

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.

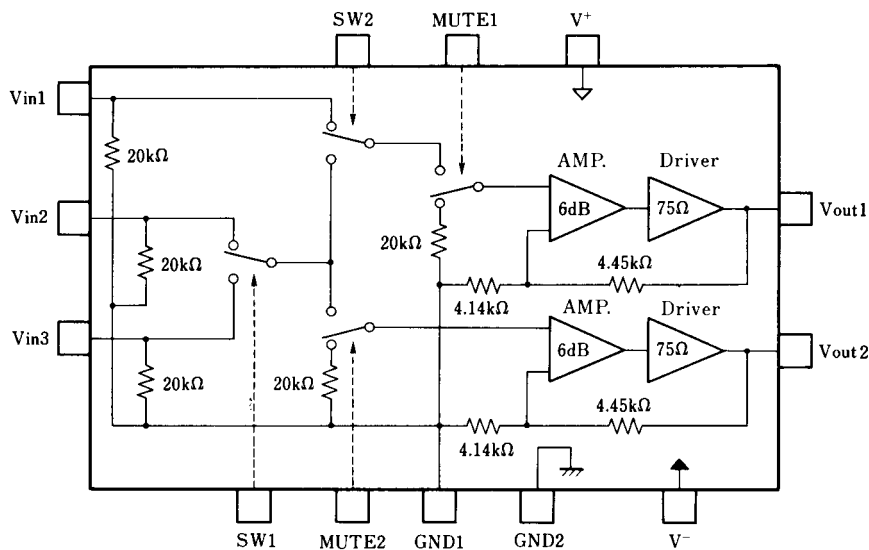
■ FEATURES

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

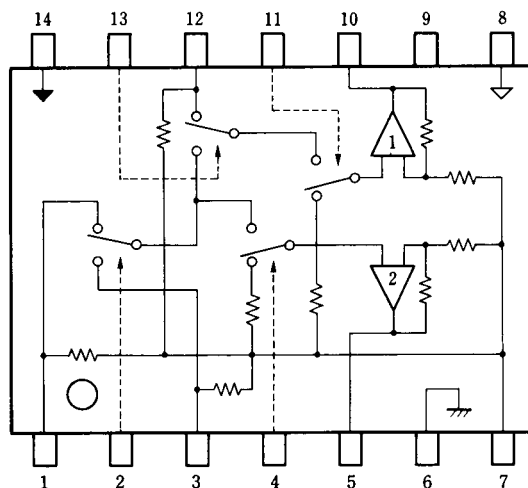
■ RECOMMENDED OPERATING CONDITION

- Supply Voltage Dual ±4.0V to ±7.0V
- Supply Voltage Single +8V to +14V

■ BLOCK DIAGRAM



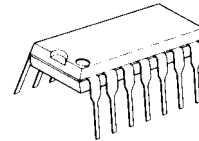
■ PIN CONFIGURATION



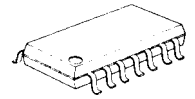
PIN FUNCTION

- | | |
|----------|--------------------|
| 1. Vin3 | 8. V ⁺ |
| 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 ⁻ |

■ PACKAGE OUTLINE



NJM2279D



NJM2279M

■ ABSOLUTE MAXIMUM RATINGS

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

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V^+ / V^-	± 7.5	V
Power Dissipation	P_D	(DIP14) 700 (DMP14) 300	mW 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

($V^+ / V^- = \pm 5\text{V}$, $R_L = 150\Omega$, $T_a = 25^\circ\text{C}$)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Current	I_{CC}	No signal	10.0	17.3	24.6	mA
	I_{EE}	No signal	-24.6	-17.3	-10.0	mA
Voltage Gain	G_V	$V_{IN} = 100\text{kHz} / 1.0\text{V}_{P-P}$	6.0	6.3	6.8	dB
Frequency Characteristic	G_f	5MHz / 100kHz, 1.0V _{P-P}	-1.0	0.0	+1.0	dB
Differential Gain	DG	$V_{IN} = 1.0\text{V}_{P-P}$, Stair wave	-	0.2	-	%
Differential Phase	DP	$V_{IN} = 1.0\text{V}_{P-P}$, Stair wave	-	0.2	-	deg
Offset output Voltage 1	V_{OS1}	$V_{in2} - V_{in3}$: no signal	-40	0	+40	mV
Offset output Voltage 2	V_{OS2}	$V_{in1} - V_{in2} / V_{in3}$: no signal	-60	0	+60	mV
Input / Output Crosstalk	CT	$V_{IN} = 4.43\text{MHz} / 1.0\text{V}_{P-P}$, V_O / V_{IN}	-	-70	-	dB
MUTE Crosstalk	CT_M	$V_{IN} = 4.43\text{MHz} / 1.0\text{V}_{P-P}$, V_O / V_{IN}	-	-60	-	dB
Switch Change Voltage	V_{CH}		2.5	-	V^+	V
	V_{CL}		0.0	-	1.0	V
Total Harmonic Distortion	THD	$V_{IN} = 1\text{kHz} 1.25\text{V}_{P-P}$	-	0.1	-	%
Input Impedance	R_{in}		-	20	-	k Ω

