

## 3-INPUT 2-OUTPUT VIDEO SWITCH FOR AV-SET

### ■ GENERAL DESCRIPTION

**NJM2279** is 3-input, 2-output video switch with 75Ω, driver circuit.

This video switch can be connected to TV monitor directly, as it has 6dB amplifier and 75Ω drivers circuit internally.

The **NJM2279** has the mute function.

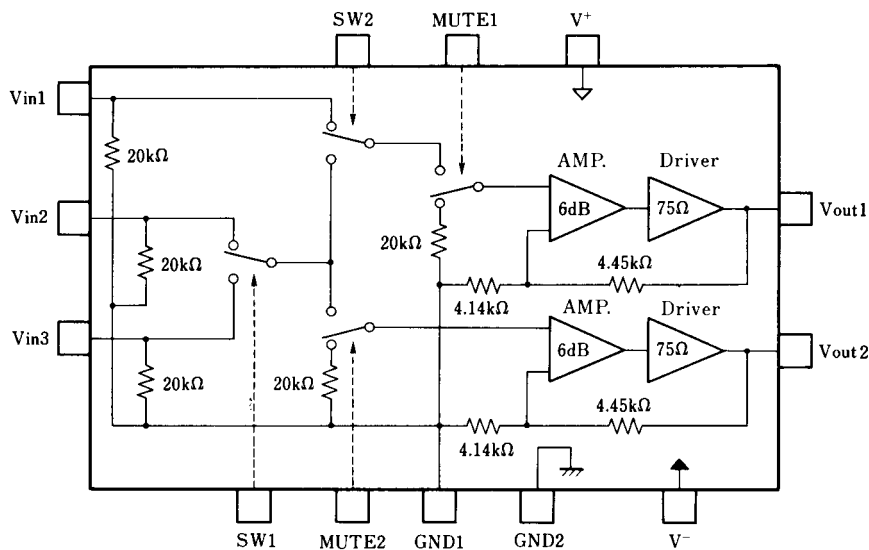
### ■ FEATURES

- 3 input 2 output
- Internal 6dB AMP.
- Internal 75Ω Driver Circuit
- Operating Voltage Dual ( $\pm 4V$  to Single (+8V to)
- Internal 2 Output Mute Function
- Package Outline DIP14, DMP14
- Bipolar Technology

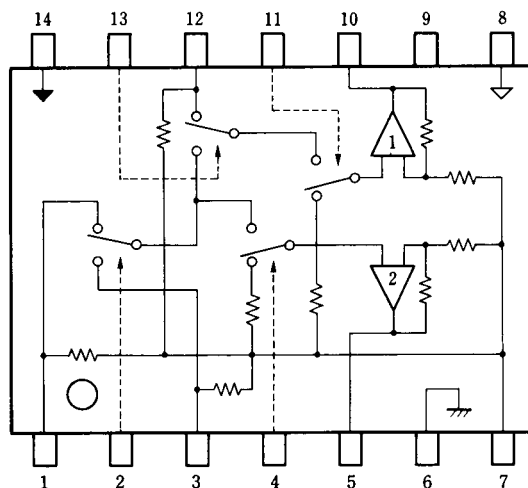
### ■ RECOMMENDED OPERATING CONDITION

- Supply Voltage                      Dual                       $\pm 4.0V$  to  $\pm 7.0V$   
    Single                      +8V to +14V

### ■ BLOCK DIAGRAM



### ■ PIN CONFIGURATION



#### PIN FUNCTION

- |          |                    |
|----------|--------------------|
| 1. Vin3  | 8. V <sup>+</sup>  |
| 2. SW1   | 9. N.C.            |
| 3. Vin2  | 10. Vout1          |
| 4. MUTE2 | 11. MUTE1          |
| 5. Vout2 | 12. Vin1           |
| 6. GND2  | 13. SW2            |
| 7. GND1  | 14. V <sup>-</sup> |

## ■ ABSOLUTE MAXIMUM RATINGS

(T<sub>a</sub> = 25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V <sup>+</sup> / V	±7.5	V
Power Dissipation	P <sub>D</sub>	(DIP14) 700 (DMP14) 300	mW mW
Operating Temperature Range	T <sub>opr</sub>	-20 to +75	°C
Storage Temperature Range	T <sub>stg</sub>	-40 to +125	°C

