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

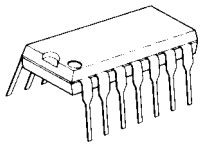
■ GENERAL DESCRIPTION

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

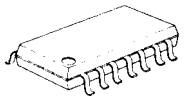
This video switch can be connected to TV monitor directly, as it has 6dB amplifier and 75Ω drivers circuit internally.

The **NJM2279** has the mute function.

■ PACKAGE OUTLINE



NJM2279D



NJM2279M

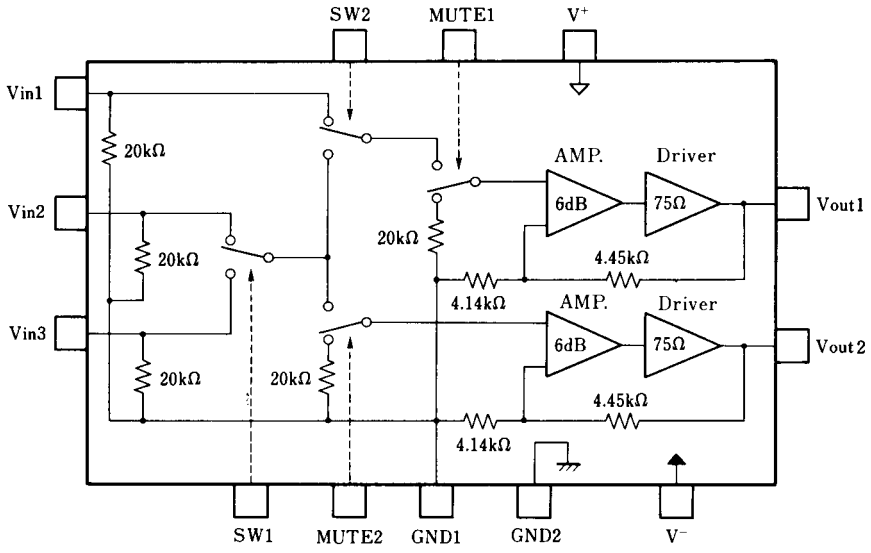
■ FEATURES

- 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

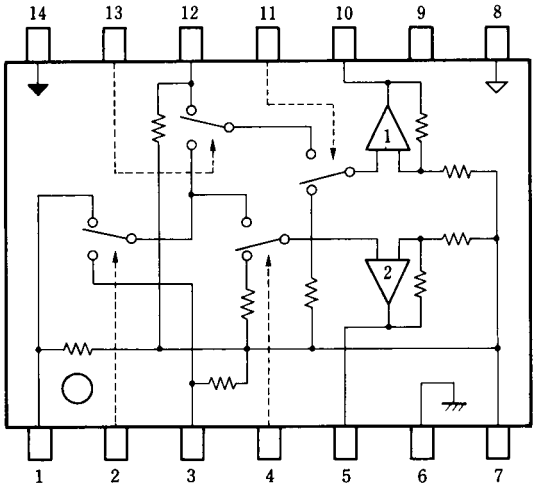
■ RECOMMENDED OPERATING CONDITION

• Supply Voltage	Dual	±4.0V to ±7.0V
	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−

■ ABSOLUTE MAXIMUM RATINGS

(T_a = 25ºC)

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	ºC
Storage Temperature Range	T_{stg}	-40 to +125	ºC

■ ELECTRICAL CHARACTERISTICS

(V^+ / V^- = ±5V, R_L = 150Ω T_a = 25°C)

