

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).

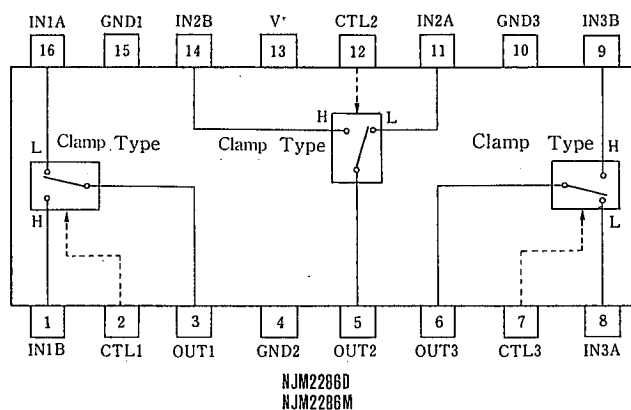
■ FEATURES

- 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_{r-p} Input)
- Package Outline DIP16, DMP16, SSOP16
- Bipolar Technology

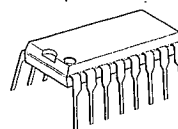
■ APPLICATIONS

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

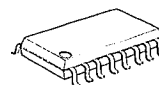
■ BLOCK DIAGRAM



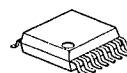
■ PACKAGE OUTLINE



NJM2286D



NJM2286M



NJM2286V

■ MAXIMUM RATINGS

(Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V*	14	V
Power Dissipation	P _D	(DIP16) 700 (DMP16) 350	mW mW
Operating Temperature Range	T _{opr}	-40~+85	°C
Storage Temperature Range	T _{stg}	-40~+125	°C

■ ELECTRICAL CHARACTERISTICS

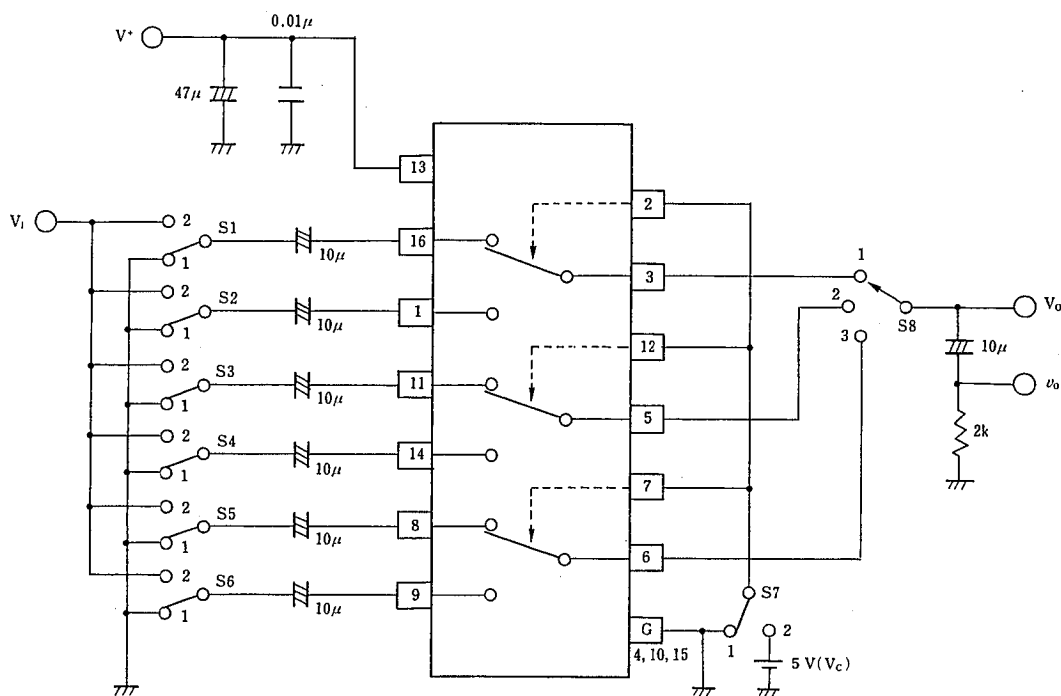
(V*=5V, Ta=25°C)

