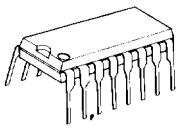
2-INPUT 3CHANNEL VIDEO SWITCH

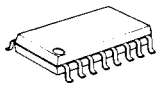
■ GENERAL DESCRIPTION

NJM2286 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. They are 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



NJM2286D



NJM2286M

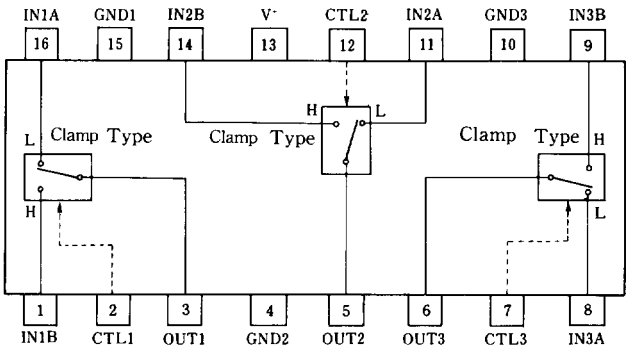
■ FEATURES

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

■ APPLICATIONS

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

■ BLOCK DIAGRAM



NJM2286D
NJM2286M

5

■ MAXIMUM RATINGS

(Ta=25℃)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V^+	14	V
Power Dissipation	P_D	(DIP16) 700	mW
		(DMP16) 350	mW
Operating Temperature Range	T_{opr}	−20～+75	℃
Storage Temperature Range	T_{stg}	−40～+125	℃

■ ELECTRICAL CHARACTERISTICS

(V^+=5V, Ta=25℃)

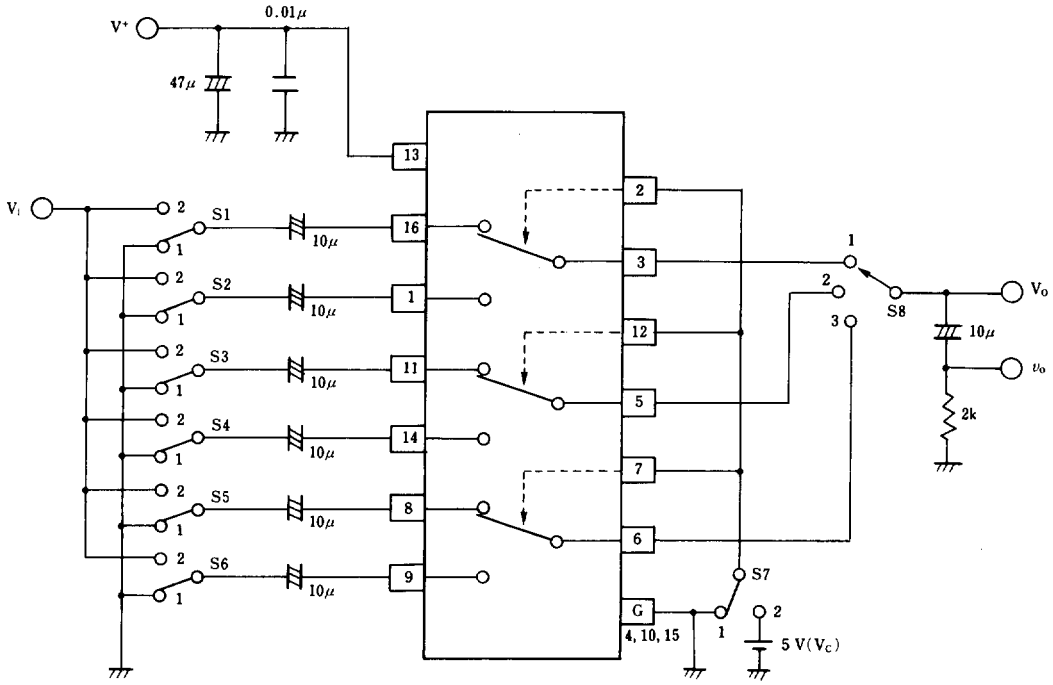
PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Current (1)	I_{CC1}	V^+=5V (Note1)	7.9	11.3	14.7	mA
Operating Current (2)	I_{CC2}	V^+=9V (Note1)	9.8	14.1	18.4	mA
Voltage Gain	G_V	V_I =100kHz, $2V_{P-P}$, V_O/V_I	− 0.6	− 0.1	+ 0.4	dB
Frequency Gain	G_F	V_I =$2V_{P-P}$, V_O(10MHz)/V_O(100kHz)	− 1.0	0	+ 1.0	dB
Differential Gain	DG	V_I =$2V_{P-P}$, Standard Staircase Signal	−	0.3	−	%
Differential Phasa	DP	V_I =$2V_{P-P}$, Standard Staircase Signal	−	0.3	−	deg
Output Offset Voltage	V_{OS}	(Note2)	−15	0	+15	mV
Crosstalk	CT	V_I =$2V_{P-P}$, 4.43MHz, V_O/V_I	−	−75	−	dB
Switch Change Over Voltage	V_{CH}	All inside Switch ON	2.5	−	−	V
Switch Change Over Voltage	V_{CL}	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