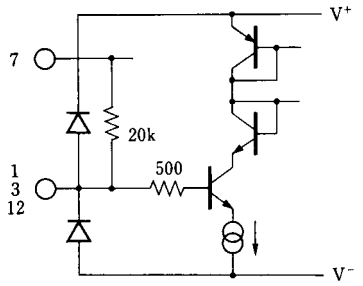
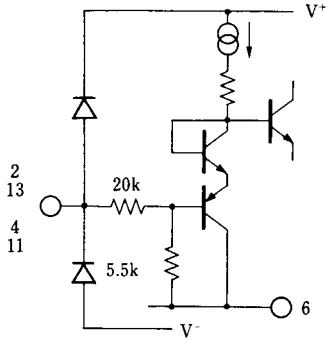
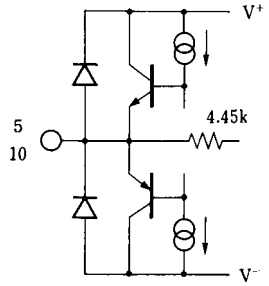
PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Current	I_{CC}	No signal	10.0	17.3	24.6	mA
	I_{EE}	No signal	-24.6	-17.3	-10.0	mA
Voltage Gain	G_V	V_{IN} = 100kHz / 1.0V_{P-P}	6.0	6.3	6.8	dB
Frequency Characteristic	G_f	5MHz / 100kHz, 1.0V_{P-P}	-1.0	0.0	+1.0	dB
Differential Gain	DG	V_{IN} = 1.0V_{P-P}, Stair wave	-	0.2	-	%
Differential Phase	DP	V_{IN} = 1.0V_{P-P}, Stair wave	-	0.2	-	deg
Offset output Voltage 1	$V_{OS}1$	$V_{in}2$-V_{in} 3 : no signal	-40	0	+40	mV
Offset output Voltage 2	$V_{OS}2$	$V_{in}1$-V_{in} 2 / $V_{in}3$: no signal	-60	0	+60	mV
Input / Output Crosstalk	CT	V_{IN} = 4.43MHz / 1.0V_{P-P}, V_O / V_{IN}	-	-70	-	dB
MUTE Crosstalk	CT_M	V_{IN} = 4.43MHz / 1.0V_{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} = 1kHz 1.25V_{P-P}	-	0.1	-	%
Input Impedance	R_{in}		-	20	-	kΩ

■ CONTROL SIGNAL-OUTPUT SIGNAL

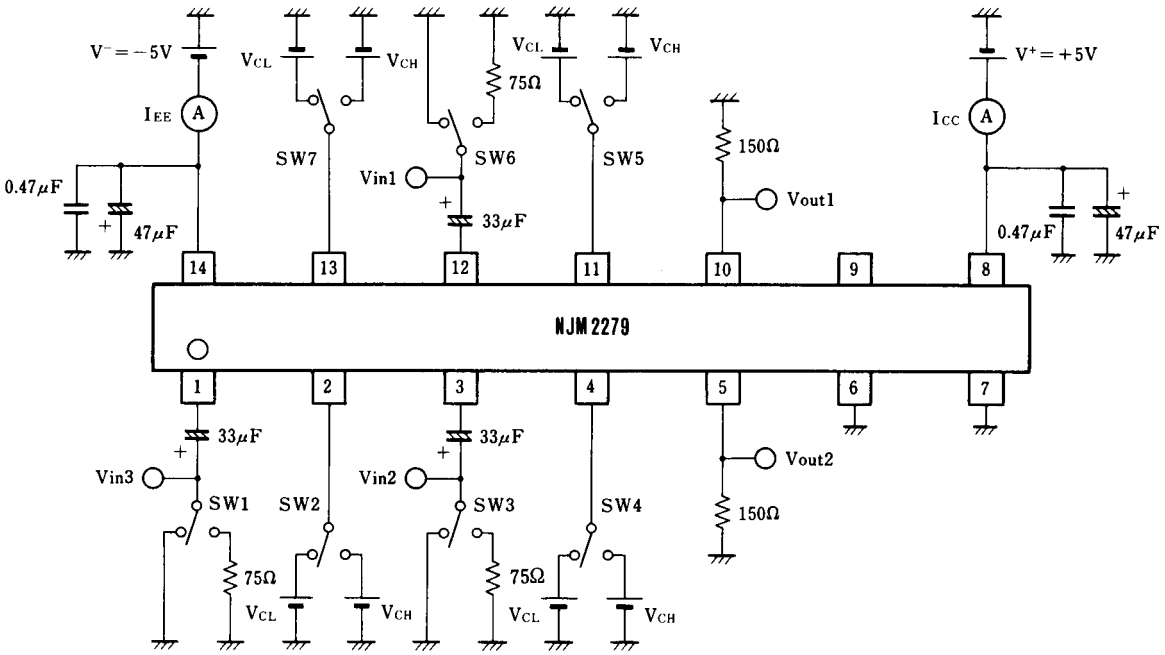
(L = V_{CL}, H = V_{CH}, X = LorH)

