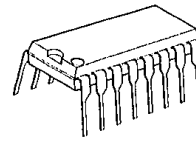


2-INPUT 3CHANNEL VIDEO SWITCH

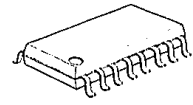
■ GENERAL DESCRIPTION

NJM2285 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. Two of them are "Clamp type", and they can be operated while setting DC level fixed in position of the video signal. It is a higher efficiency video switch, featuring the operating supply voltage 5 to 12V, the frequency feature 10MHz, and then the crosstalk 75dB (at 4.43MHz).

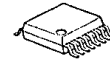
■ PACKAGE OUTLINE



NJM2285D



NJM2285M



NJM2285V

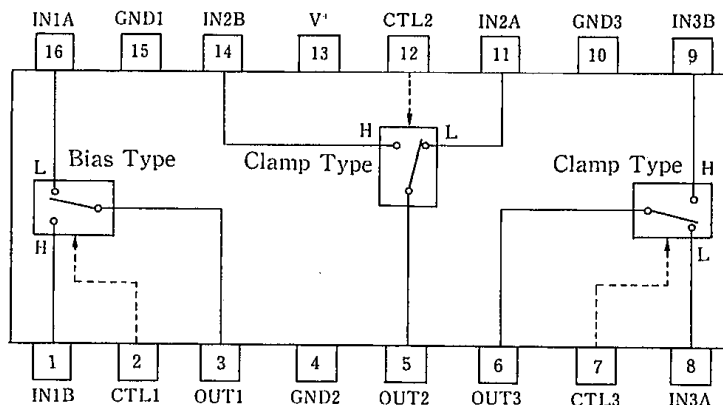
■ FEATURES

- 2 Input-1 Output
Internalizing 3 Circuits (Two of them are Clamp type).
- Wide Operating Supply Voltage (4.75~13.0V)
- Crosstalk 75dB(at 4.43MHz)
- Wide Bandwidth Frequency Feature 10MHz(2V_{P-P} Input)
- Package Outline DIP16, DMP16, SSOP16
- Bipolar Technology

■ APPLICATIONS

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

■ BLOCK DIAGRAM



NJM2285D
NJM2285M
NJM2285V

5

■ 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 | Topr | -40~+85 | °C |
| Storage Temperature Range | Tstg | -40~+125 | °C |

■ ELECTRICAL CHARACTERISTICS

(V+=5V, Ta=25°C)

| PARAMETER | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|----------------------------|-----------------|---|------|------|------|------|
| Operating Current (1) | Icc1 | V+=5V (Note1) | 8.0 | 11.4 | 14.8 | mA |
| Operating Current (2) | Icc2 | V+=9V (Note1) | 10.0 | 14.3 | 18.6 | mA |
| Voltage Gain | Gv | V _i = 100kHz, 2V _{P-P} , V _O /V _i | -0.6 | -0.1 | +0.4 | dB |
| Frequency Gain | G _F | V _i = 2V _{P-P} , V _O (10MHz)/V _O (100kHz) | -1.0 | 0 | +1.0 | dB |
| Differential Gain | DG | V _i = 2V _{P-P} , Standard Staircase Signal | — | 0.3 | — | % |
| Differential Phase | DP | V _i = 2V _{P-P} , Standard Staircase Signal | — | 0.3 | — | deg |
| Output offset Voltage | Vos | (Note2) | -10 | 0 | +10 | mV |
| Crosstalk | CT | V _i = 2V _{P-P} , 4.43MHz, V _O /V _i | — | -75 | — | dB |
| Switch Change Over Voltage | V _{CI} | All inside Switches ON | 2.5 | — | — | V |
| Switch Change Over Voltage | V _{CL} | All inside Switches 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

