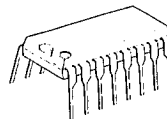


2-INPUT 3CHANNEL VIDEO SWITCH

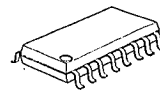
■ GENERAL DESCRIPTION

NJM2284 is a switching IC for switching over from one audio or video input signal to another. Internalizing 2 inputs, 1 output, and then each set of 3 can be operated independently. One of them is a "Clamp type" and it can be operated while DC level fixed in position of the video signal. It is a higher efficiency video switch, featuring the operating supply voltage 4.75 to 13.0V, the frequency feature 10MHz, and then the Crosstalk 75dB (at 4.43MHz).

■ PACKAGE OUTLINE



NJM2284D



NJM2284M



NJM2284V

■ FEATURES

- 2 Input-1 Output Internalizing 3 Circuits (one of them is a Clamp type).
- Wide Operating Voltage
- Crosstalk 75dB(at 4.43MHz)
- Wide Bandwidth Frequency Feature 10MHz(2V<sub>r-p</sub> Input)
- Package Outline DIP-16, DMP-16, SSOP-16

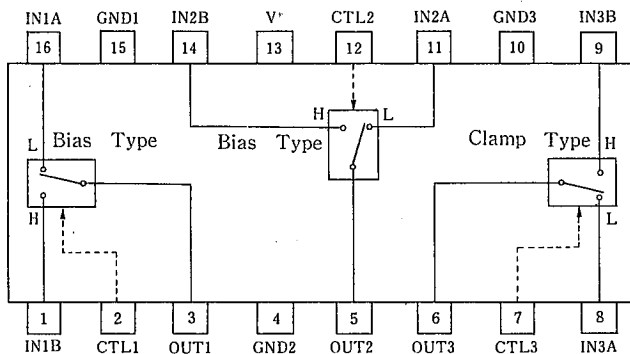
■ RECOMMENDED OPERATING CONDITION

- Supply Voltage V<sup>+</sup> 4.75~13.0V

■ APPLICATIONS

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

■ BLOCK DIAGRAM



NJM2284D  
NJM2284M  
NJM2284V

## ■ MAXIMUM RATINGS

(Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V*	14	V
Power Dissipation	Pd	(DIP16) 700	mW
		(DMP16) 350	mW
		(SSOP16) 300	mW
Operating Temperature Range	T <sub>opr</sub>	-40~+85	°C
Storage Temperature Range	T <sub>stg</sub>	-40~+125	°C

## ■ ELECTRICAL CHARACTERISTICS

(V\*=5V, Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Current (1)	I <sub>CC1</sub>	V*=5V (Note1)	8.1	11.6	15.1	mA
Operating Current (2)	I <sub>CC2</sub>	V*=9V (Note1)	10.2	14.6	19.0	mA
Voltage Gain	G <sub>V</sub>	V <sub>I</sub> = 100kHz, 2V <sub>P-P</sub> , V <sub>O</sub> /V <sub>I</sub>	-0.6	-0.1	+0.4	dB
Frequency Gain	G <sub>F</sub>	V <sub>I</sub> = 2V <sub>P-P</sub> , V <sub>O</sub> (10MHz)/V <sub>O</sub> (100kHz)	-1.0	0	+1.0	dB
Differential Gain	DG	V <sub>I</sub> = 2V <sub>P-P</sub> , Standard Staircase Signal	—	0.3	—	%
Differential Phasa	DP	V <sub>I</sub> = 2V <sub>P-P</sub> , Standard Staircase Signal	—	0.3	—	deg
Output Offset Voltage	V <sub>OS</sub>	(Note2)	-10	0	+10	mV
Crosstalk	CT	V <sub>I</sub> = 2V <sub>P-P</sub> , 4.43MHz, V <sub>O</sub> /V <sub>I</sub>	—	-75	—	dB
Switch Change Over Voltage	V <sub>CH</sub>	All inside Switch ON	2.5	—	—	V
Switch Change Over Voltage	V <sub>CL</sub>	All inside Switch OFF	—	—	1.0	V