■ CONTROL SIGNAL-OUTPUT SIGNAL

(L = V_{CL} , H = V_{CH} , X = L or H)

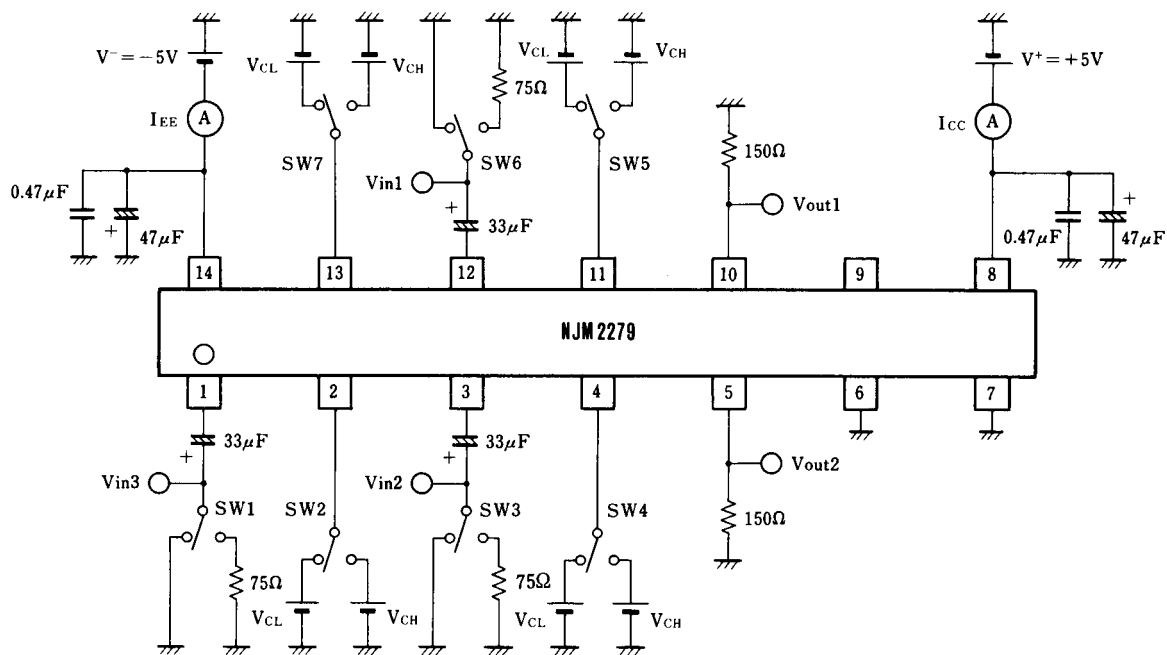
CONTROL SIGNAL				OUTPUT	
SW1 (2 pin)	SW2 (13 pin)	MUTE 1 (11 pin)	MUTE 2 (4 pin)	Vout 1 (10 pin)	Vout 2 (5 pin)
X	X	L	L	GND	GND
X	X	L	H	GND	OUT PUT
X	X	H	L	OUT PUT	GND
L	L	H	H	V_{IN1}	V_{IN2}
L	H	H	H	V_{IN2}	V_{IN2}
H	L	H	H	V_{IN1}	V_{IN3}
H	H	H	H	V_{IN3}	V_{IN3}

■ TERMINAL FUNCTION

PIN No.	PIN NAME	INSIDE EQUIVALENT CIRCUIT	NOTE
1 3 12	V _{IN3} V _{IN2} V _{IN1}		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 _{out2} V _{out1}		Video signal input terminal The output signal level becomes 1VP-P at 75Ω terminal.
8	V ⁺	-	Power supply terminal
14	V	-	Power supply terminal When a single power supply is used, it becomes GND.