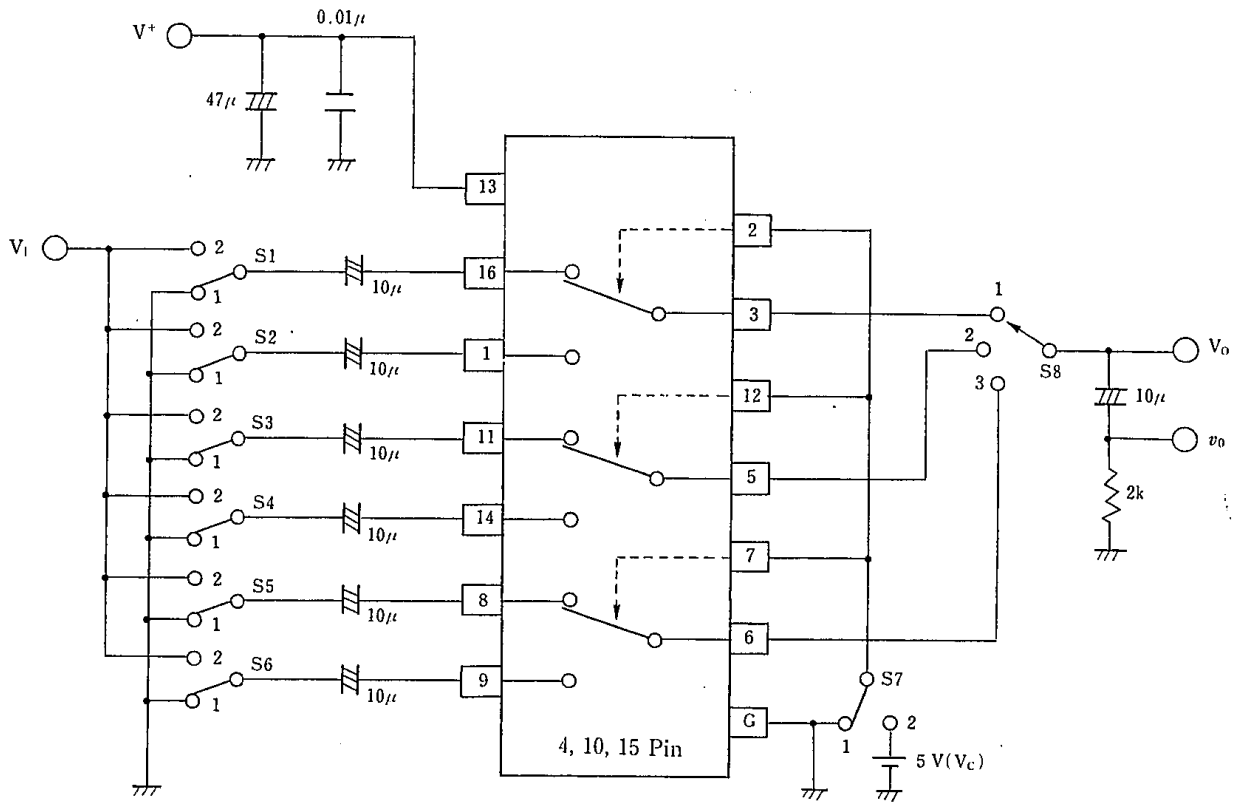
■ TERMINAL EXPLANATION

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

5



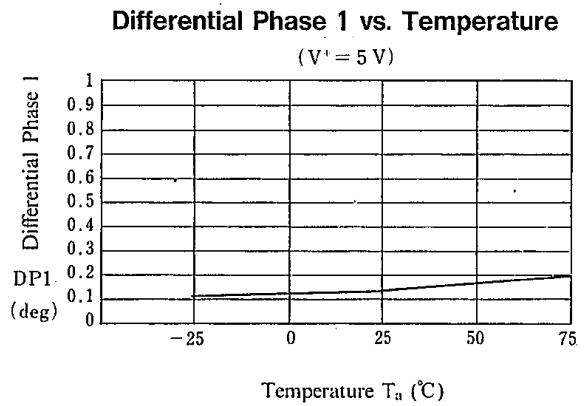
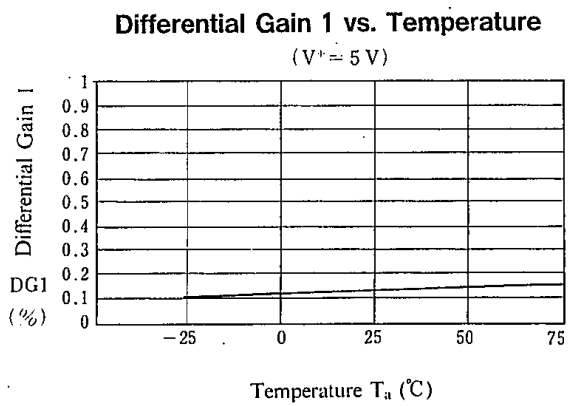
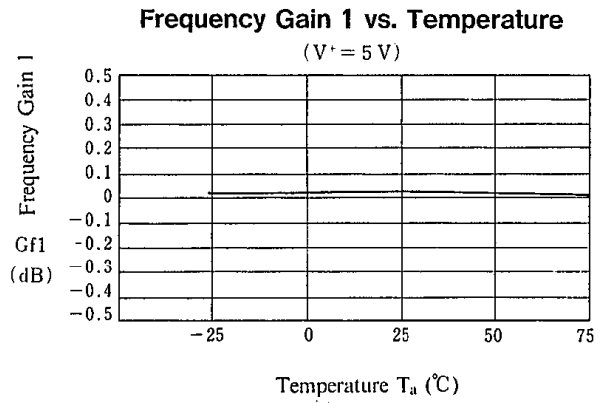
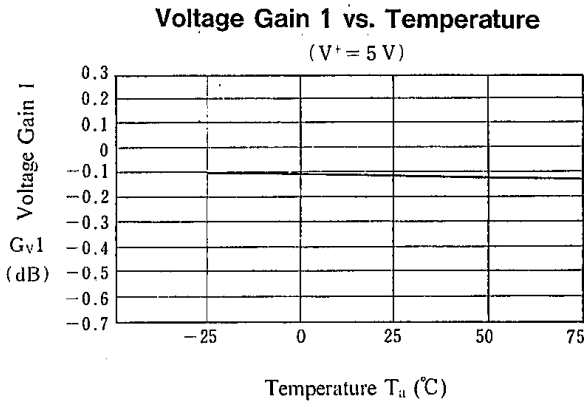
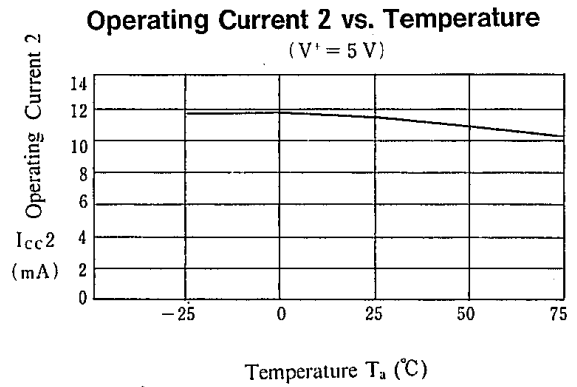
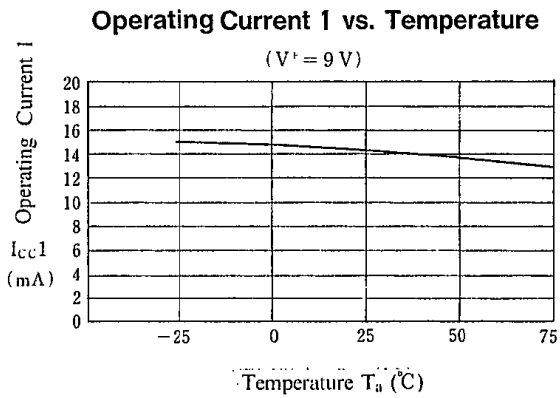
■ TEST CIRCUIT