## ■ ELECTRICAL CHARACTERISTICS

(V<sup>+</sup> / V = ±5V, R<sub>L</sub> = 150Ω T<sub>a</sub> = 25°C)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Current	I <sub>CC</sub>	No signal	10.0	17.3	24.6	mA
	I <sub>EE</sub>	No signal	-24.6	-17.3	-10.0	mA
Voltage Gain	G <sub>V</sub>	V <sub>IN</sub> = 100kHz / 1.0V <sub>P-P</sub>	6.0	6.3	6.8	dB
Frequency Characteristic	G <sub>f</sub>	5MHz / 100kHz, 1.0V <sub>P-P</sub>	-1.0	0.0	+1.0	dB
Differential Gain	DG	V <sub>IN</sub> = 1.0V <sub>P-P</sub> , Stair wave	-	0.2	-	%
Differential Phase	DP	V <sub>IN</sub> = 1.0V <sub>P-P</sub> , Stair wave	-	0.2	-	deg
Offset output Voltage 1	V <sub>OS1</sub>	V <sub>in2</sub> -V <sub>in3</sub> : no signal	-40	0	+40	mV
Offset output Voltage 2	V <sub>OS2</sub>	V <sub>in1</sub> -V <sub>in2</sub> / V <sub>in3</sub> : no signal	-60	0	+60	mV
Input / Output Crosstalk	CT	V <sub>IN</sub> = 4.43MHz / 1.0V <sub>P-P</sub> , V <sub>O</sub> / V <sub>IN</sub>	-	-70	-	dB
MUTE Crosstalk	CT <sub>M</sub>	V <sub>IN</sub> = 4.43MHz / 1.0V <sub>P-P</sub> , V <sub>O</sub> / V <sub>IN</sub>	-	-60	-	dB
Switch Change Voltage	V <sub>CH</sub>		2.5	-	V <sup>+</sup>	V
	V <sub>CL</sub>		0.0	-	1.0	V
Total Harmonic Distortion	THD	V <sub>IN</sub> = 1kHz 1.25V <sub>P-P</sub>	-	0.1	-	%
Input Impedance	R <sub>in</sub>		-	20	-	kΩ

## ■ CONTROL SIGNAL-OUTPUT SIGNAL

(L = V<sub>CL</sub>, H = V<sub>CH</sub>, X = LorH)

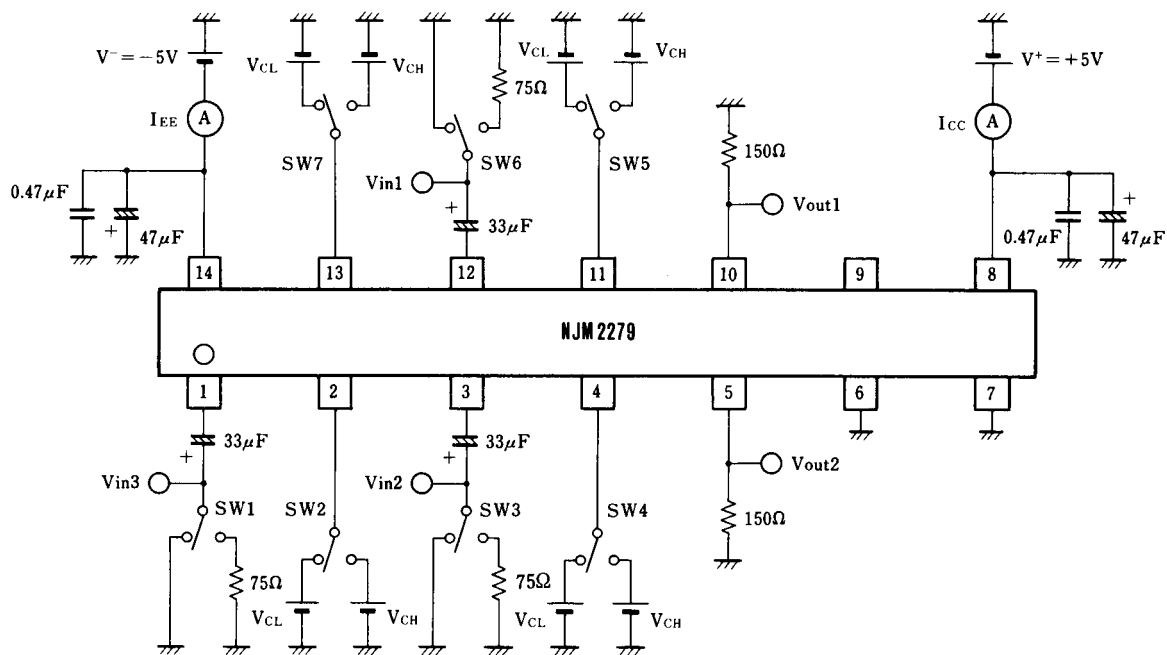
CONTROL SIGNAL				OUTPUT	
SW1 (2 pin)	SW2 (13 pin)	MUTE 1 (11 pin)	MUTE 2 (4 pin)	Vout 1 (10 pin)	Vout 2 (5 pin)
X	X	L	L	GND	GND
X	X	L	H	GND	OUT PUT
X	X	H	L	OUT PUT	GND
L	L	H	H	V <sub>IN</sub> 1	V <sub>IN</sub> 2
L	H	H	H	V <sub>IN</sub> 2	V <sub>IN</sub> 2
H	L	H	H	V <sub>IN</sub> 1	V <sub>IN</sub> 3
H	H	H	H	V <sub>IN</sub> 3	V <sub>IN</sub> 3