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

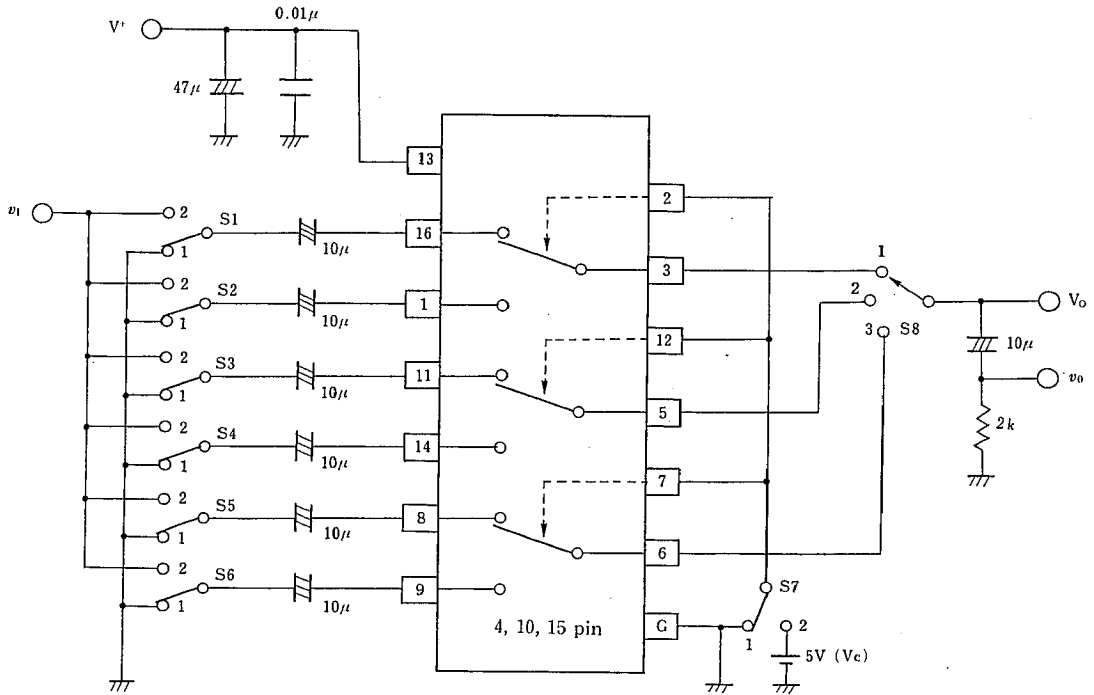
(Note2) S1=S2=S3=S4=S5=S6=1, S7=1→2 Measure the output DC voltage difference

■ TERMINAL EXPLANATION

PIN No.	PIN NAME	VOLTAGE	INSIDE EQUIVALENT CIRCUIT
16 1 11 14	IN 1 A IN 1 B IN 2 A IN 2 B (Input)	2.5V	
8 9	IN 3 A IN 3 B (Input)	1.5V	
2 12 7	CTL 1 CTL 2 CTL 3 (Switching)		
3 5	OUT 1 OUT 2	1.8V	
6	OUT 3 (Output)	0.8V	
13	V+	5V	
15 4 10	GND 1 GND 2 GND 3		