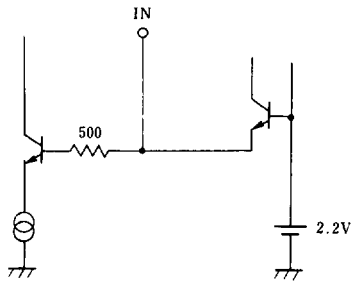
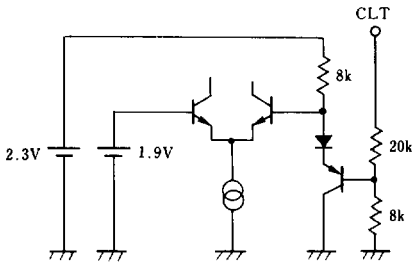
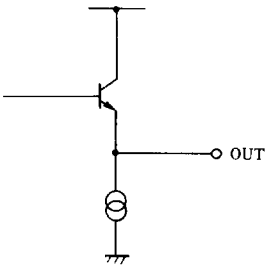
5

■ TEST CIRCUIT



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	
G_{v1}	2	1	1	1	1	1	1	1	v_o
G_{f1}	2	1	1	1	1	1	1	1	
DG_1	2	1	1	1	1	1	1	1	
DP_1	2	1	1	1	1	1	1	1	
CT 1	2	1	1	1	1	1	2	1	v_o
CT 2	1	2	1	1	1	1	1	1	
CT 3	1	1	2	1	1	1	2	2	
CT 4	1	1	1	2	1	1	1	2	
CT 5	1	1	1	1	2	1	2	3	
CT 6	1	1	1	1	1	2	1	3	
V_{OS1}	1	1	1	1	1	1	1/2	1	Vo
V_{C1}	1/2	2/1	1	1	1	1	Vc	1	Vc
THD	2	1	1	1	1	1	1	1	v_o

■ TERMINAL EXPLANATION

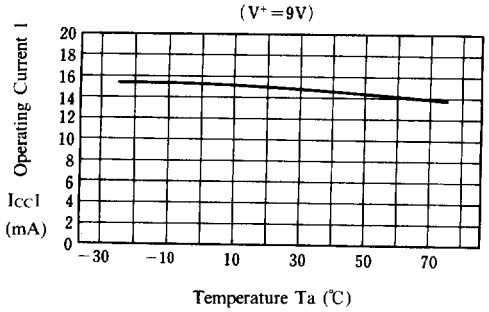
PIN No.	PIN NAME	VOLTAGE	INSIDE EQUIVALENT CIRCUIT
16 1 11 14 8 9	IN 1 A IN 1 B IN 2 A IN 2 B IN 3 A IN 3 B 〔Input〕	1.5V	
2 12 7	CTL 1 CTL 2 CTL 3 〔Switching〕		
3 5 6	OUT 1 OUT 2 OUT 3 〔Output〕	0.8 V	
13	V^+	5 V	
15 4 10	GND 1 GND 2 GND 3		