## ■ TERMINAL FUNCTION

PIN No.	PIN NAME	INSIDE EQUIVALENT CIRCUIT	NOTE
1 3 12	V <sub>IN3</sub> V <sub>IN2</sub> V <sub>IN1</sub>		Video signal input terminal The bias is done with 20kΩ by the voltage of the terminal GND1. 1Vp-p input (0.0V = GND1)
7	GND1		GND terminal When a single power supply is used, the bias is done to 1/2V+.
2 13	SW1 SW2		Switch control terminal for input signal selection (0.0V = GND2, Uncontrolled)
4 11	MUTE2 MUTE1		Mute control terminal The output is GND1 voltage at the mute. (0.0V = GND2, Uncontrolled)
6	GND2	GND terminal Please connect it with GND regardless of dual power supplies or single power supplies.	
5 10	V <sub>out2</sub> V <sub>out1</sub>		Video signal input terminal The output signal level becomes 1VP-P at 75Ω terminal.
8	V <sup>+</sup>	-	Power supply terminal
14	V	-	Power supply terminal When a single power supply is used, it becomes GND.

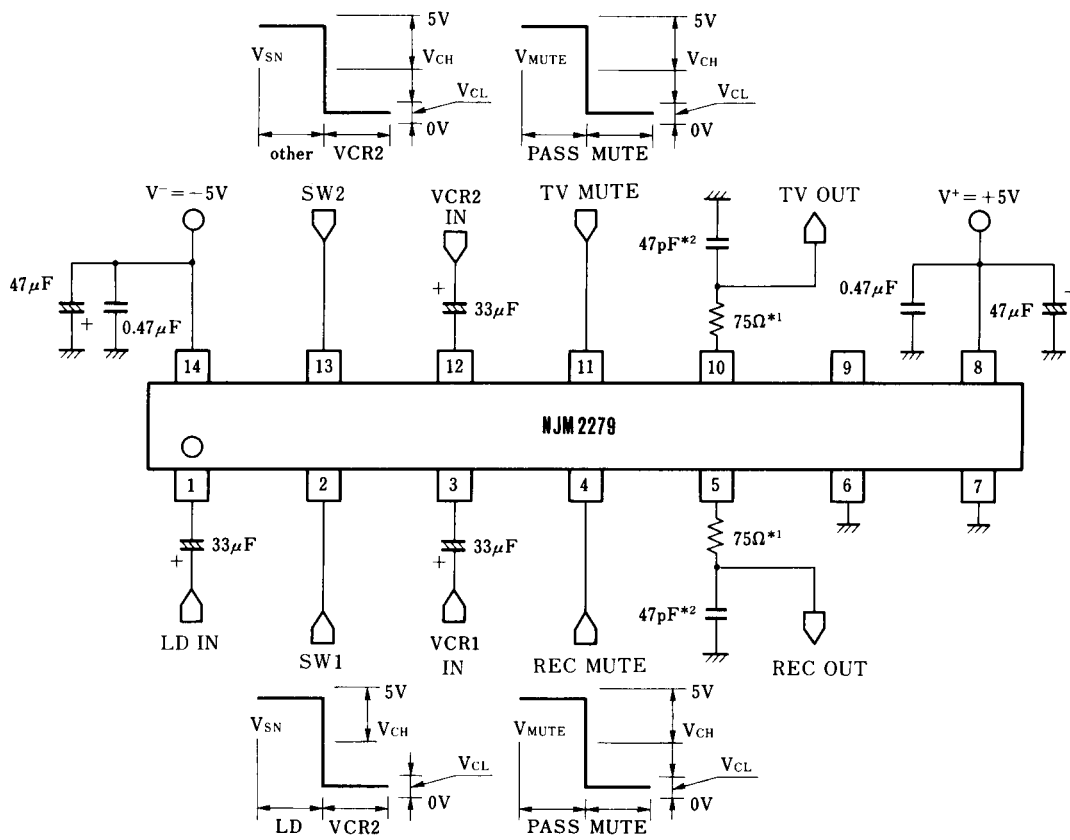