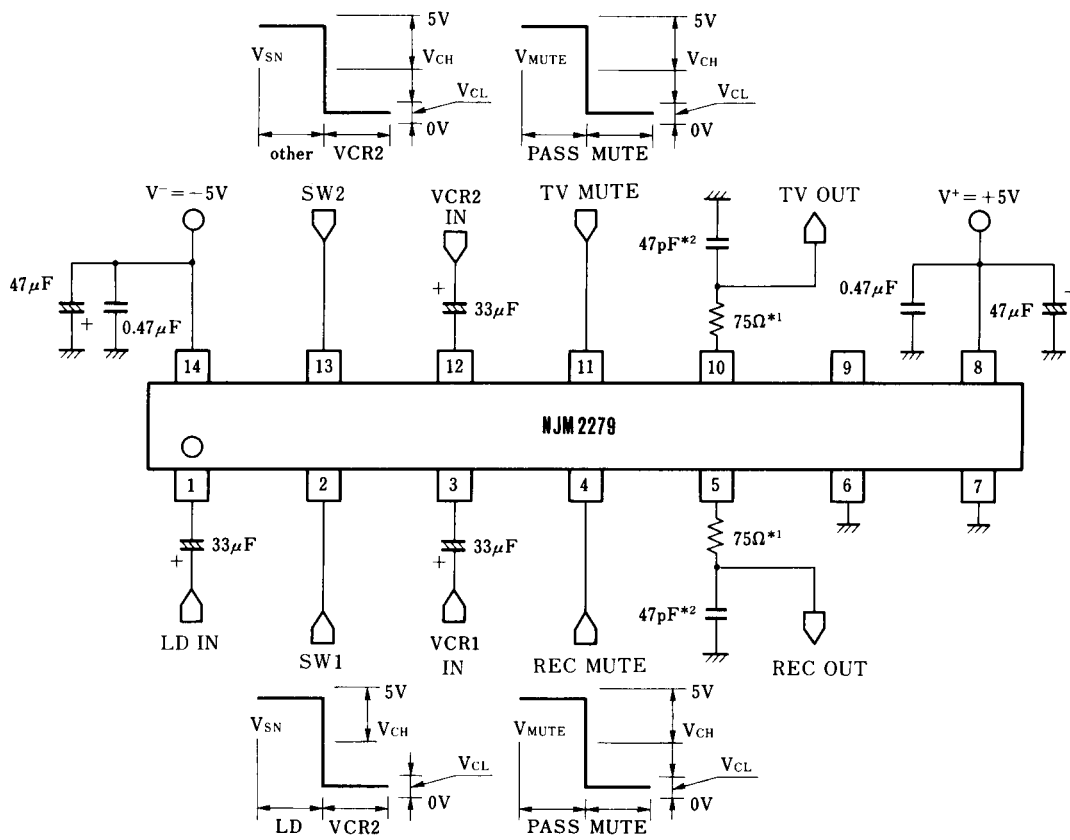
NJM2279

TEST CIRCUIT



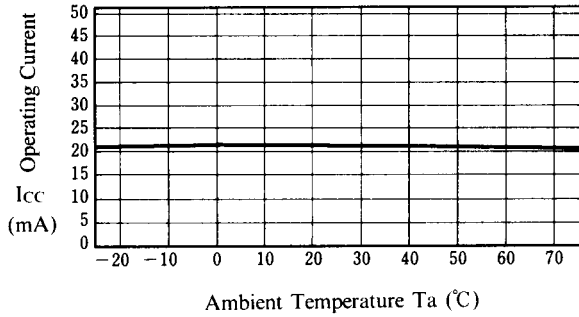
PARAMETER	SYMBOL	UNIT	INPUT TERMINAL	TEST TERMINAL	TEST CONDITION
Operating Current	I_{CC}	mA	-	8 pin	V_{in1} to 3 = 0V, SW1/2·MUTE1/2 = V_{CL}
	I_{EE}	mA	-	14 pin	V_{in1} to 3 = 0V, SW1/2·MUTE1/2 = V_{CL}
Voltage Gain	G_V	dB	1, 3, 12 pin	5, 10 pin	MUTE1/2 = V_{CL}
Frequency Characteristic	G_f	dB	1, 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