5

■ TYPICAL CHARACTERISTICS

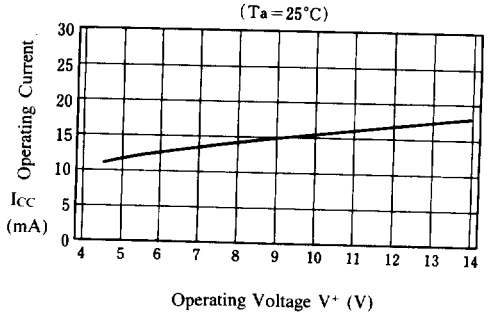
Operating Current 1 vs. Temperature

($V^+ = 9V$)



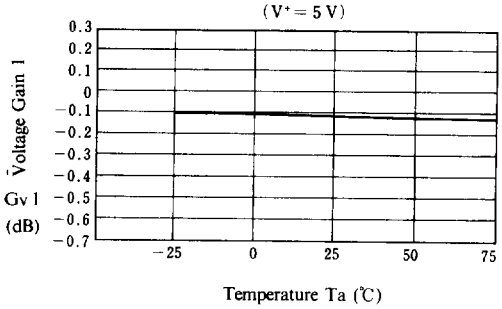
Operating Current vs. Operating Voltage

($Ta = 25°C$)



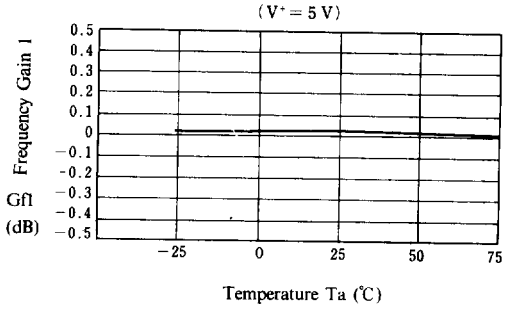
Voltage Gain 1 vs. Temperature

($V^+ = 5\,V$)



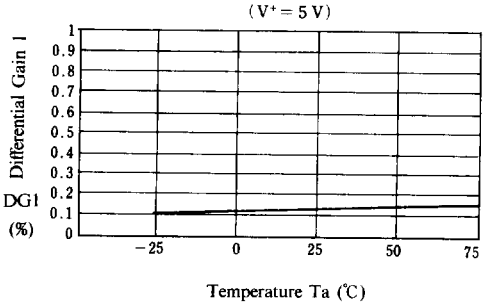
Frequency Gain 1 vs. Temperature

($V^+ = 5\,V$)



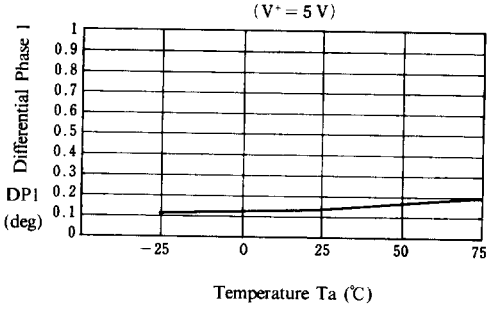
Differential Gain 1 vs. Temperature

($V^+ = 5\,V$)



Differential Phase 1 vs. Temperature

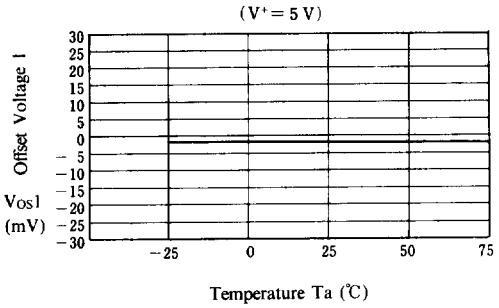
($V^+ = 5\,V$)