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 Phase	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

■ 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	
G_{v1}	2	1	1	1	1	1	1	1	v_0
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_0
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	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

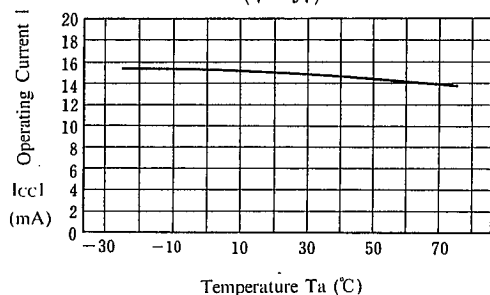
■ TERMINAL EXPLANATION

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)	0.8V	
13	V+	5V	
15 4 10	GND 1 GND 2 GND 3		

■ TYPICAL CHARACTERISTICS

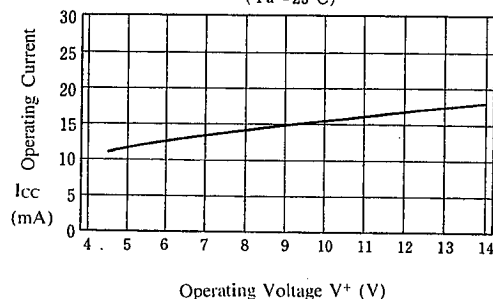
Operating Current 1 vs. Temperature

($V^+ = 9V$)



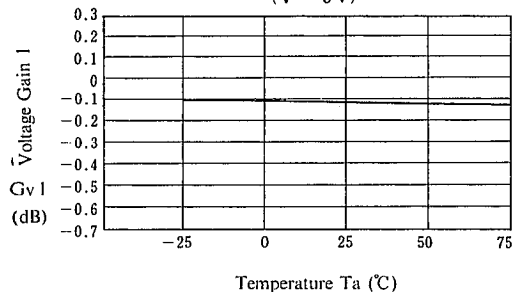
Operating Current vs. Operating Voltage

($T_a = 25^\circ C$)



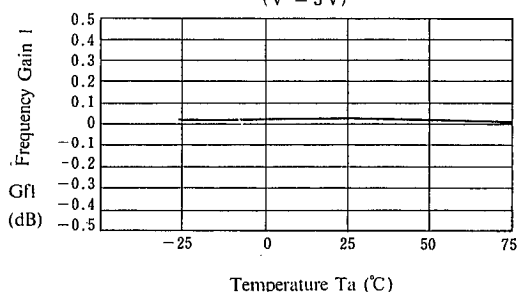
Voltage Gain 1 vs. Temperature

($V^+ = 5V$)



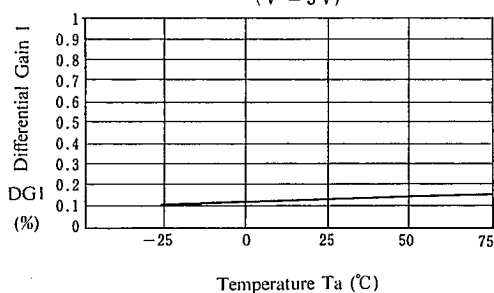
Frequency Gain 1 vs. Temperature

($V^+ = 5V$)



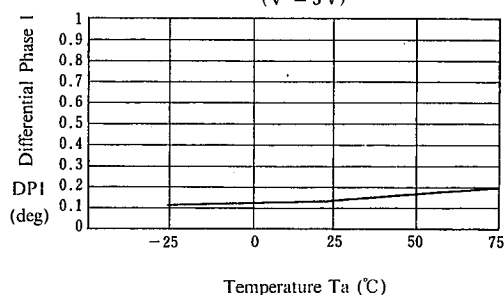
Differential Gain 1 vs. Temperature

($V^+ = 5V$)