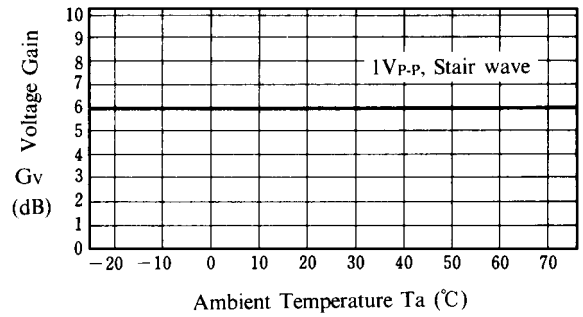


■ TYPICAL CHARACTERISTICS

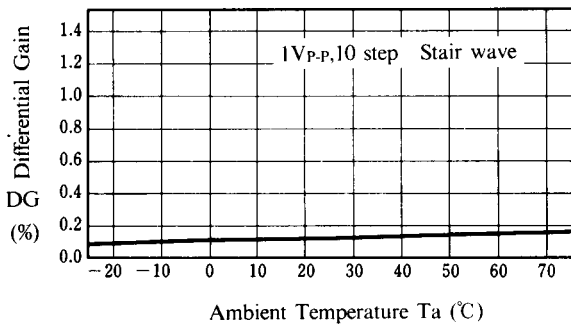
Operating Current vs. Temperature



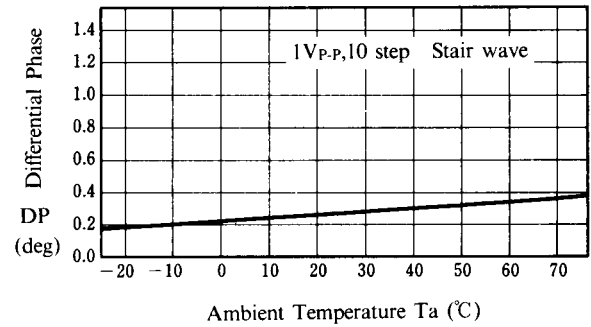
Voltage Gain vs. Temperature



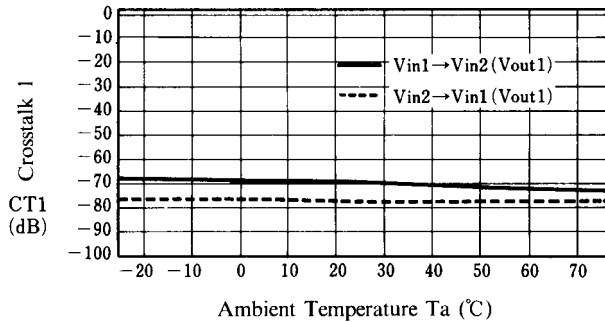
Differential Gain vs. Temperature



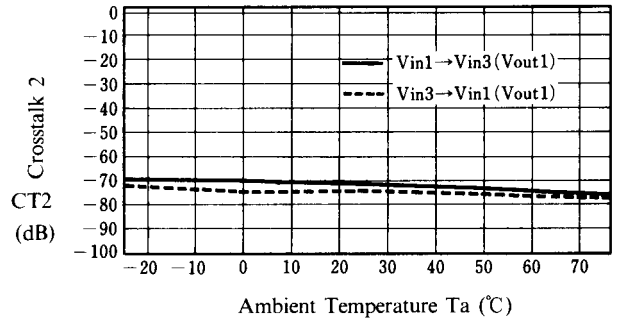
Differential Phase vs. Temperature



Crosstalk 1 vs. Temperature

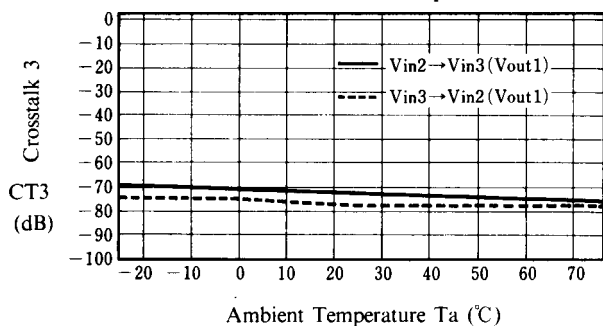


Crosstalk 2 vs. Temperature

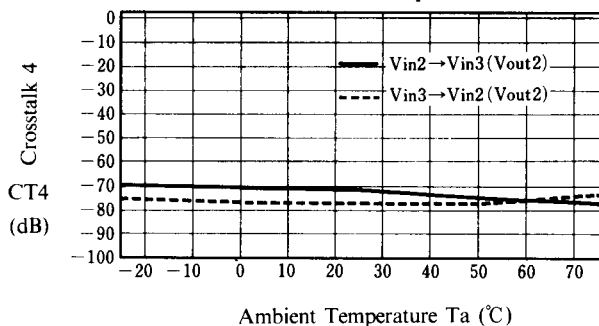


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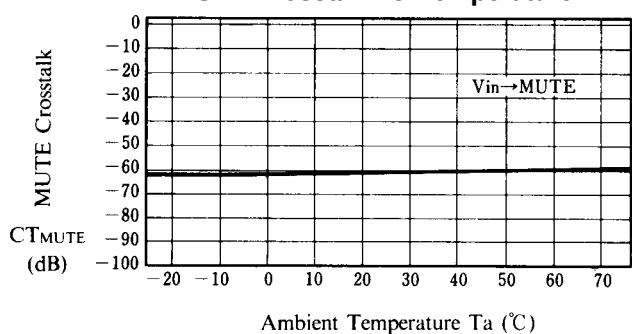
Crosstalk 3 vs. Temperature