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

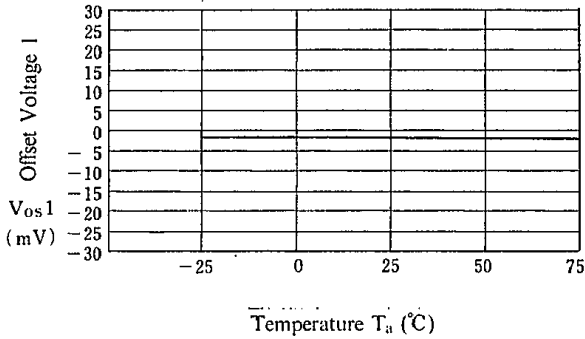
| Parameter | S 1 | S 2 | S 3 | S 4 | S 5 | S 6 | S 7 | S 8 | Test Part |
|-----------|-----|-----|-----|-----|-----|-----|-------|-----|-----------|
| I_{cc1} | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | V^+ |
| I_{cc2} | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | V^+ |
| G_{v1} | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | v_0 |
| G_{f1} | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | v_0 |
| DG_1 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | v_0 |
| DP_1 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | v_0 |
| CT 1 | 2 | 1 | 1 | 1 | 1 | 1 | 2 | 1 | v_0 |
| CT 2 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | v_0 |
| CT 3 | 1 | 1 | 2 | 1 | 1 | 1 | 2 | 2 | v_0 |
| CT 4 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 2 | v_0 |
| CT 5 | 1 | 1 | 1 | 1 | 2 | 1 | 2 | 3 | v_0 |
| CT 6 | 1 | 1 | 1 | 1 | 1 | 2 | 1 | 3 | v_0 |
| V_{os1} | 1 | 1 | 1 | 1 | 1 | 1 | 1/2 | 1 | V_0 |
| V_{c1} | 1/2 | 2/1 | 1 | 1 | 1 | 1 | V_c | 1 | V_c |
| THD | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | v_0 |

■ TYPICAL CHARACTERISTICS

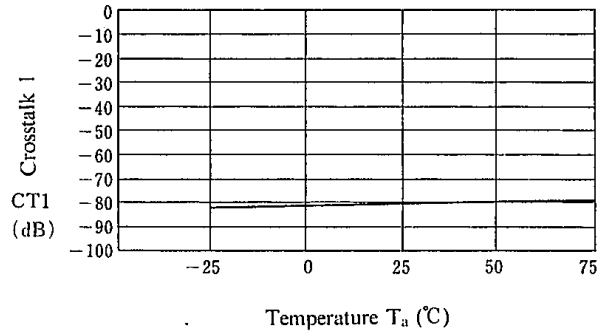


■ TYPICAL CHARACTERISTICS

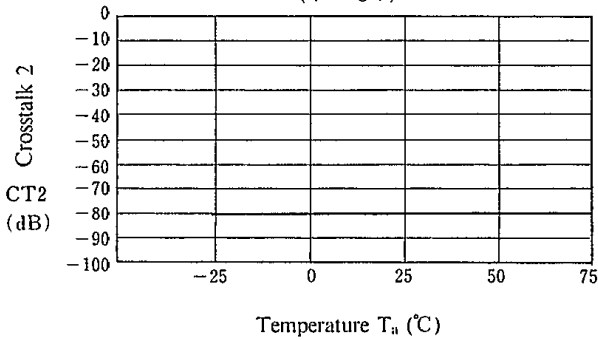
Offset Voltage 1 vs. Temperature
($V^+ = 5\text{ V}$)