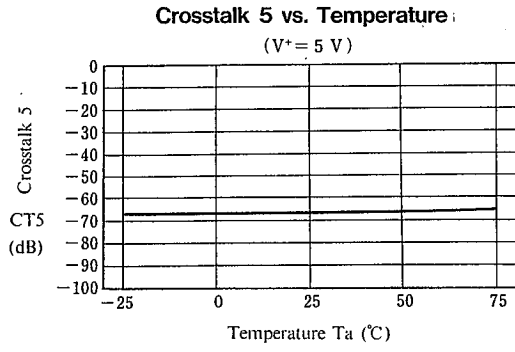
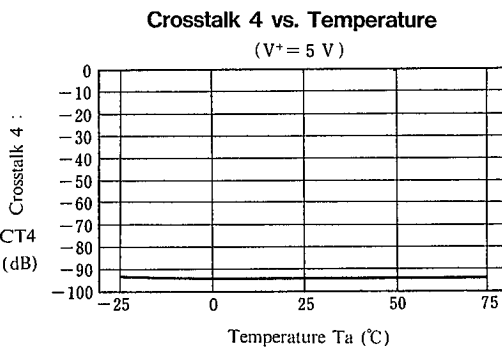
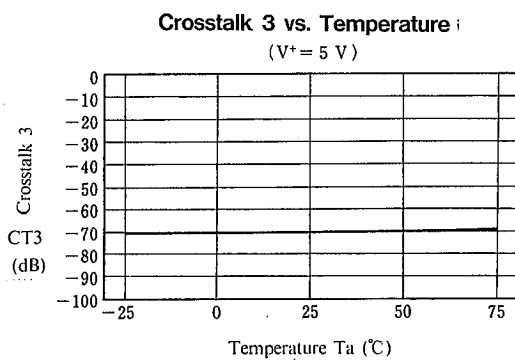
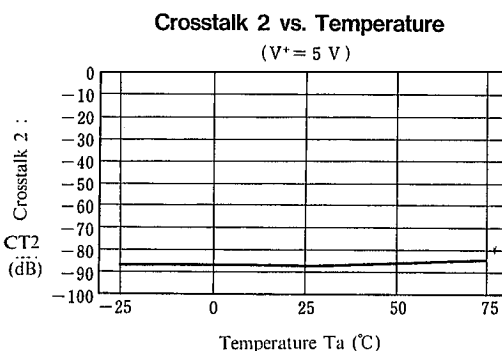
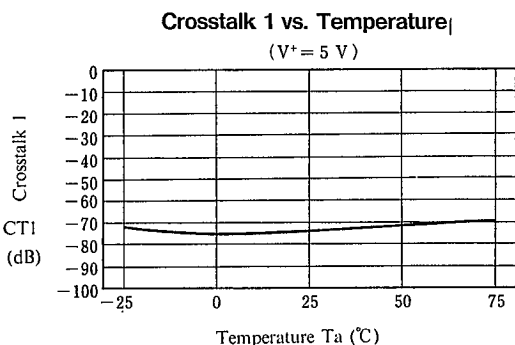
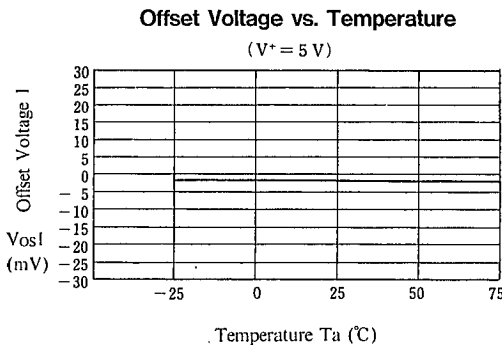


Differential Phase 1 vs. Temperature

($V^+ = 5V$)