5

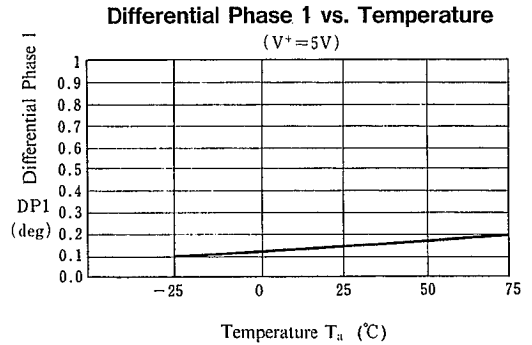
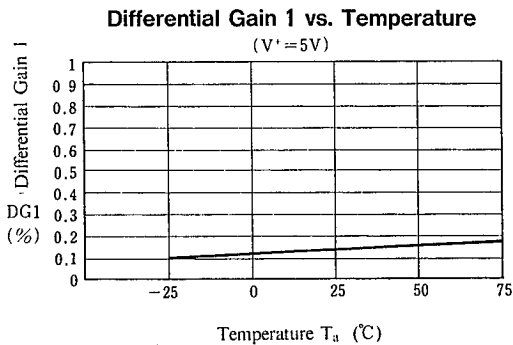
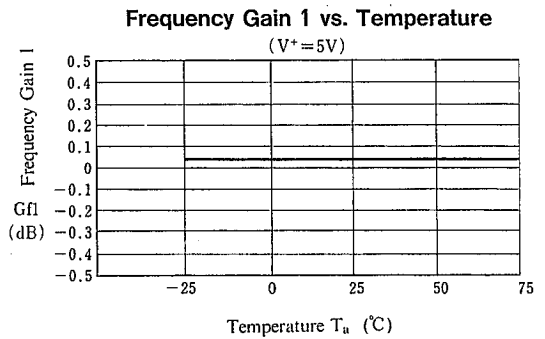
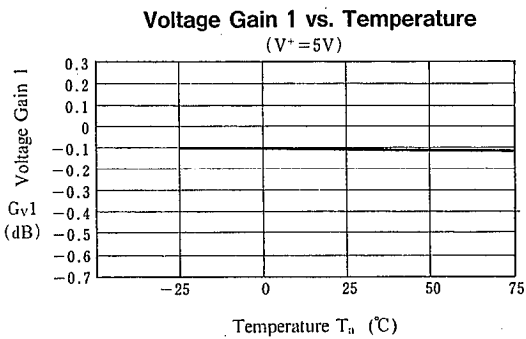
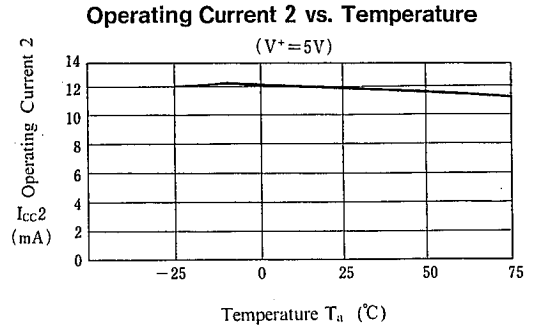
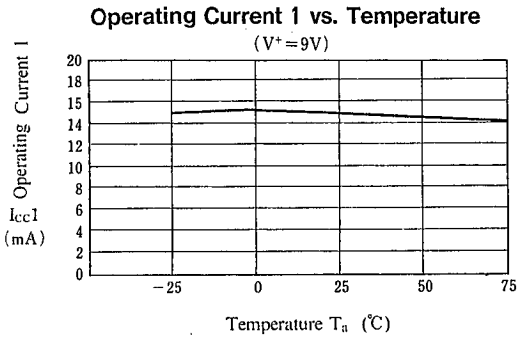
## ■ TEST CIRCUIT



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

Parameter	S 1	S 2	S 3	S 4	S 5	S 6	S 7	S 8	Test Part
Icc1	1	1	1	1	1	1	1	1	V <sup>+</sup>
Icc2	1	1	1	1	1	1	1	1	
Gv1	2	1	1	1	1	1	1	1	v <sub>0</sub>
Gf1	2	1	1	1	1	1	1	1	
DG <sub>1</sub>	2	1	1	1	1	1	1	1	
DP <sub>1</sub>	2	1	1	1	1	1	1	1	
CT1	2	1	1	1	1	1	2	1	v <sub>0</sub>
CT2	1	2	1	1	1	1	1	1	
CT3	1	1	2	1	1	1	2	2	
CT4	1	1	1	2	1	1	1	2	
CT5	1	1	1	1	2	1	2	3	
CT6	1	1	1	1	1	2	1	3	
Vos1	1	1	1	1	1	1	1/2	1	V <sub>0</sub>
Vc1	1/2	2/1	1	1	1	1	V <sub>c</sub>	1	V <sub>c</sub>
THD	2	1	1	1	1	1	1	1	v <sub>0</sub>