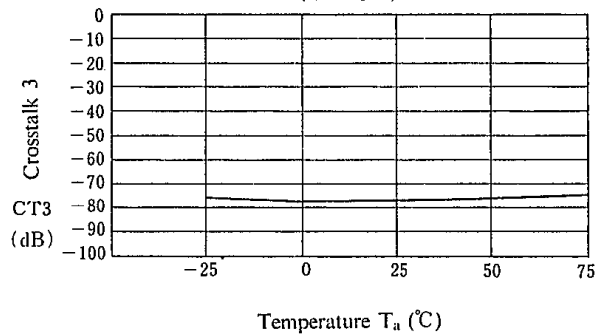
Crosstalk 1 vs. Temperature
($V^+ = 5\text{ V}$)



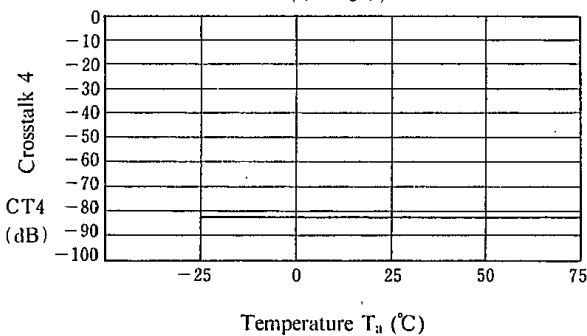
Crosstalk 2 vs. Temperature
($V^+ = 5\text{ V}$)



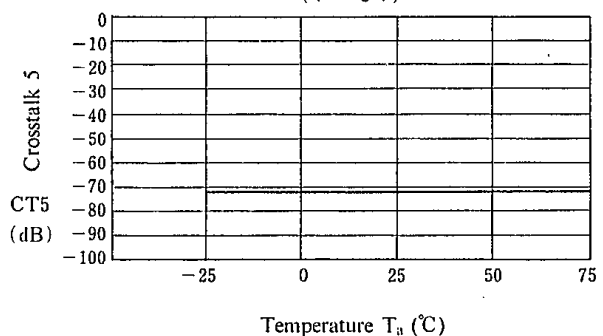
Crosstalk 3 vs. Temperature
($V^+ = 5\text{ V}$)



Crosstalk 4 vs. Temperature
($V^+ = 5\text{ V}$)



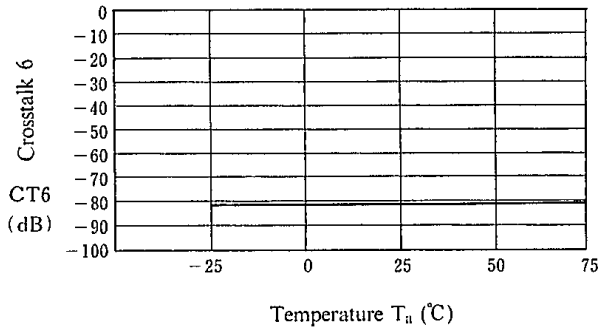
Crosstalk 5 vs. Temperature
($V^+ = 5\text{ V}$)



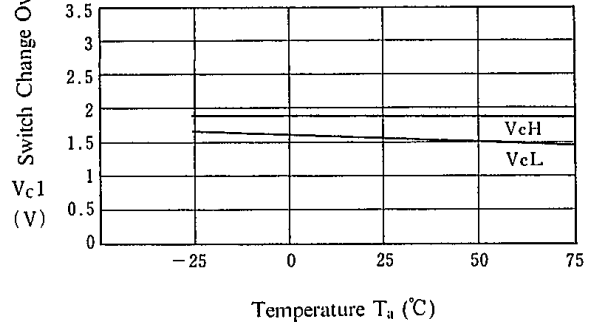
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TYPICAL CHARACTERISTICS

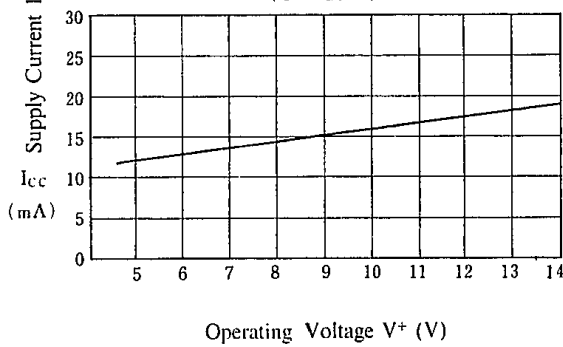
Crosstalk 6 vs. Temperature
($V^+ = 5\text{ V}$)