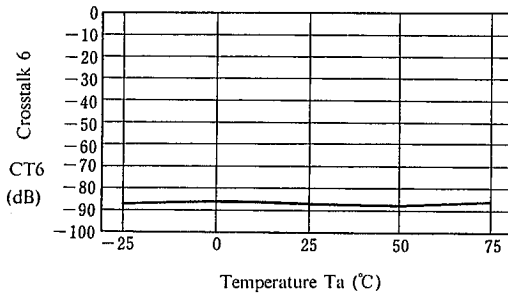
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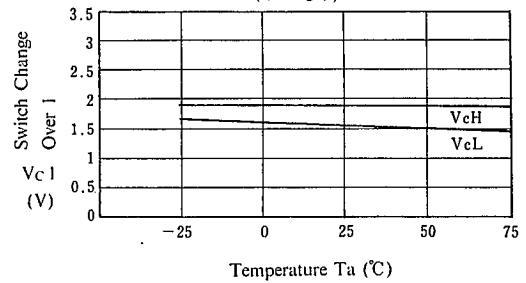
Crosstalk 6 vs. Temperature

($V^+ = 5\text{ V}$)



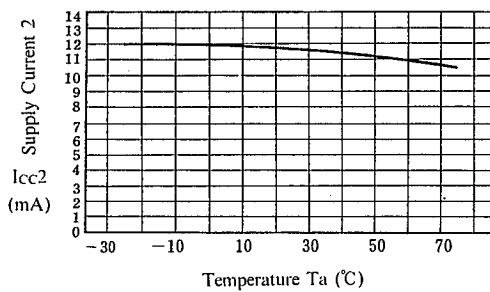
Switch Change Over 1 vs. Temperature

($V^+ = 5\text{ V}$)



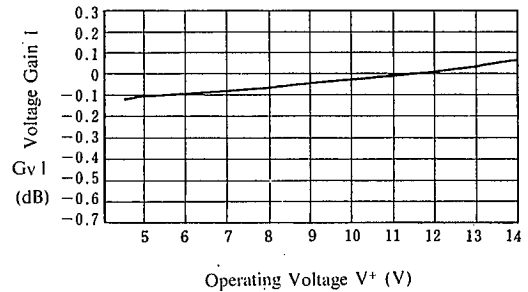
Supply Current 2 vs. Temperature

($V^+ = 5\text{ V}$)