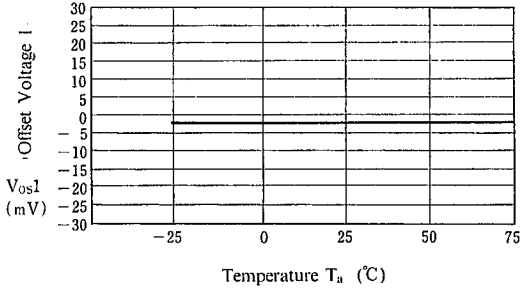
■ TYPICAL CHARACTERISTICS



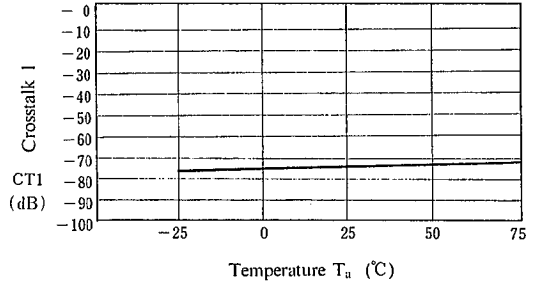
5

## TYPICAL CHARACTERISTICS

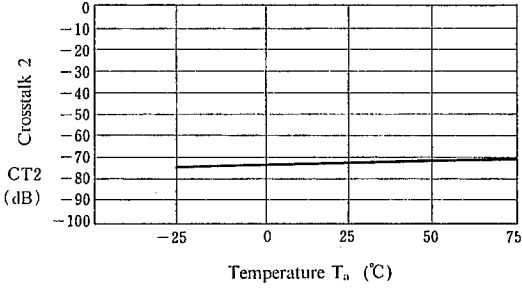
Offset Voltage 1 vs. Temperature  
( $V^+ = 5V$ )



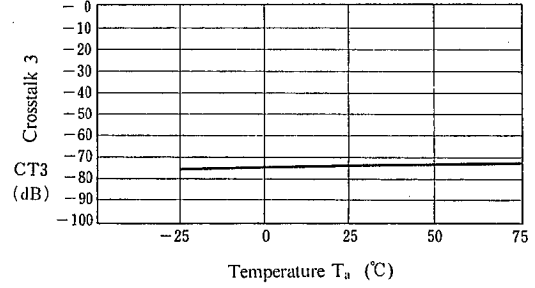
Crosstalk 1 vs. Temperature  
( $V^+ = 5V$ )



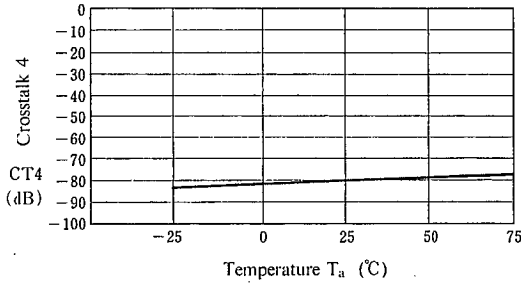
Crosstalk 2 vs. Temperature  
( $V^+ = 5V$ )



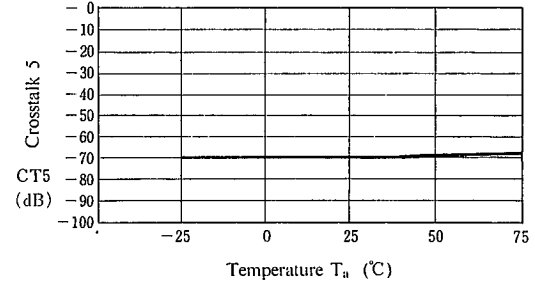
Crosstalk 3 vs. Temperature  
( $V^+ = 5V$ )