# NJM2279

## TEST CIRCUIT



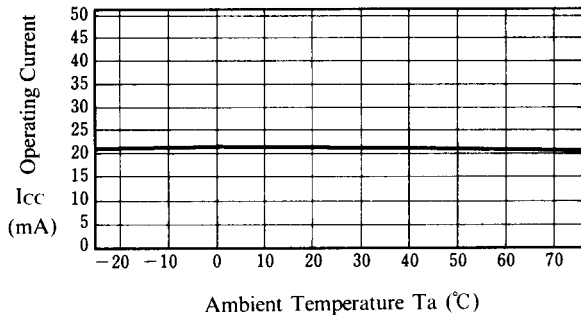
PARAMETER	SYMBOL	UNIT	INPUT TERMINAL	TEST TERMINAL	TEST CONDITION
Operating Current	$I_{CC}$	mA	-	8 pin	$V_{in1}$ to 3 = 0V, SW1/2·MUTE1/2 = $V_{CL}$
	$I_{EE}$	mA	-	14 pin	$V_{in1}$ to 3 = 0V, SW1/2·MUTE1/2 = $V_{CL}$
Voltage Gain	$G_V$	dB	1, 3, 12 pin	5, 10 pin	MUTE1/2 = $V_{CL}$
Frequency Characteristic	$G_f$	dB	1, 3, 12 pin	5, 10 pin	MUTE1/2 = $V_{CL}$
Differential Gain	DG	%	1, 3, 12 pin	5, 10 pin	MUTE1/2 = $V_{CL}$
Differential Phase	DP	deg	1, 3, 12 pin	5, 10 pin	MUTE1/2 = $V_{CL}$
Offset output Voltage 1	$V_{OS1}$	mV	1, 3, 12 pin	5, 10 pin	$V_{in1}$ to 3 = 0V
Offset output Voltage 2	$V_{OS2}$	mV	-	5, 10 pin	$V_{in1}$ to 3 = 0V
Input / Output Crosstalk	CT	dB	-	5, 10 pin	MUTE1/2 = $V_{CL}$
MUTE Crosstalk	$CT_M$	dB	1, 3, 12 pin	5, 10 pin	MUTE1/2 = $V_{CL}$
Switch Change Voltage	$V_{CH}$	V	1, 3, 12 pin	5, 10 pin	
	$V_{CL}$	V	-	-	
Total Harmonic Distortion	THD	%	1, 3, 12 pin	5, 10 pin	