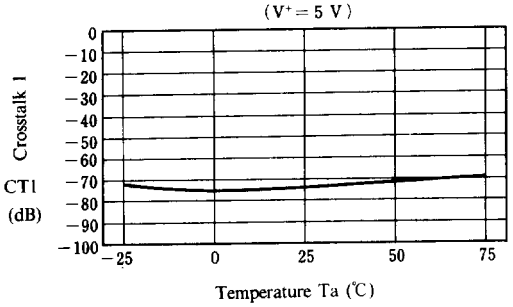
5

■ TYPICAL CHARACTERISTICS

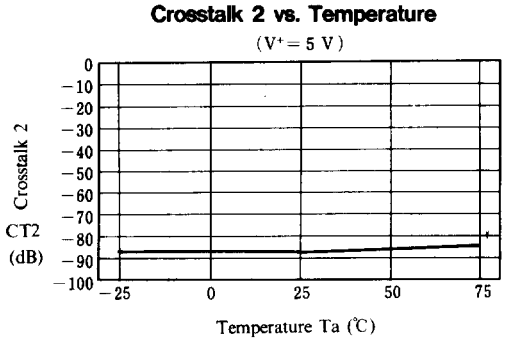
Offset Voltage vs. Temperature



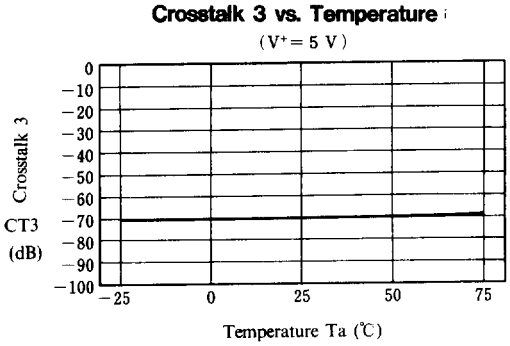
Crosstalk 1 vs. Temperature



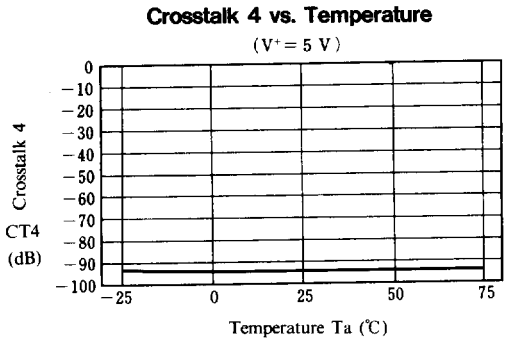
Crosstalk 2 vs. Temperature



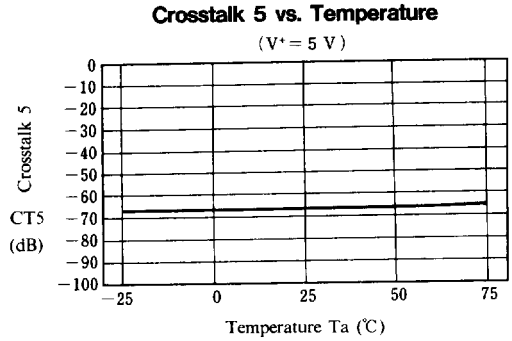
Crosstalk 3 vs. Temperature



Crosstalk 4 vs. Temperature



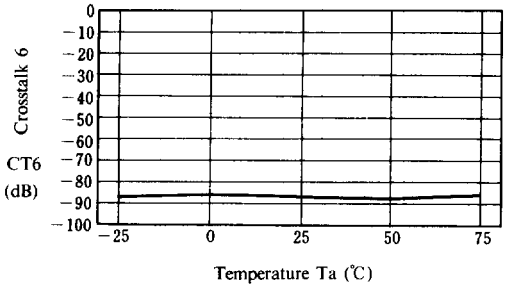
Crosstalk 5 vs. Temperature



■ TYPICAL CHARACTERISTICS

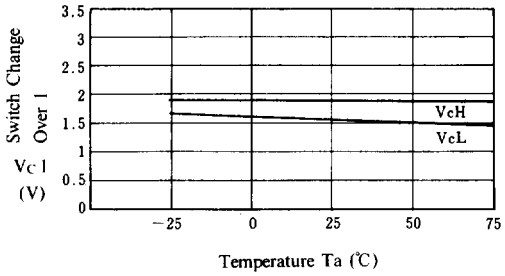
Crosstalk 6 vs. Temperature

($V^+ = 5$ V)