Crosstalk 4 vs. Temperature  
( $V^+ = 5V$ )

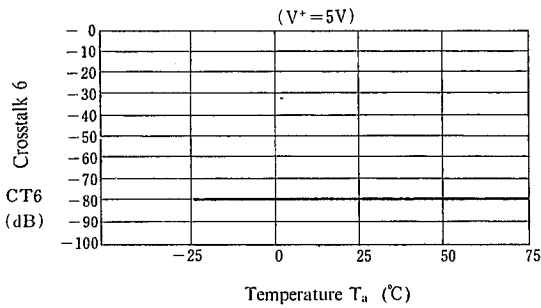


Crosstalk 5 vs. Temperature  
( $V^+ = 5V$ )

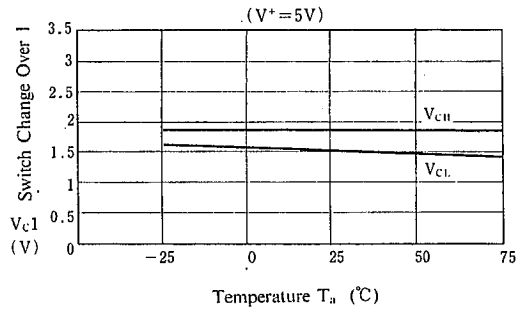


■ TYPICAL CHARACTERISTICS

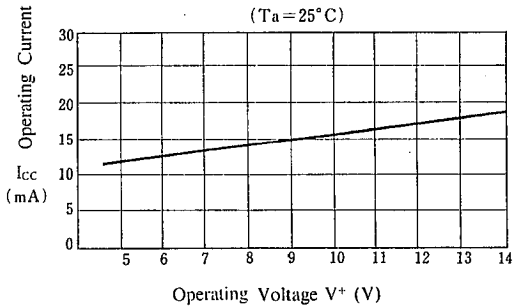
Crosstalk 6 vs. Temperature



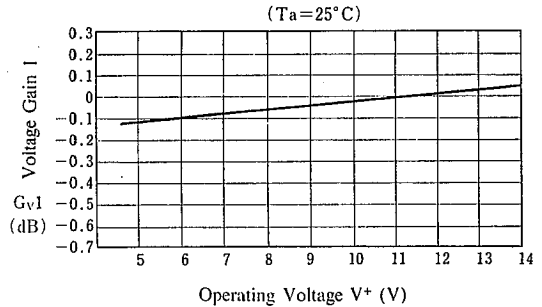
Switch Change Over 1 vs. Temperature



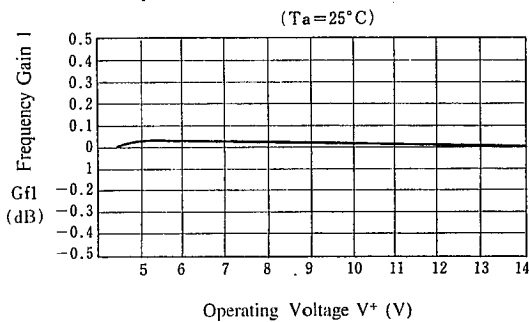
Operating Current vs. Operating Voltage



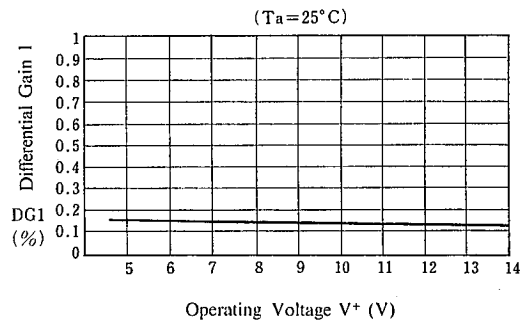
Voltage Gain 1 vs. Operating Voltage



Frequency Gain 1 vs. Operating Voltage



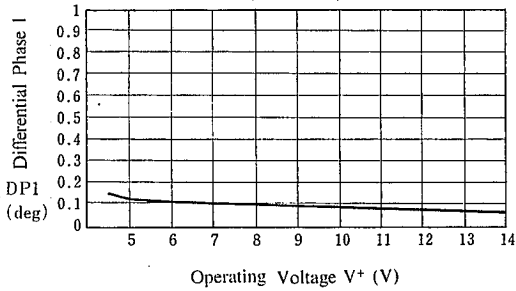
Differential Gain 1 vs. Operating Voltage



## TYPICAL CHARACTERISTICS

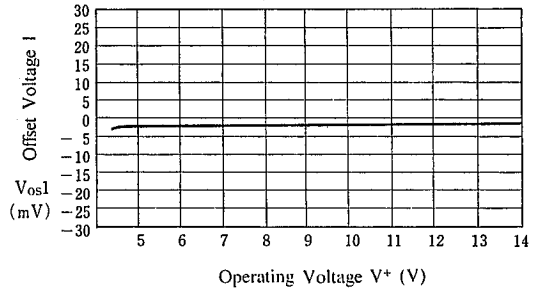