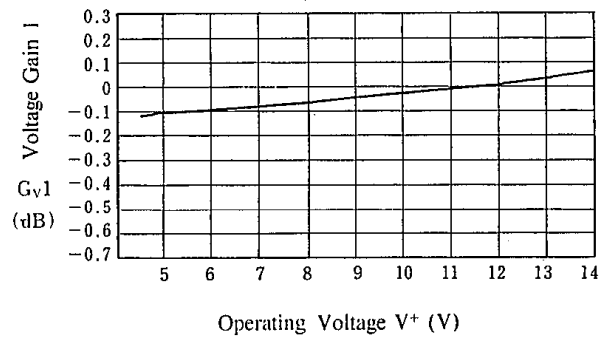
Switch Change Over 1 vs. Temperature
($V^+ = 5\text{ V}$)



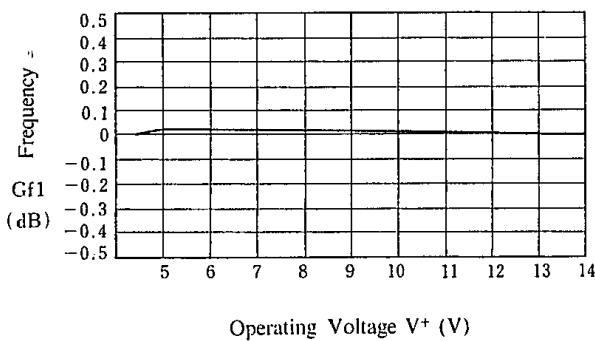
Supply Current 1 vs. Operating Voltage
($T_a = 25^\circ\text{C}$)



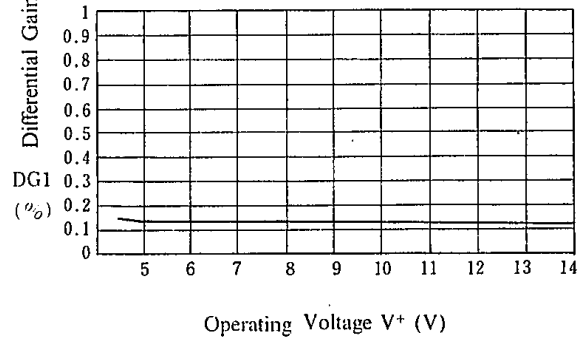
Voltage Gain 1 vs. Operating Voltage
($T_a = 25^\circ\text{C}$)



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

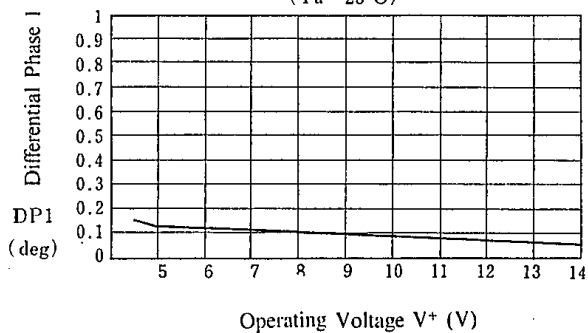


Differential Gain 1 vs. Operating Voltage
($T_a = 25^\circ\text{C}$)

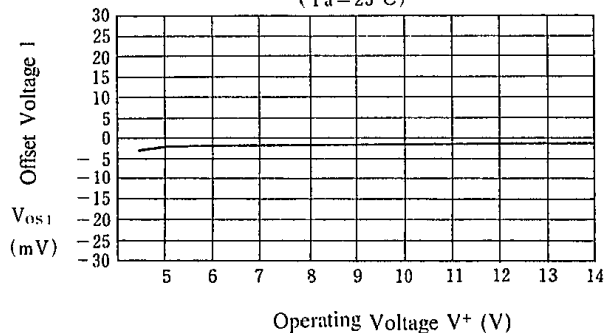


■ TYPICAL CHARACTERISTICS

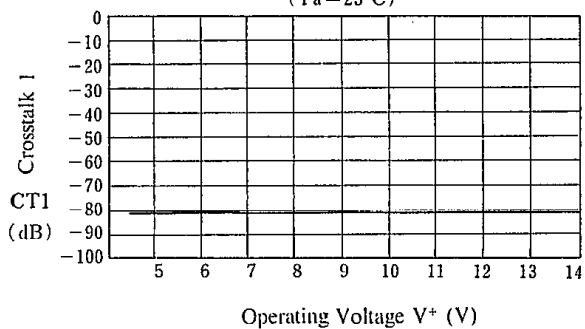
Differential Phase 1 vs. Operating Voltage
($T_a = 25^\circ\text{C}$)



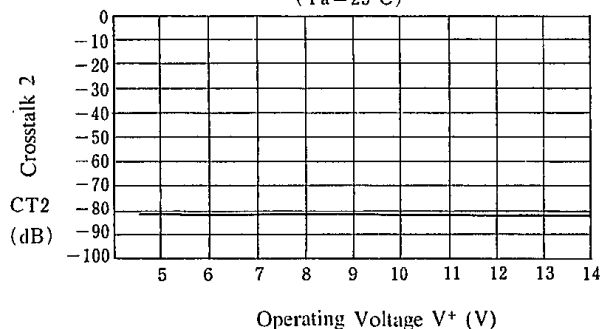
Offset Voltage 1 vs. Operating Voltage
($T_a = 25^\circ\text{C}$)