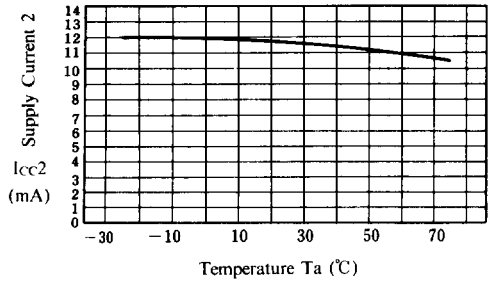
Switch Change Over 1 vs. Temperature

($V^+ = 5$ V)



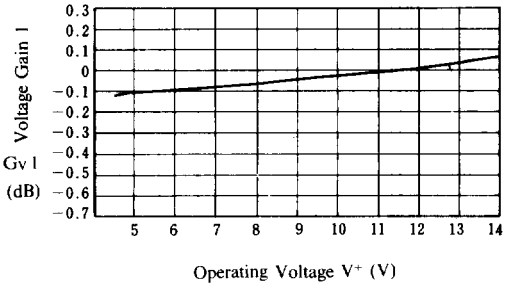
Supply Current 2 vs. Temperature

($V^+ = 5$ V)



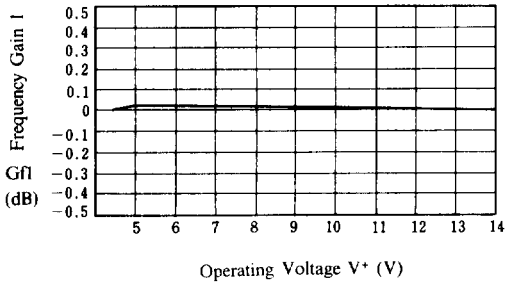
Voltage Gain 1 vs. Operating Voltage

(Ta = 25°C)



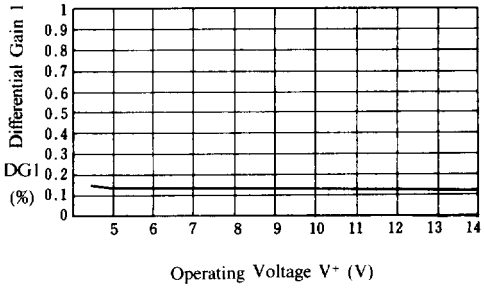
Frequency Gain 1 vs. Operating Voltage

(Ta = 25°C)



Differential Gain 1 vs. Operating Voltage

(Ta = 25°C)

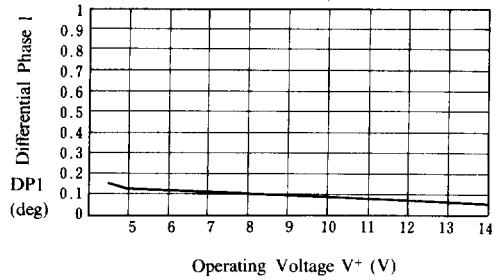


5

■ TYPICAL CHARACTERISTICS

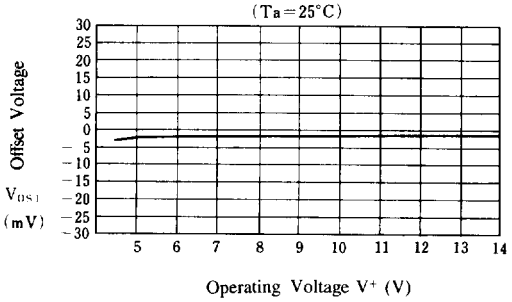
Differential Phase 1 vs. Operating Voltage