### Differential Phase 1 vs. Operating Voltage

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



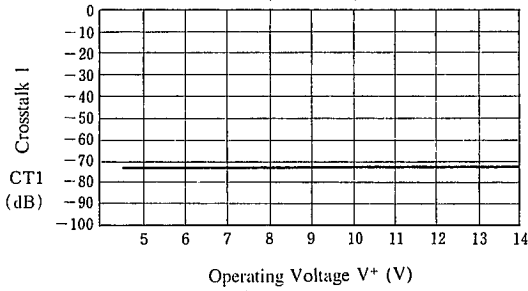
### Offset Voltage 1 vs. Operating Voltage

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



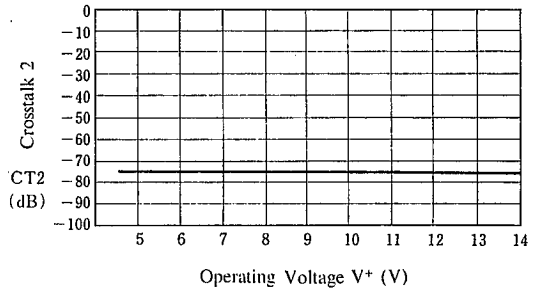
### Crosstalk 1 vs. Operating Voltage

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



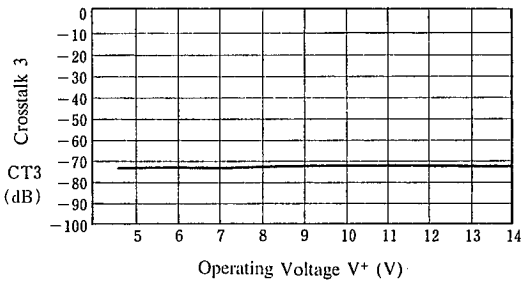
### Crosstalk 2 vs. Operating Voltage

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



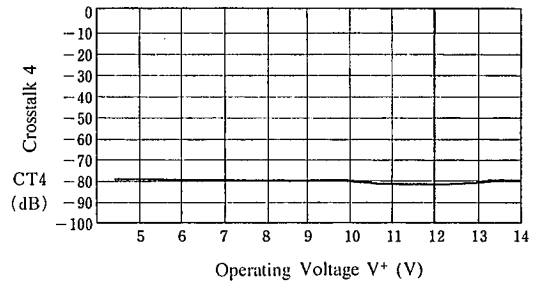
### Crosstalk 3 vs. Operating Voltage

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



### Crosstalk 4 vs. Operating Voltage

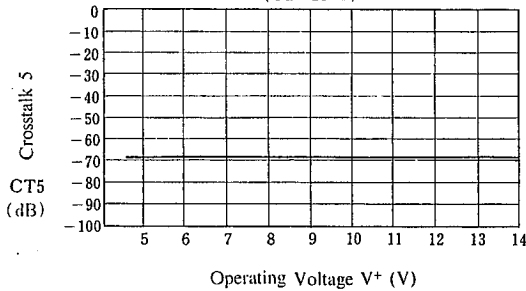
( $T_a = 25^\circ\text{C}$ )