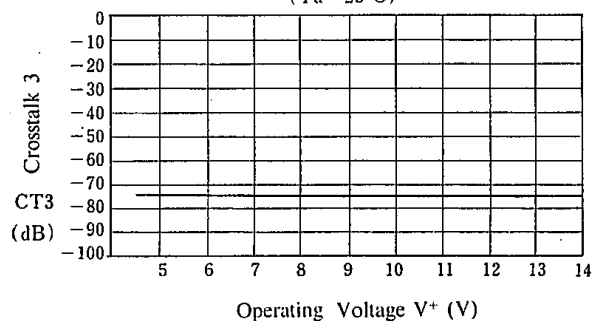
Crosstalk 1 vs. Operating Voltage
($T_a = 25^\circ\text{C}$)



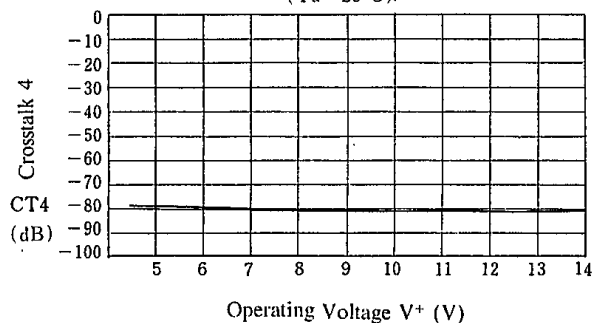
Crosstalk 2 vs. Operating Voltage
($T_a = 25^\circ\text{C}$)



Crosstalk 3 vs. Operating Voltage
($T_a = 25^\circ\text{C}$)



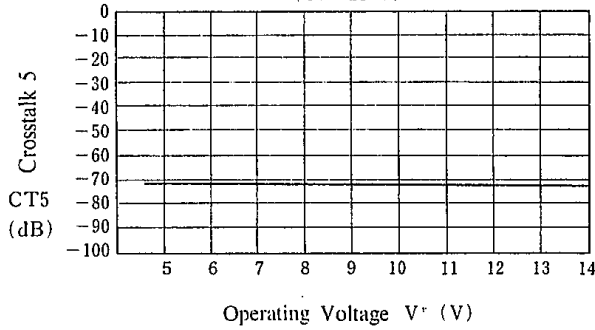
Crosstalk 4 vs. Operating Voltage
($T_a = 25^\circ\text{C}$)



TYPICAL CHARACTERISTICS

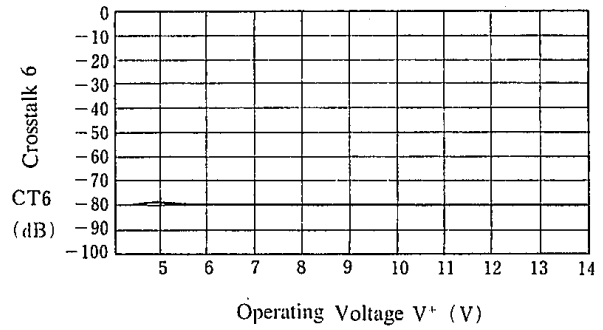
Crosstalk 5 vs. Operating Voltage V^+ (V)

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



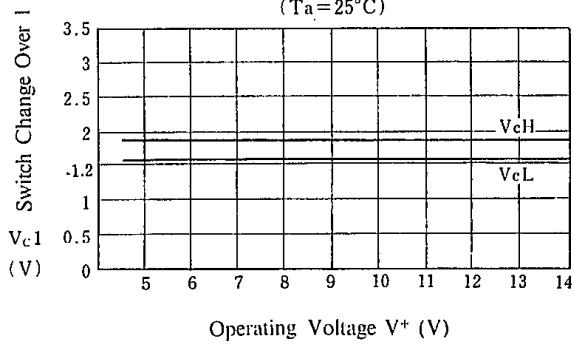
Crosstalk 6 vs. Operating Voltage V^+ (V)

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



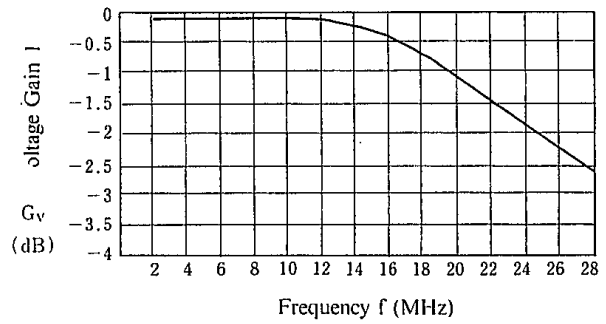
Switch Change Over 1 vs. Operating Voltage