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_{IN} 1	V_{IN} 2
L	H	H	H	V_{IN} 2	V_{IN} 2
H	L	H	H	V_{IN} 1	V_{IN} 3
H	H	H	H	V_{IN} 3	V_{IN} 3

■TERMINAL FUNCTION

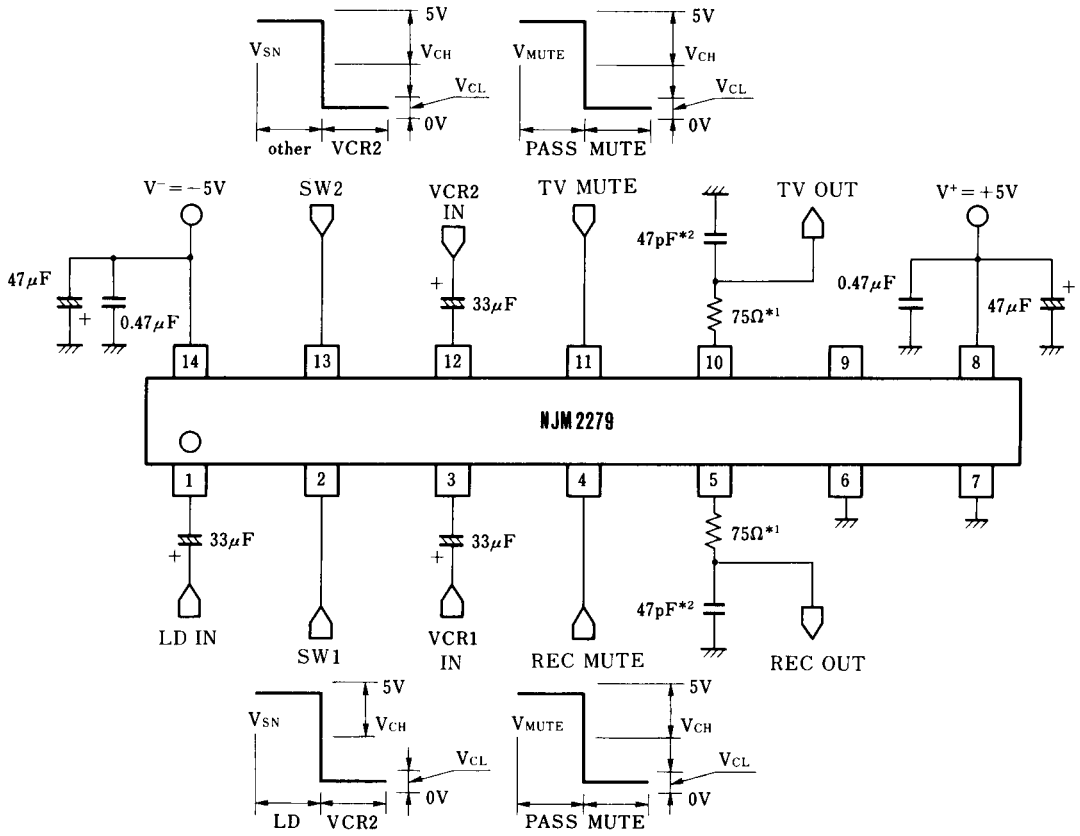
PIN No.	PIN NAME	INSIDE EQUIVALENT CIRCUIT	NOTE
1 3 12	$V_{IN}3$ $V_{IN}2$ $V_{IN}1$		Video signal input terminal The bias is done with 20kΩ by the voltage of the terminal GND1. 1Vp-p input (0.0V = GND1)
7	GND1		GND terminal When a single power supply is used, the bias is done to 1/2V+.
2 13	SW1 SW2		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	$V_{OUT}2$ $V_{OUT}1$		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.