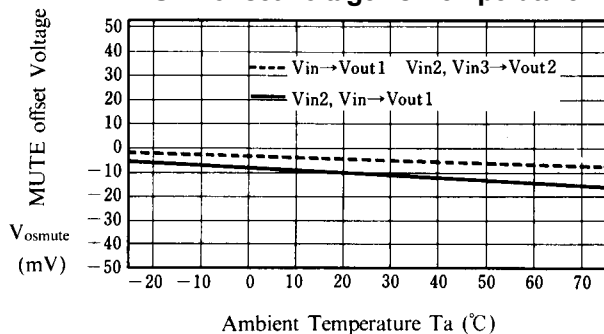
Crosstalk 4 vs. Temperature



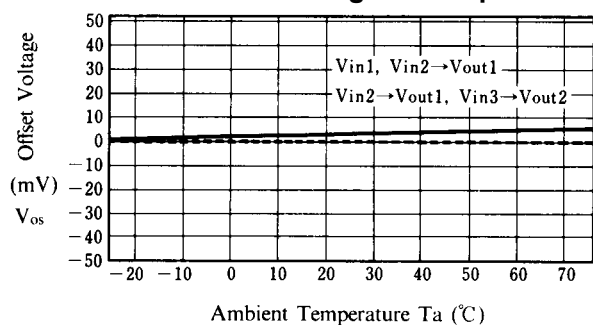
MUTE Crosstalk vs. Temperature



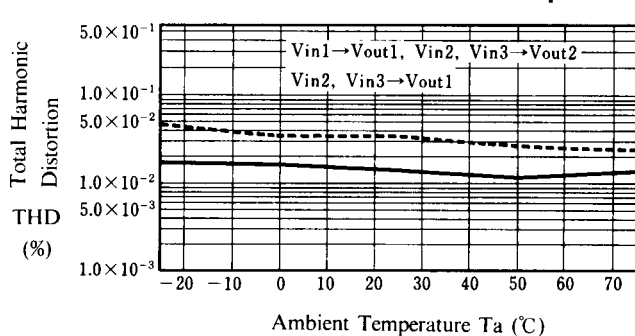
MUTE offset Voltage vs. Temperature



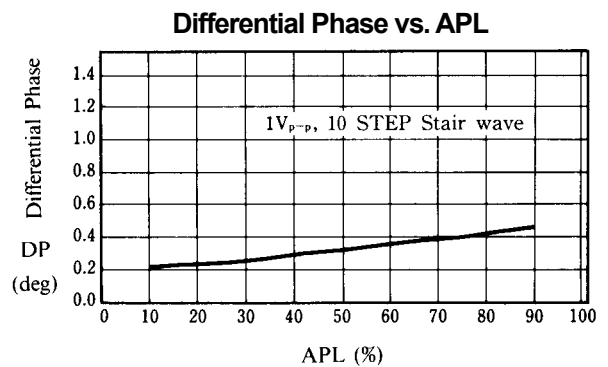
