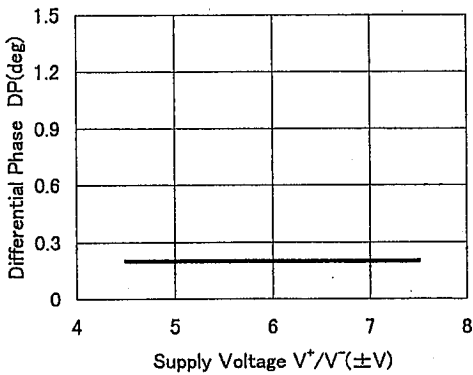
Operating Current vs. Supply Voltage



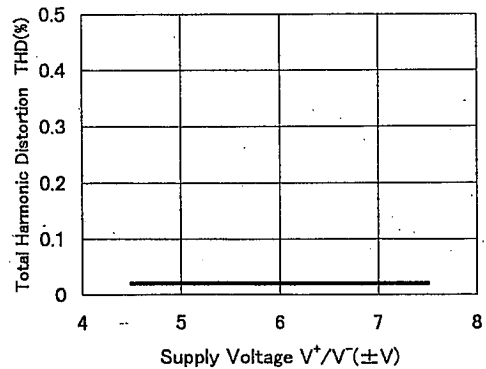
Differential Gain vs. Supply Voltage



Differential Phase vs. Supply Voltage

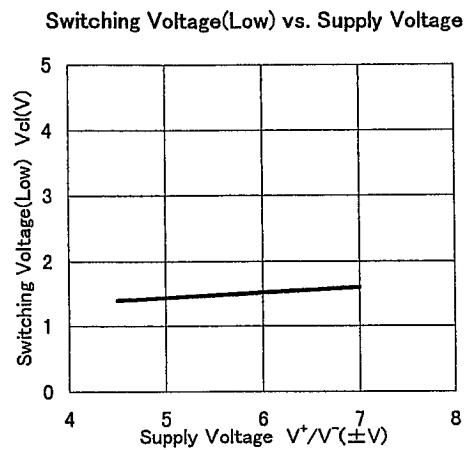
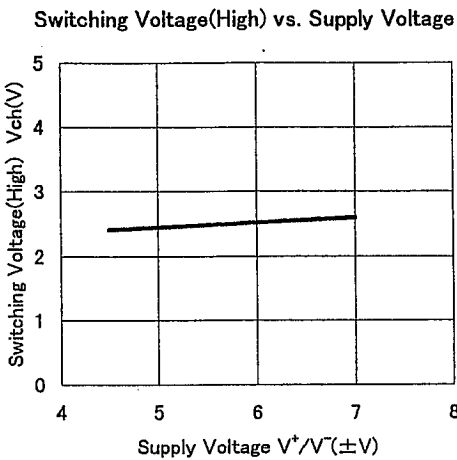


Total Harmonic Distortion vs. Supply Voltage
($V_{in}=1\text{kHz}/1.25V_{pp}$)



5

■ TYPICAL CHARACTERISTICS



MEMO

[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.