■ TEST CIRCUIT



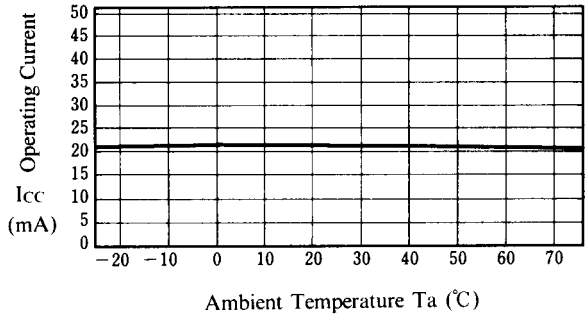
PARAMETER	SYMBOL	UNIT	INPUT TERMINAL	TEST TERMINAL	TEST CONDITION
Operating Current	I_{CC}	mA	-	8 pin	V_{in}1 to 3 = 0V, SW1/2·MUTE1/2 = V_{CL}
	I_{EE}	mA	-	14 pin	V_{in}1 to 3 = 0V, SW1/2·MUTE1/2 = V_{CL}
Voltage Gain	G_V	dB	1, 3,12 pin	5, 10 pin	MUTE1/2 = V_{CL}
Frequency Characteristic	G_f	dB	1, 3,12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

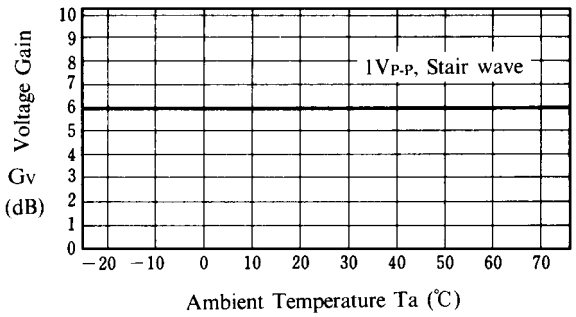


■ TYPICAL CHARACTERISTICS

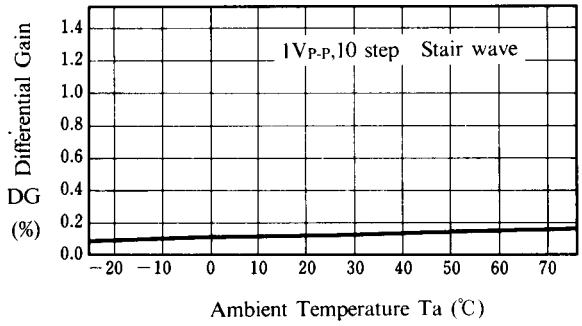