(Ta=25°C)



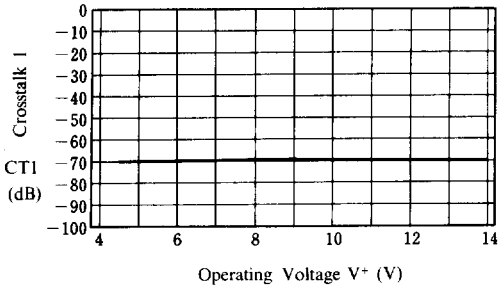
Offset Voltage 1 vs. Operating Voltage

(Ta=25°C)



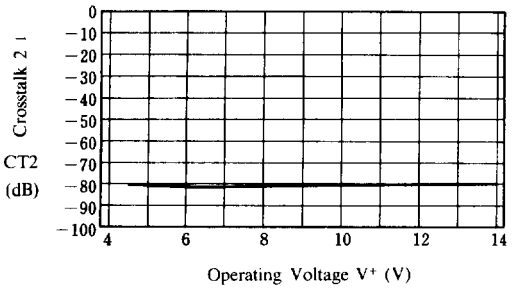
Crosstalk 1 vs. Operating Voltage

(Ta=25°C)



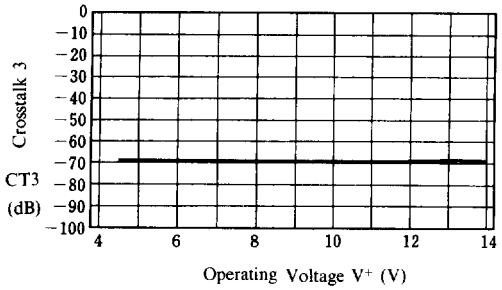
Crosstalk 2 vs. Operating Voltage

(Ta=25°C)



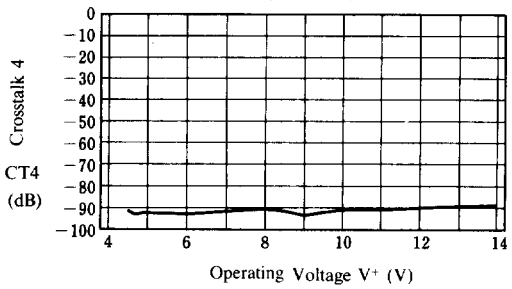
Crosstalk 3 vs. Operating Voltage

(Ta=25°C)



Crosstalk 4 vs. Operating Voltage

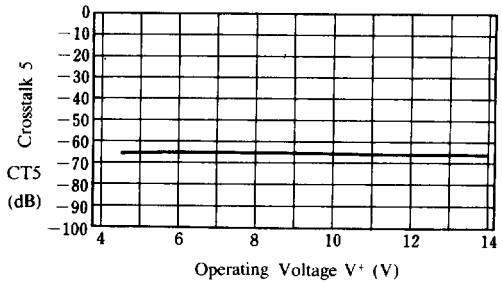
(Ta=25°C)



■ TYPICAL CHARACTERISTICS

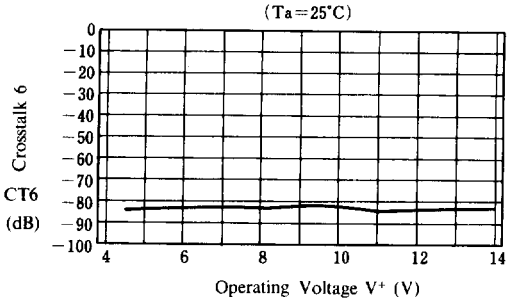
Crosstalk 5 vs. Operating Voltage

(Ta=25°C)