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



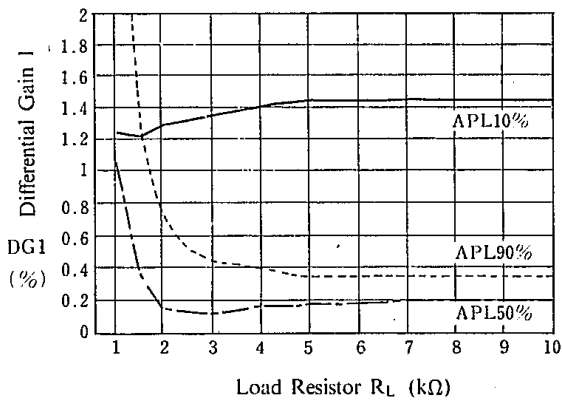
Voltage Gain 1 vs. Frequency

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



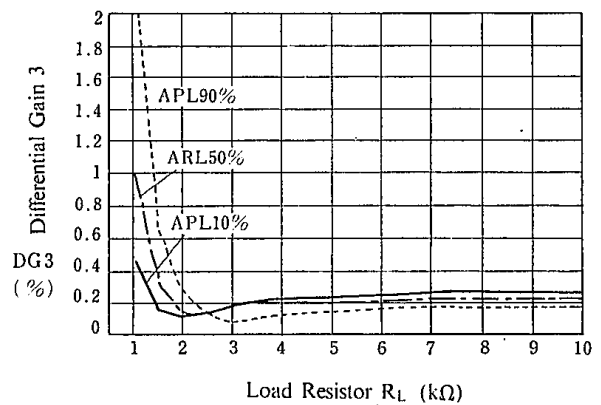
Differential Gain 1 vs. Load Resistor

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

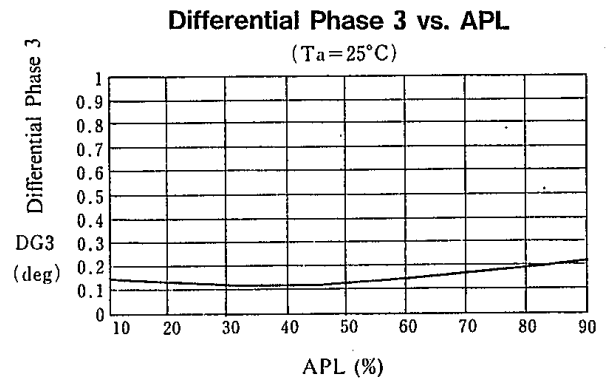
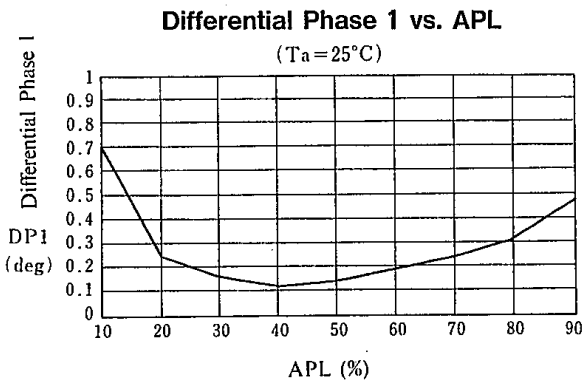
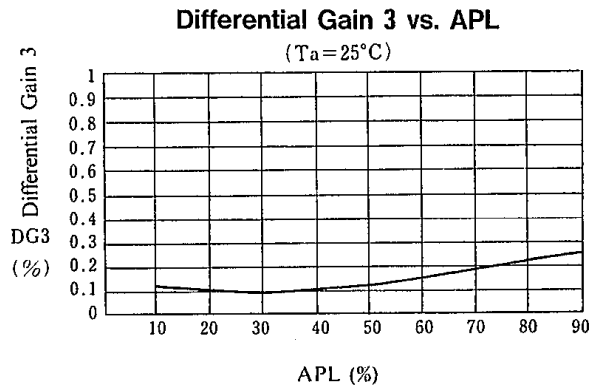
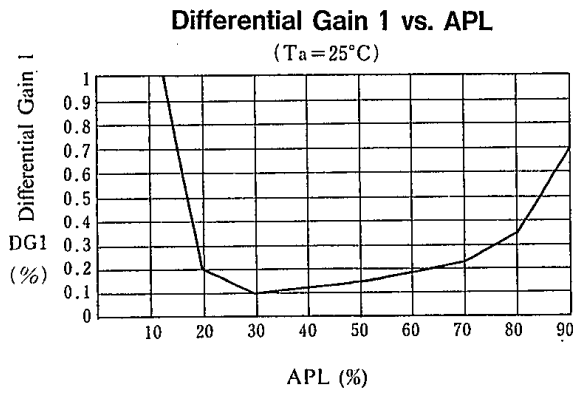
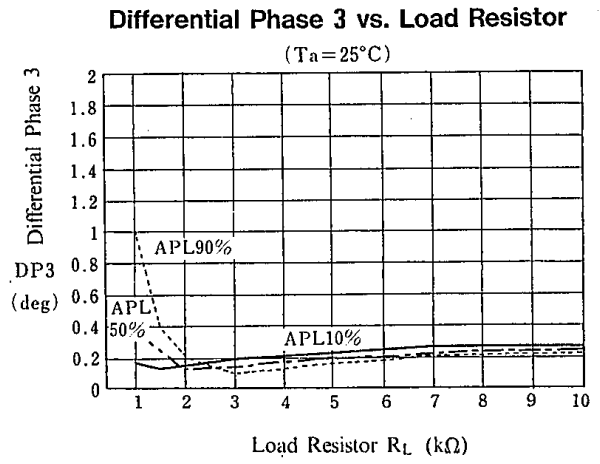
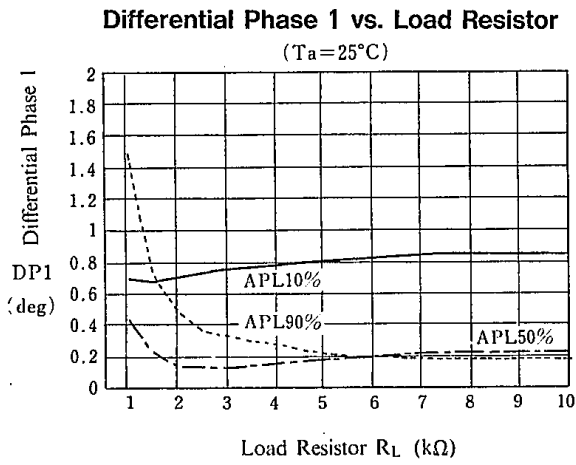