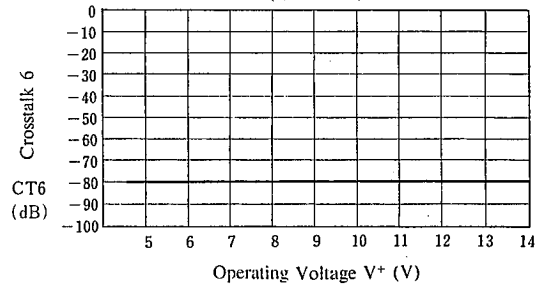


■ TYPICAL CHARACTERISTICS

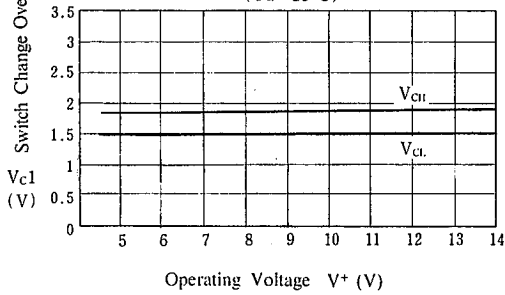
Crosstalk 5 vs. Operating Voltage  
( $T_a = 25^\circ\text{C}$ )



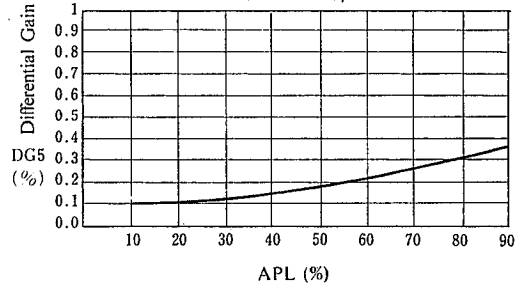
Crosstalk 6 vs. Operating Voltage  
( $T_a = 25^\circ\text{C}$ )



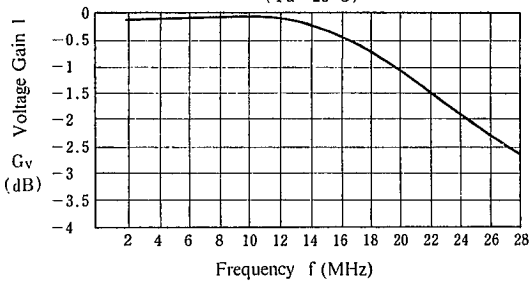
Switch Change Over 1 vs. Operating Voltage  
( $T_a = 25^\circ\text{C}$ )



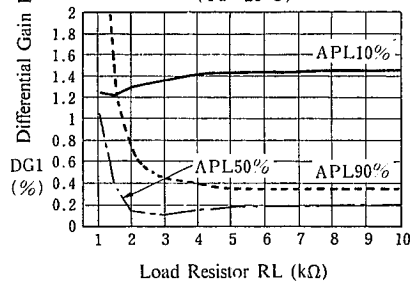
Differential Gain vs. APL  
( $T_a = 25^\circ\text{C}$ )