## APPLICATION

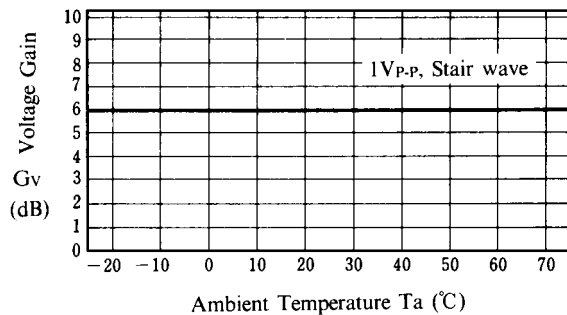


## ■ TYPICAL CHARACTERISTICS

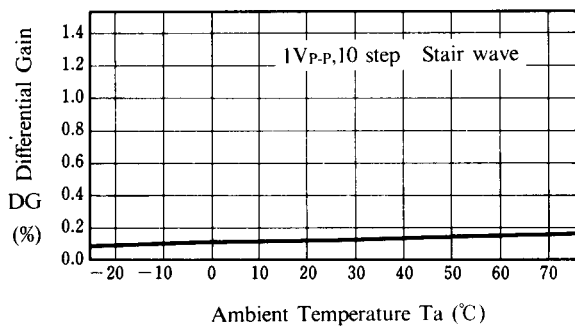
### Operating Current vs. Temperature



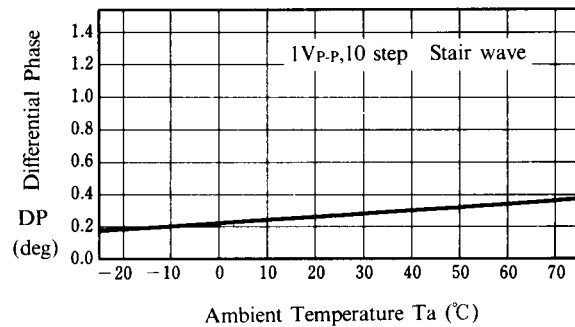
### Voltage Gain vs. Temperature



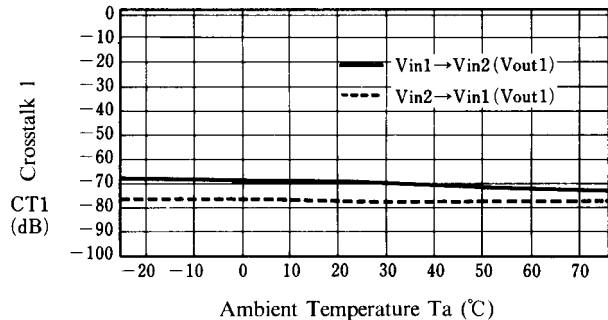
### Differential Gain vs. Temperature



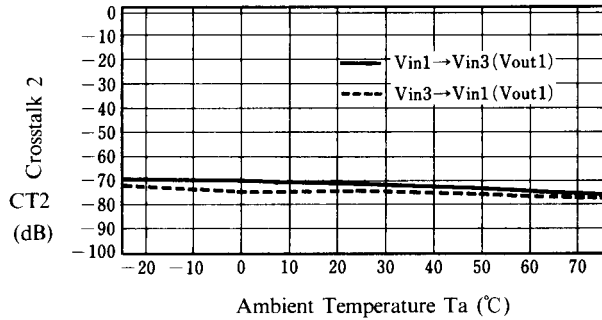