Operating Current vs. Temperature



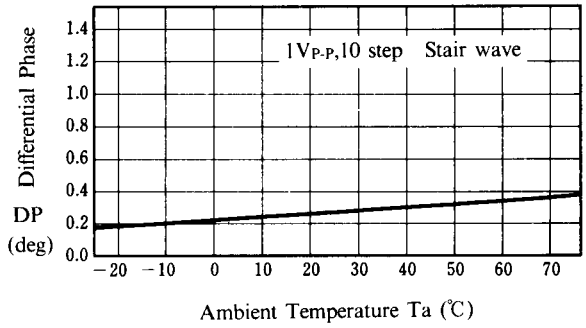
Voltage Gain vs. Temparature



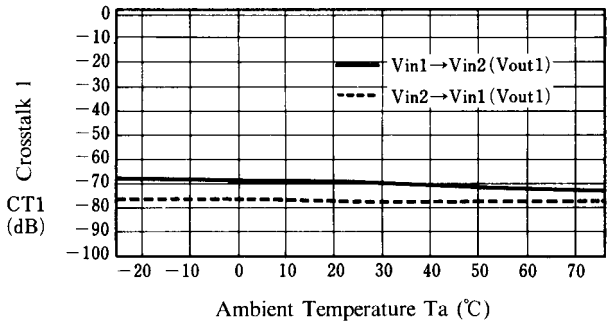
Differential Gain vs. Temperature



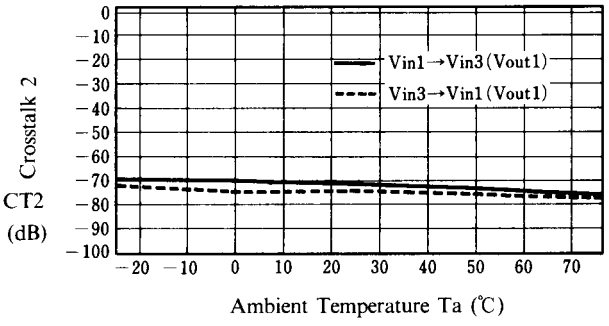
Differential Phase vs. Temperature



Crosstalk 1 vs. Temperature

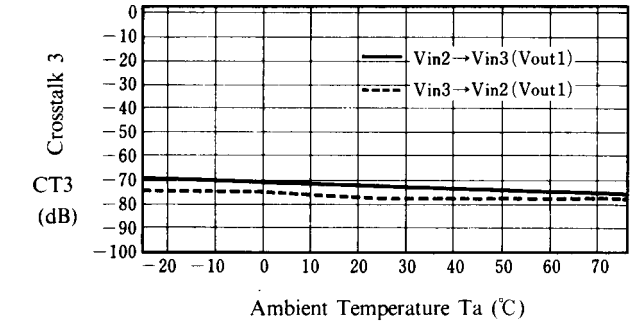


Crosstalk 2 vs. Temperature

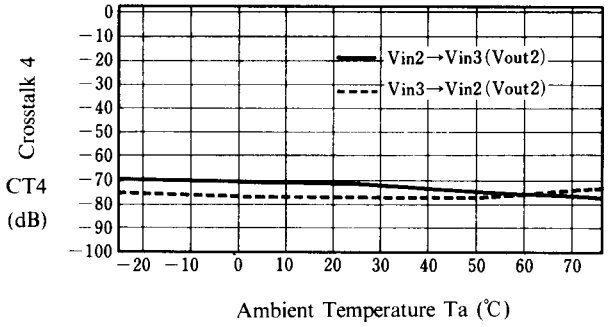


■ TYPICAL CHARACTERISTICS

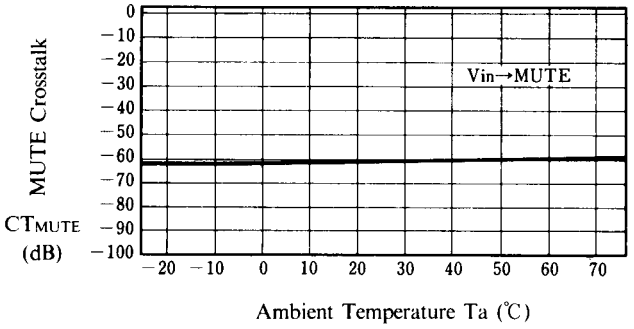
Crosstalk 3 vs. Temperature