Differential Gain 3 vs. Load Resistor

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

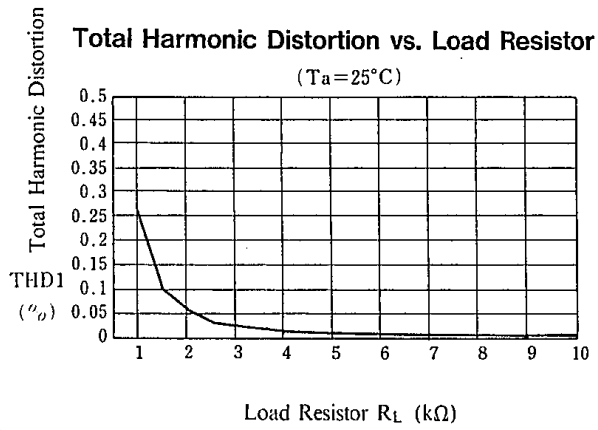


■ TYPICAL CHARACTERISTICS



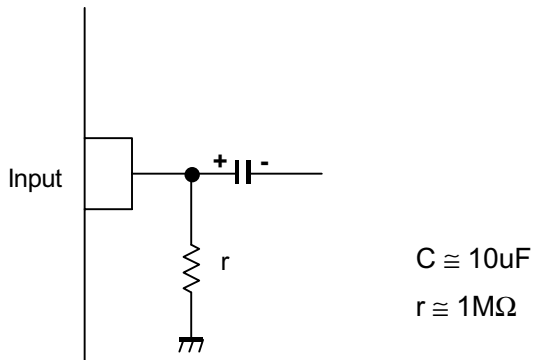
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■ TYPICAL CHARACTERISTICS

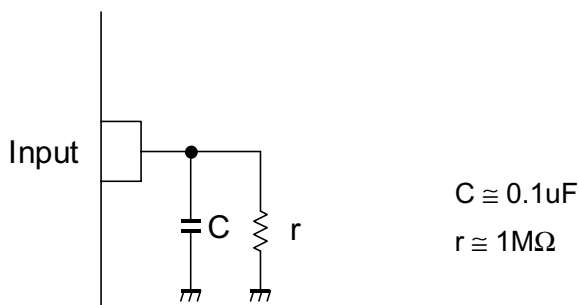


■APPLICATION

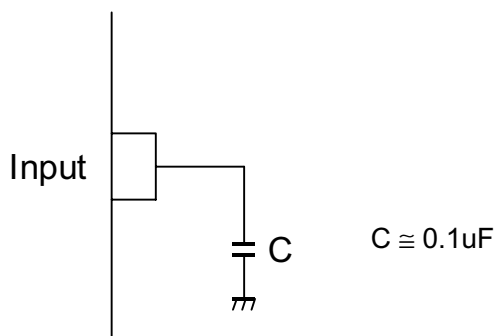
This IC requires $1\text{M}\Omega$ resistance between INPUT and GND pin for clamp type input since the minute current causes an unstable pin voltage.



This IC requires $0.1\mu\text{F}$ capacitor between INPUT and GND, $1\text{M}\Omega$ resistance between INPUT and GND for clamp type input at mute mode.



This IC requires $0.1\mu\text{F}$ capacitor between INPUT and GND for bias type input at mute mode.



[CAUTION]

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