### Differential Phase vs. Temperature



### Crosstalk 1 vs. Temperature

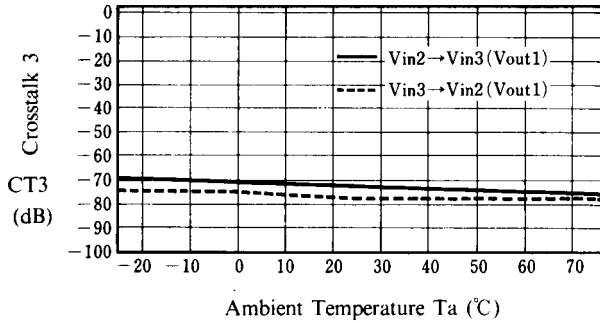


### Crosstalk 2 vs. Temperature

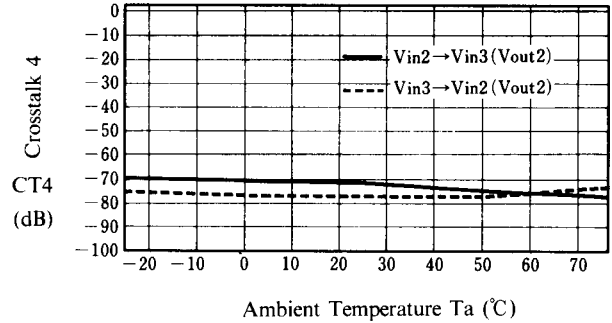


## ■ TYPICAL CHARACTERISTICS

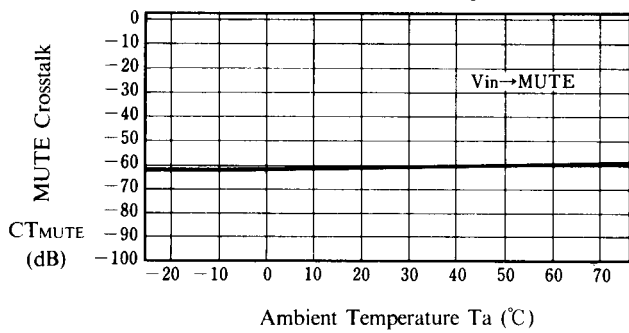
### Crosstalk 3 vs. Temperature



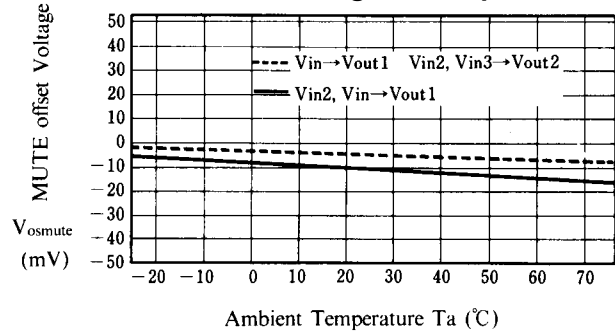
### Crosstalk 4 vs. Temperature



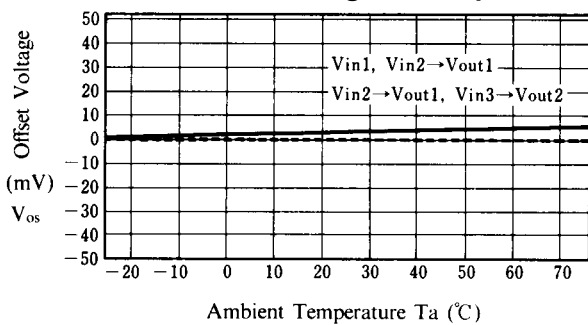