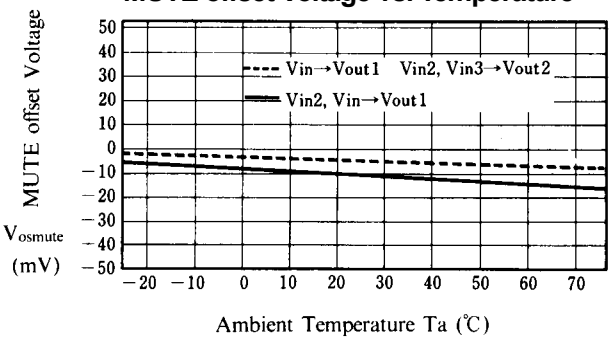
Crosstalk 4 vs. Temperature



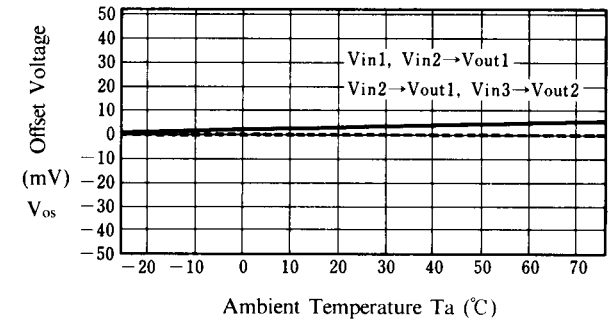
MUTE Crosstalk vs. Temperature



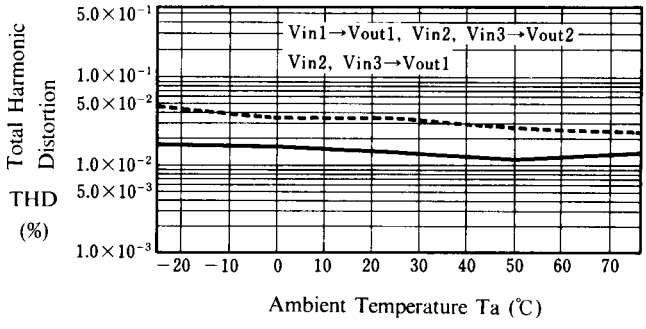
MUTE offset Voltage vs. Temperature



Channel offset Voltage vs. Temperature

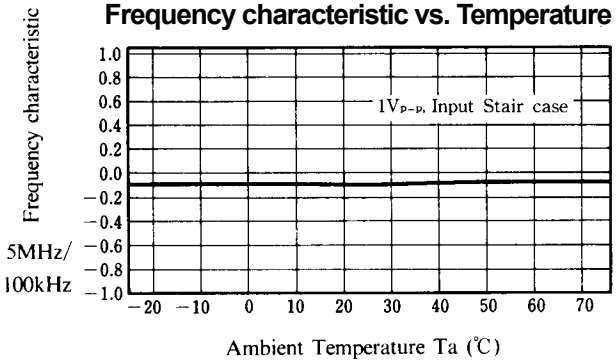


Total Harmonic Distortion vs. Temperature

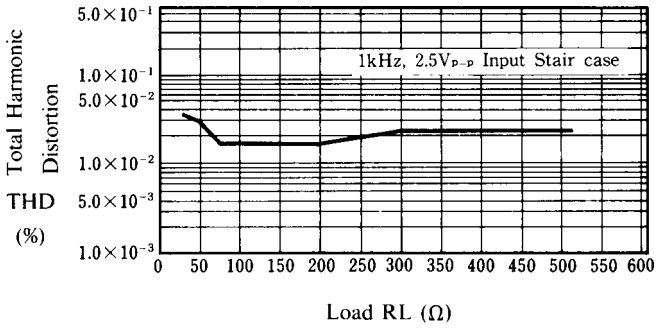


■ TYPICAL CHARACTERISTICS

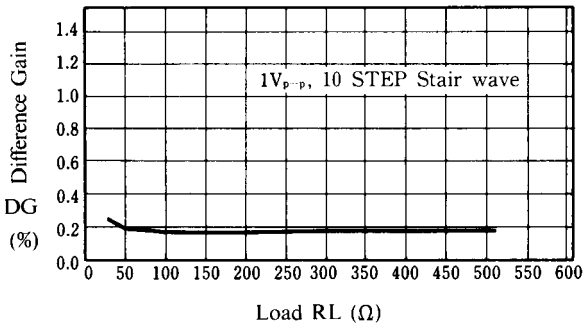
Frequency characteristic vs. Temperature