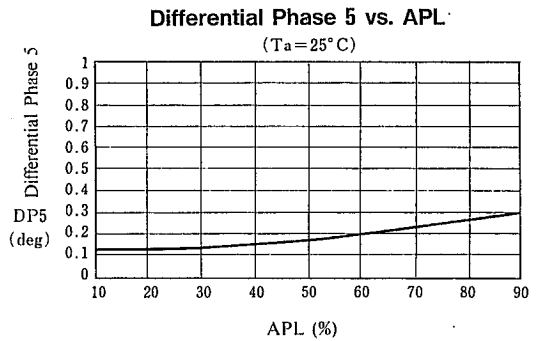
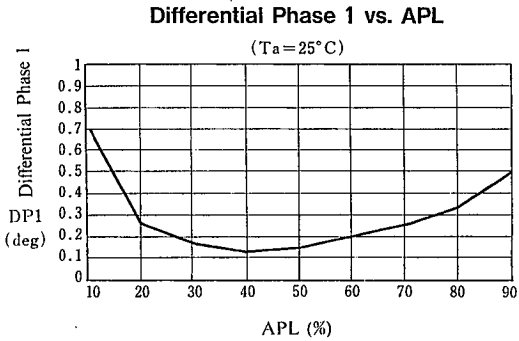
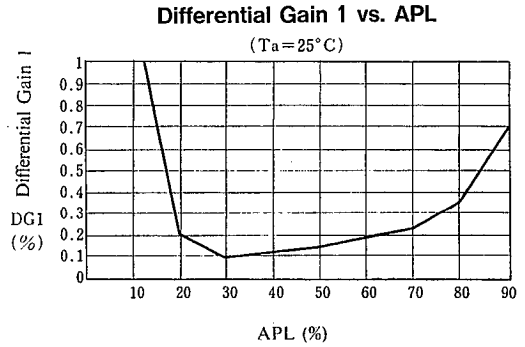
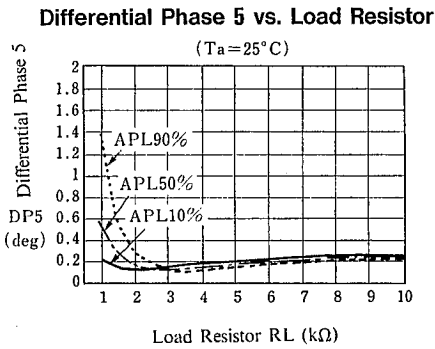
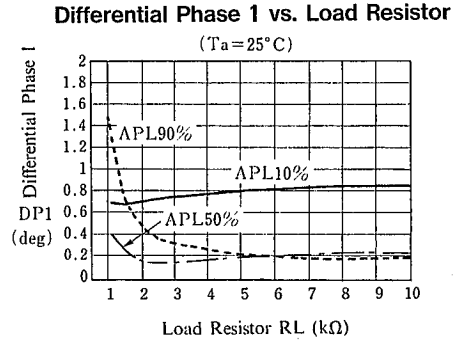
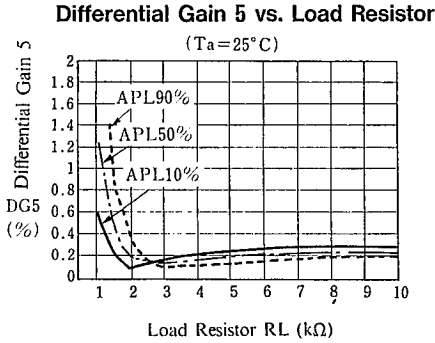
Voltage Gain 1 vs. Frequency Feature  
( $T_a = 25^\circ\text{C}$ )



Differential Gain 1 vs. Load Resistor  
( $T_a = 25^\circ\text{C}$ )



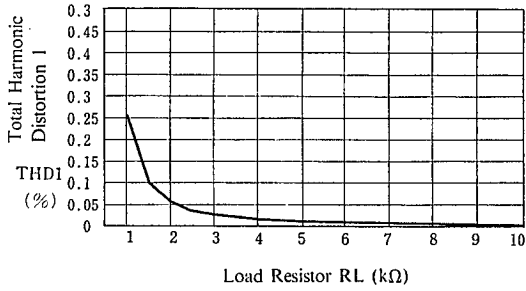
## TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS

Total Harmonic Distortion 1 vs. Load Resistor

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



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## MEMO

[CAUTION]

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