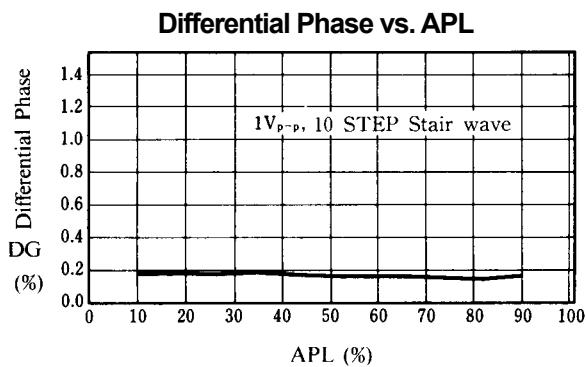
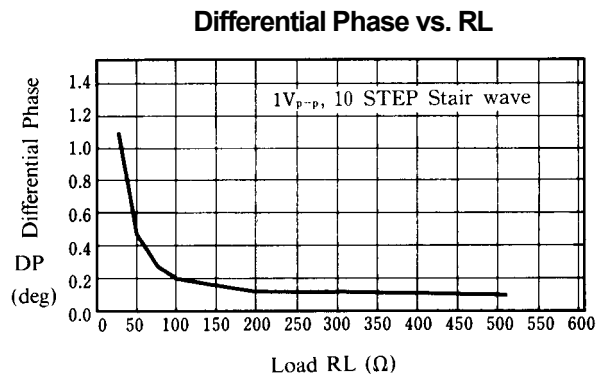
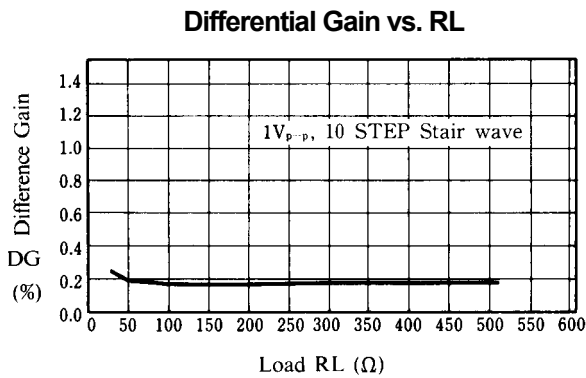
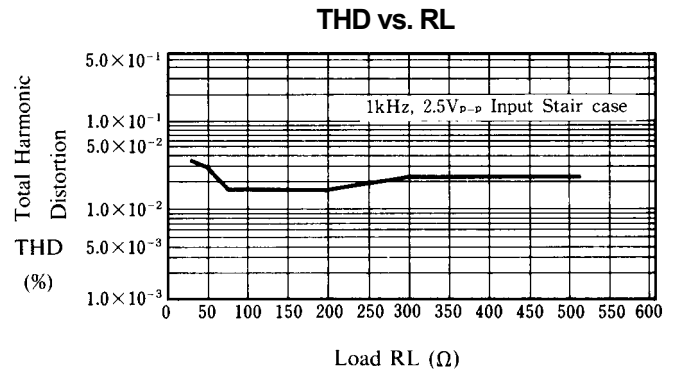
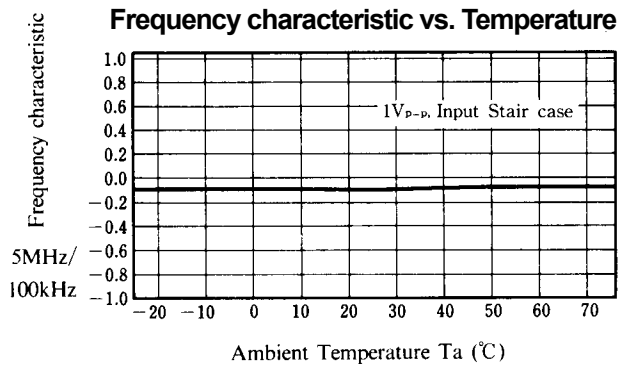
Channel offset Voltage vs. Temperature