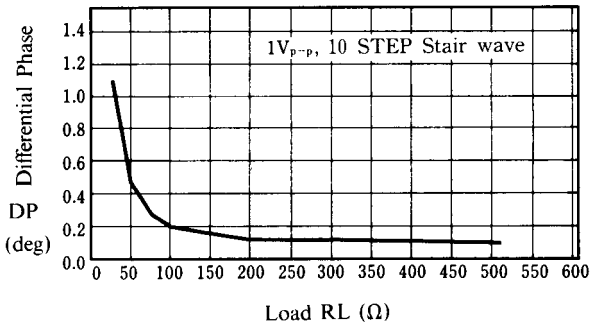
THD vs. RL



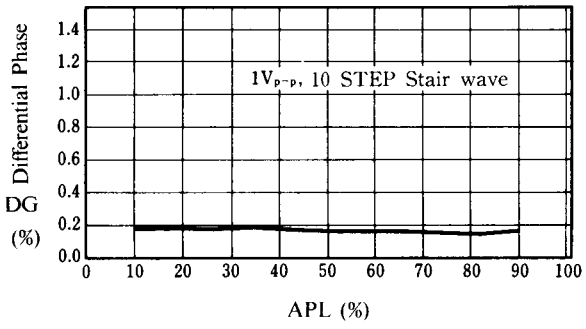
Differential Gain vs. RL



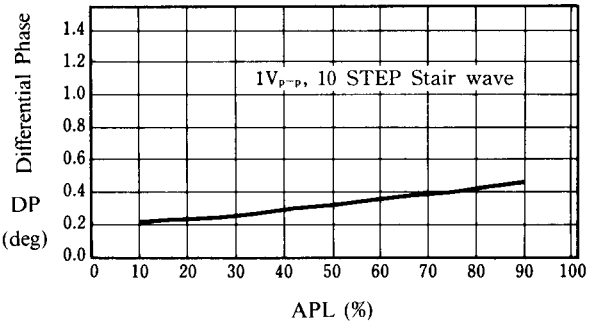
Differential Phase vs. RL



Differential Phase vs. APL

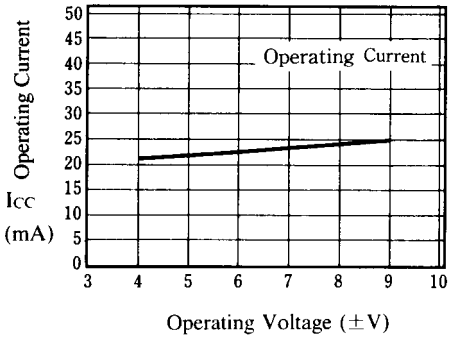


Differential Phase vs. APL

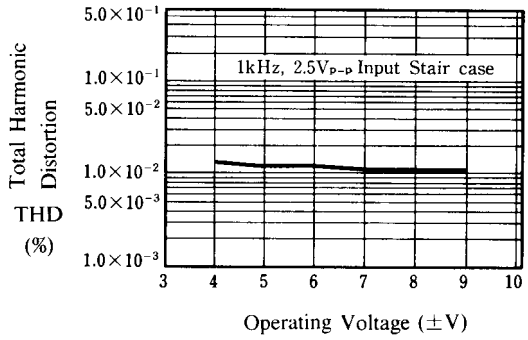


■ TYPICAL CHARACTERISTICS

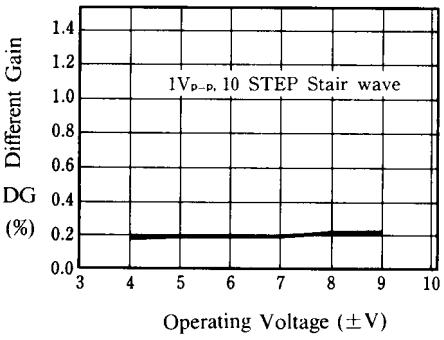
Operating Current vs. Operating Voltage



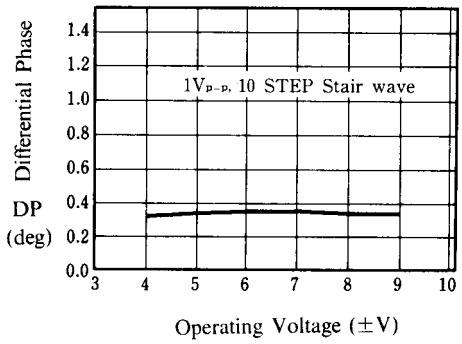
THD vs. Operating Voltage



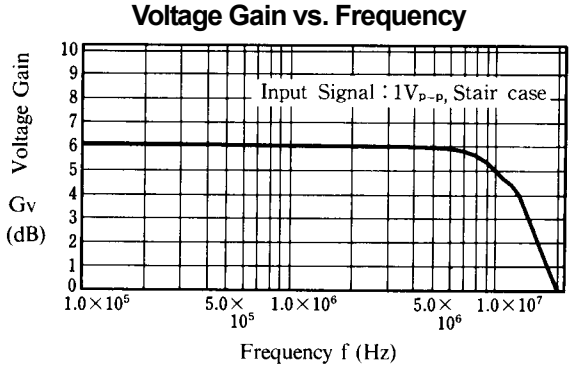
Different Gain vs. Operating Voltage



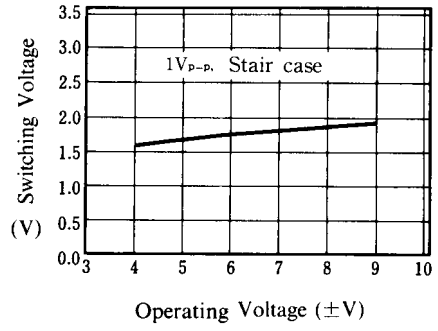
Differential Phase vs. Operating Voltage



Voltage Gain vs. Frequency



Swiching Voltage vs. Operating Voltage



■ TYPICAL CHARACTERISTICS

Switching Speed vs. Signal Amplitude