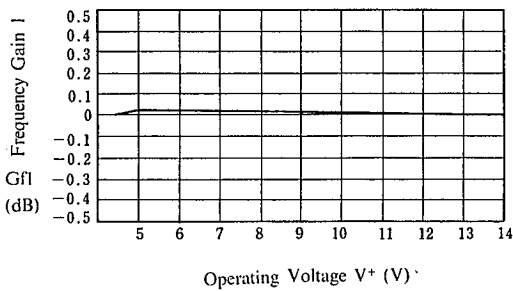
Voltage Gain 1 vs. Operating Voltage

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



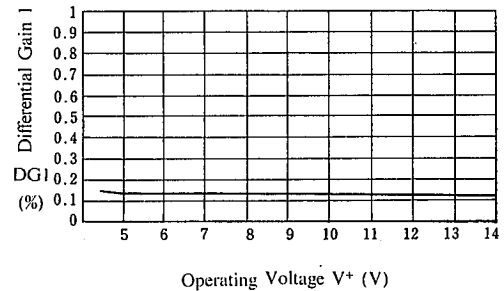
Frequency Gain 1 vs. Operating Voltage

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

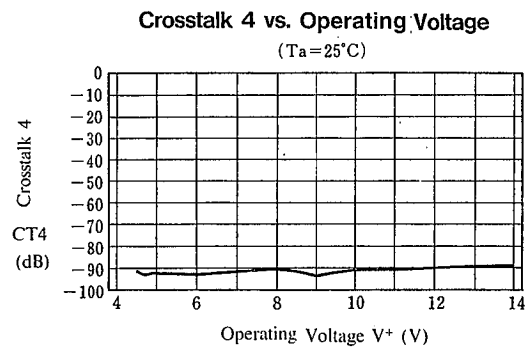
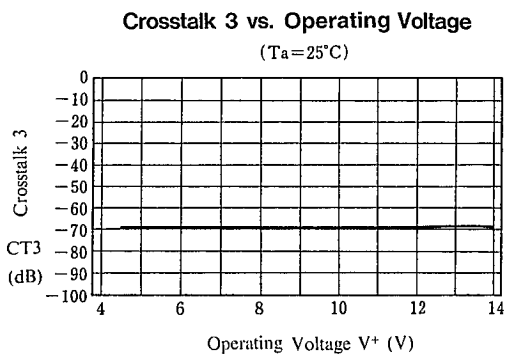
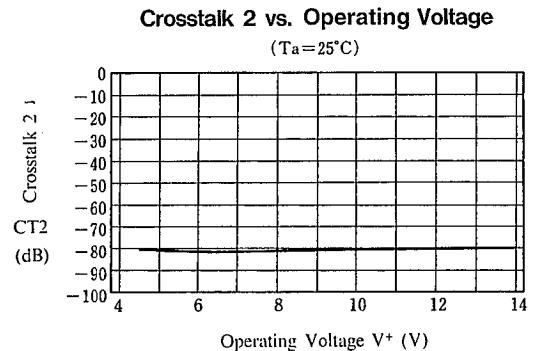
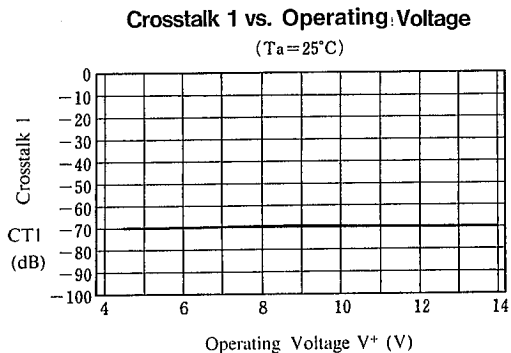
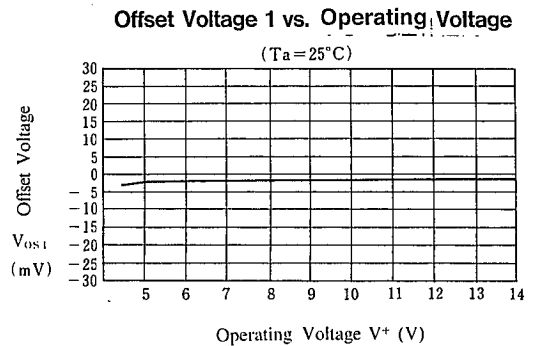
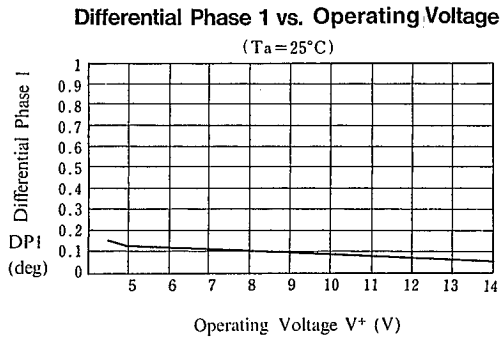