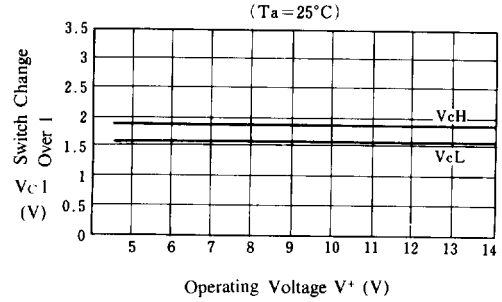
Crosstalk 6 vs. Operating Voltage

(Ta=25°C)



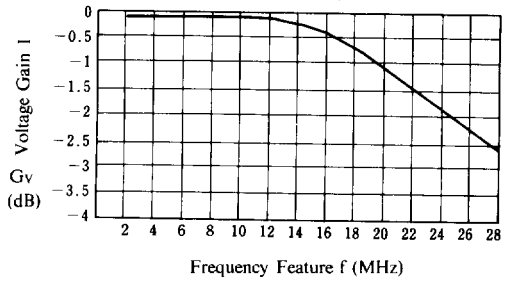
Switch Change Over 1 vs. Operating Voltage

(Ta=25°C)



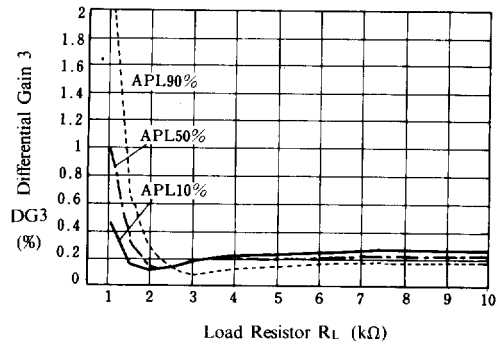
Voltage Gain 1 vs. Frequency Feature

(Ta=25°C)



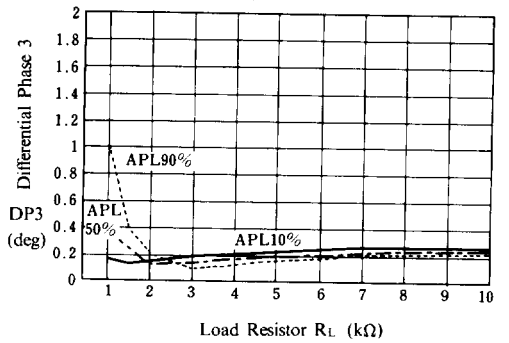
Differential Gain 3 vs. Load Resistor

(Ta=25°C)



Differential Phase 3 vs. Load Resistor

(Ta=25°C)

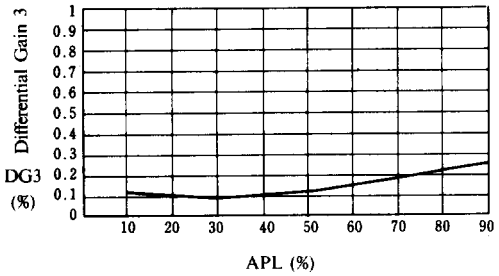


5

■ TYPICAL CHARACTERISTICS

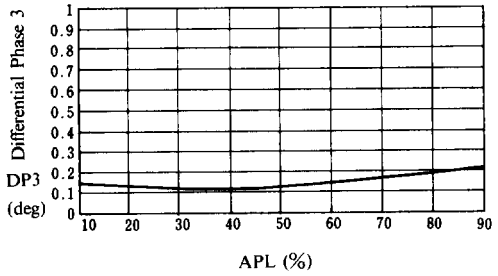
Differential Gain 3 vs. APL

(Ta=25°C)



Differential Phase 3 vs. APL

(Ta=25°C)



5