### MUTE Crosstalk vs. Temperature



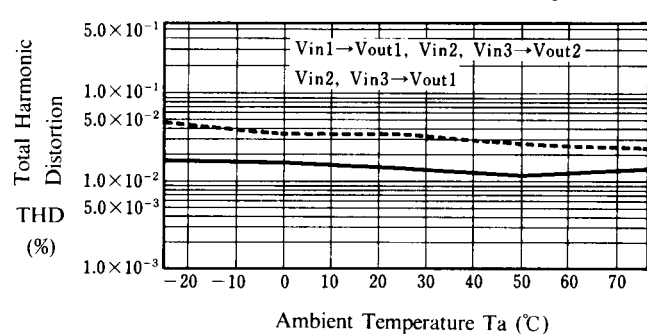
### MUTE offset Voltage vs. Temperature



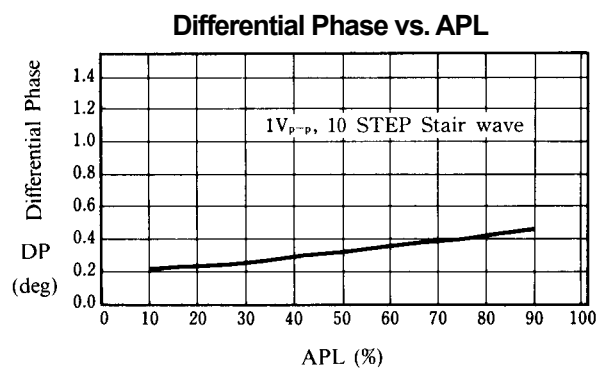
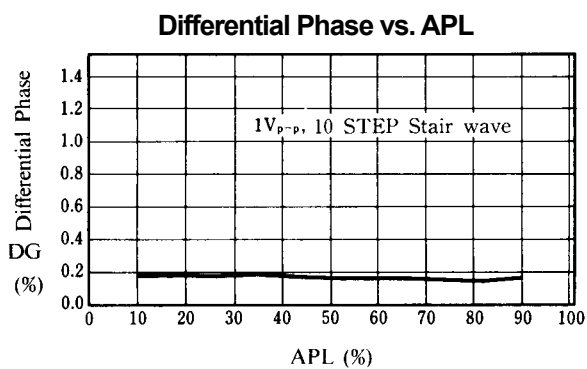
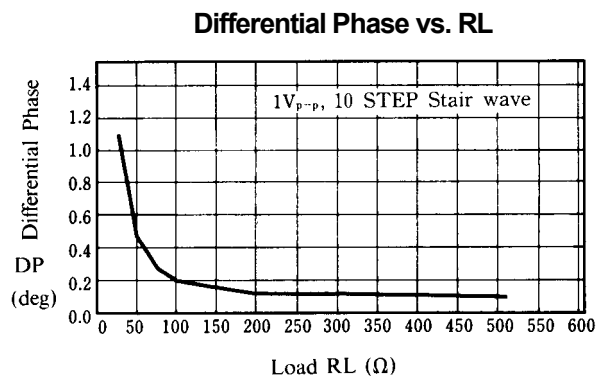
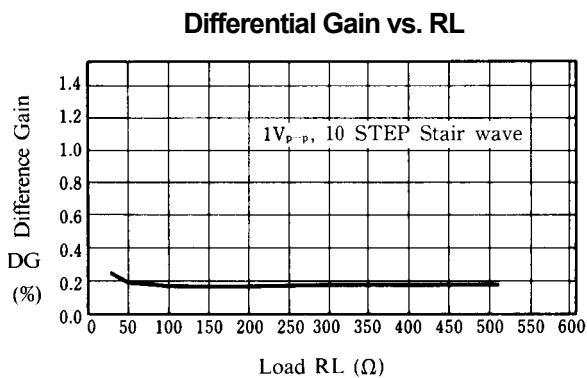
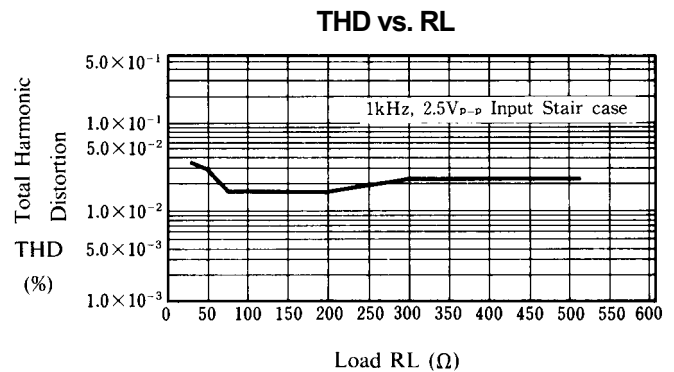
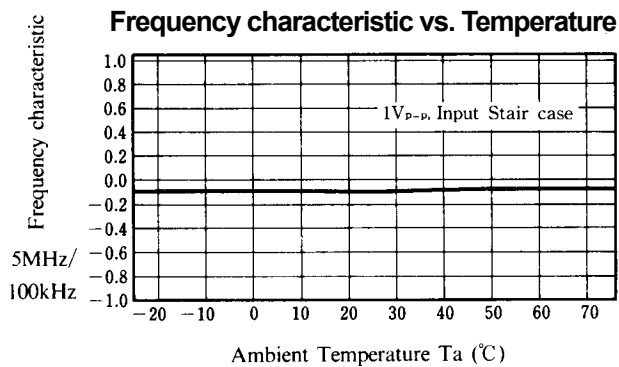
### Channel offset Voltage vs. Temperature