Total Harmonic Distortion vs. Temperature

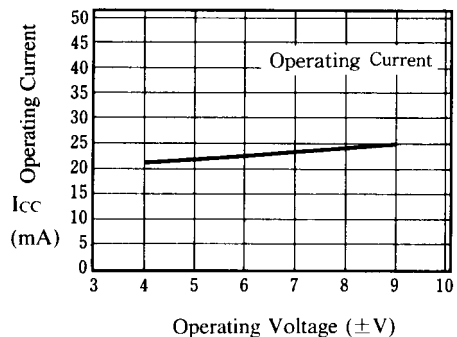


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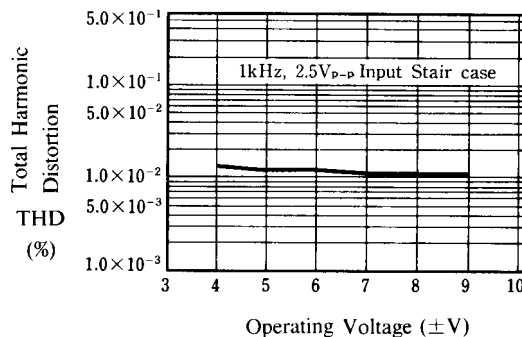


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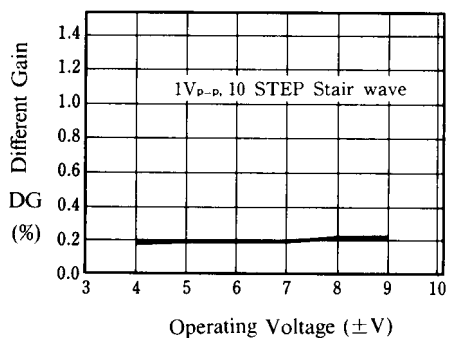
Operating Current vs. Operating Voltage



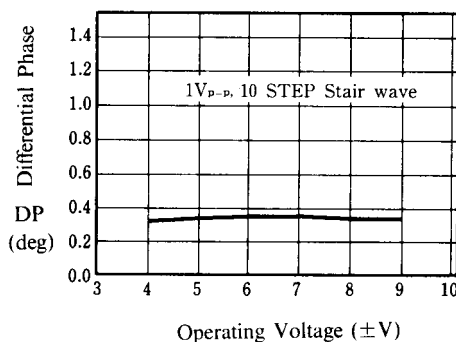
THD vs. Operating Voltage



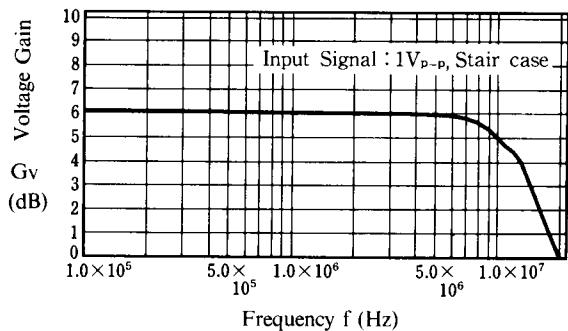
Different Gain vs. Operating Voltage



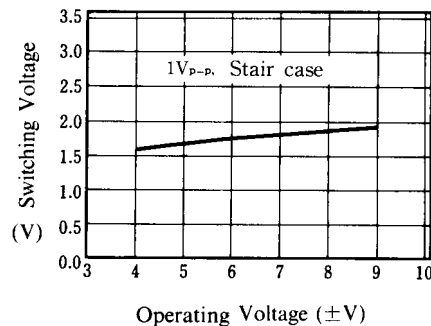
Differential Phase vs. Operating Voltage



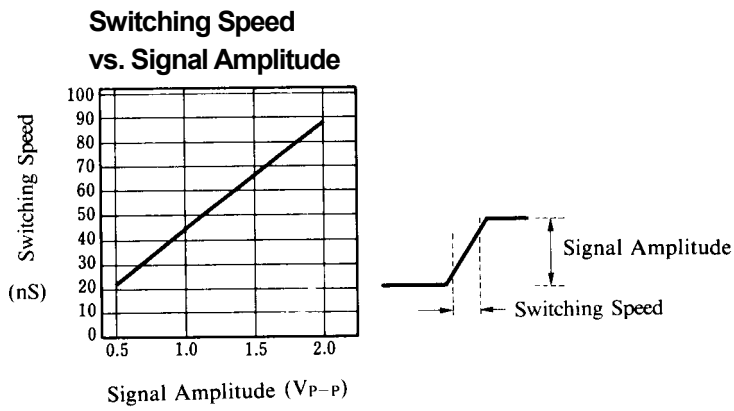
Voltage Gain vs. Frequency



Switching Voltage vs. Operating Voltage



■ TYPICAL CHARACTERISTICS



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