Differential Gain 1 vs. Operating Voltage

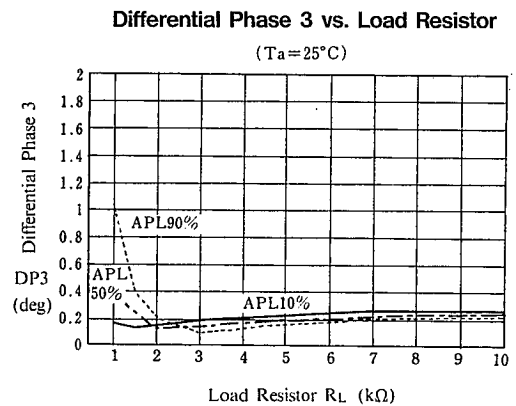
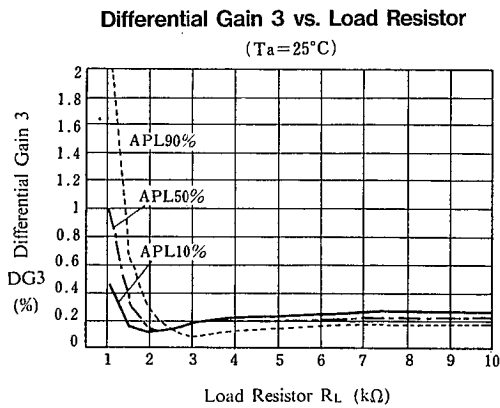
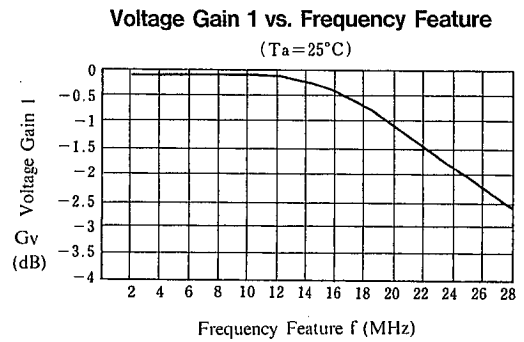
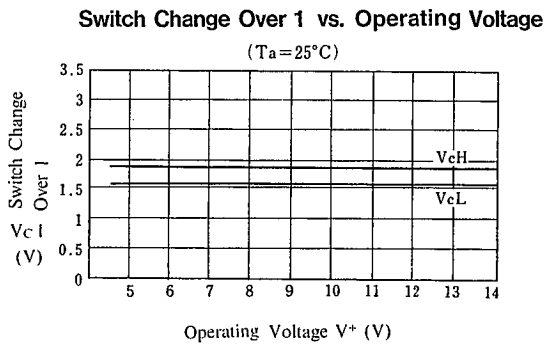
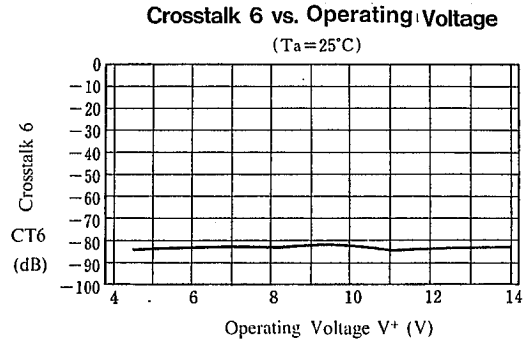
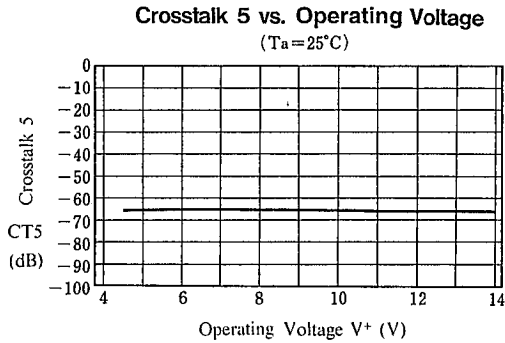
($T_a = 25^\circ\text{C}$)



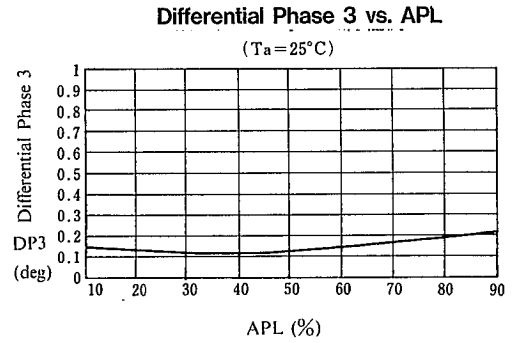
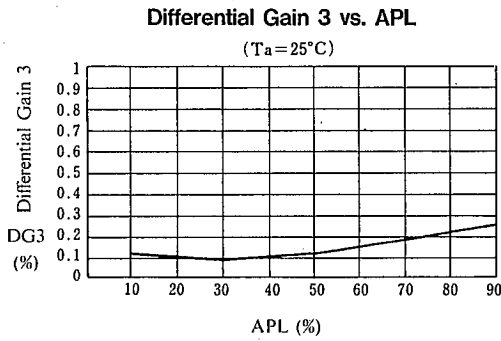
TYPICAL CHARACTERISTICS



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MEMO

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