### Total Harmonic Distortion vs. Temperature



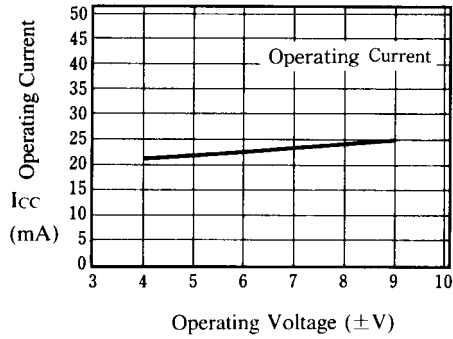
## ■ TYPICAL CHARACTERISTICS



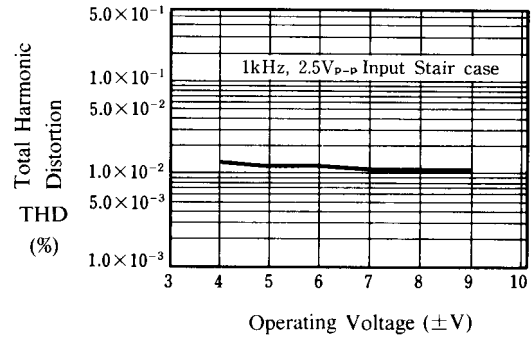


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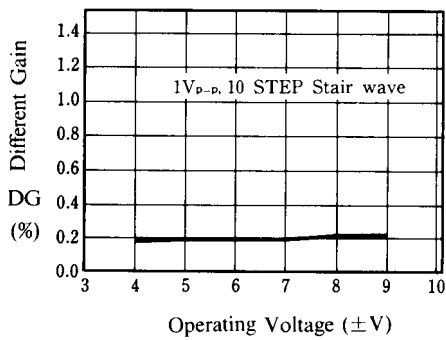
### Operating Current vs. Operating Voltage



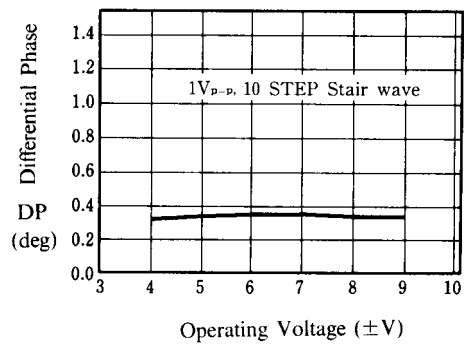
### THD vs. Operating Voltage



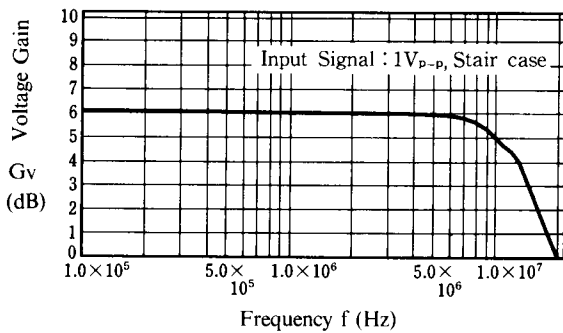
### Different Gain vs. Operating Voltage



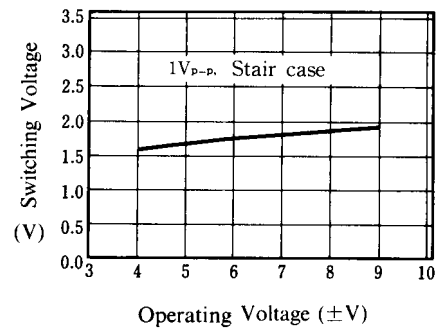
### Differential Phase vs. Operating Voltage



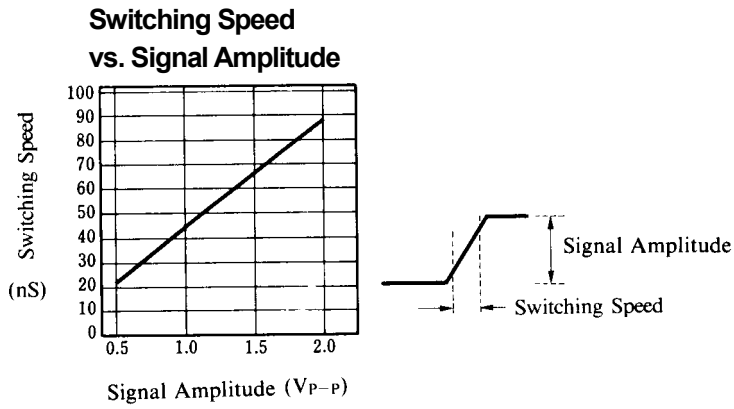
### Voltage Gain vs. Frequency



### Switching Voltage vs. Operating Voltage



## ■ TYPICAL CHARACTERISTICS



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