

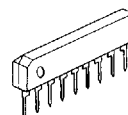
NJM2273

NJM2273 is a switching IC for switching over from one audio or video input signal to another. Internalizing the mute function which can be operated by 3 inputs. It is a higher performance video switch, with the operating supply voltage 5 to 12 V, frequency bandwidth 7 MHz, crosstalk 75 dB (at 4.43 MHz)

■ Features

- 3 Input-1 Output
- Internalizing Mute Function
- Wide Operating Supply Voltage Range
- Crosstalk 75 dB(at4.43MHz)
- Wide Bandwidth Frequency7MHz (2V_{P-P}Input)
- SIP-9

■ Package Outline



NJM2273S

■ Applications

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

■ Maximum Ratings (T_a=25°C)

Supply Voltage	V ⁺	14V
Power Dissipation	P _D (S Type)	500mW
Operating Temperature Range	T _{opr}	-20~+75°C
Storage Temperature Range	T _{stg}	-40~+125°C

■ Recommended Operating Condition

Supply Voltage	V ⁺	4.75~13.0V
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■ Electrical Characteristics (V⁺=5V, T_a =25°C)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Supply Current (1)	I _{CC1}	V ⁺ =5V (Note1)	4.5	6.5	8.5	mA
Supply Current (2)	I _{CC2}	V ⁺ =9V (Note1)	5.8	8.3	10.8	mA
Voltage Gain	G _V	V _I =100kHz, 2V _{P-P} , V _O /V _I	-0.7	-0.2	+0.3	dB
Frequency Gain (1)	G _{F1}	V _I =2V _{P-P} , V _O (7MHz)/V _O (100kHz)	-1.0	0	+1.0	dB
Frequency Gain (2)	G _{F2}	V _I =1V _{P-P} , V _O (10MHz)/V _O (100kHz)	—	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)	-30	0	+30	mV
Crosstalk	CT	V _I =2V _{P-P} , 4.43MHz, V _O /V _I	—	-75	—	dB
Muting Crosstalk	C _{TM}	V _I =2V _{P-P} , 4.43MHz, V _O /V _I	—	-60	—	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=1

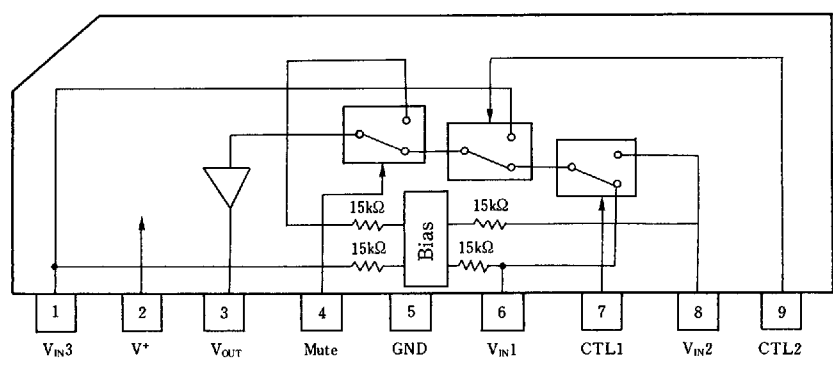
(Note2) Measure the output DC voltage difference between the following modes at S1=S2=S3=1

a) S4=S5=S6=1 b) S4=2, S5=S6=1 c) S5=2, S6=1 d) S6=2

■ Terminal Explanation

Pin No.	Pin Name	Voltage	Inside Equivalent Circuit
6 8 1	V _{IN1} V _{IN2} V _{IN3} (Input)	2.5V	
7 9 4	CTL1 CTL2 Mute (Switching)		
3	V _{OUT} (Output)	1.8V	
2	V ⁺	5 V	
5	GND		

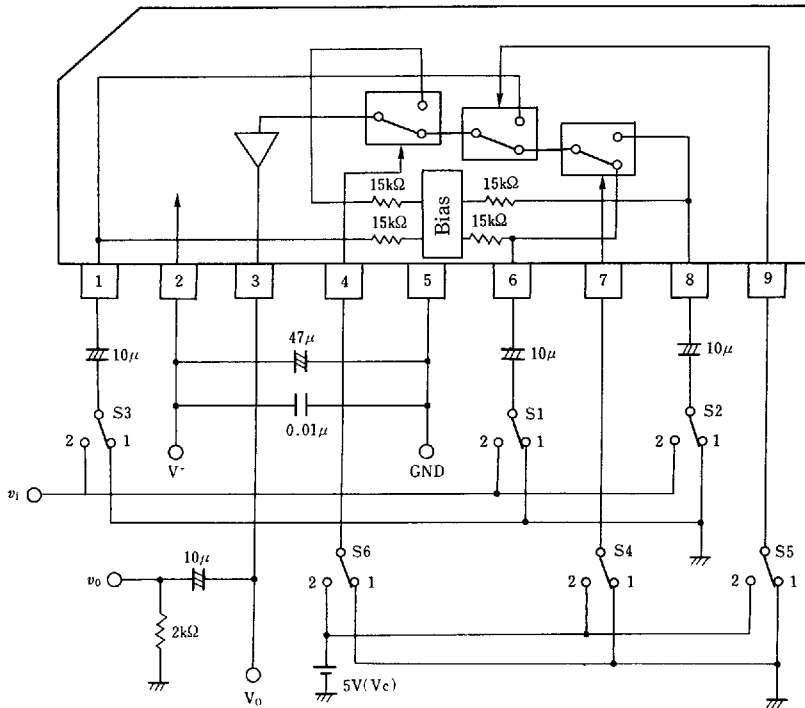
■ Block Diagram



■ Controlled input-Output signal

CTL1	CTL2	MUTE	Output Signal
L	L	L	V _{IN1}
H	L	L	V _{IN2}
L/H	H	L	V _{IN3}
L/H	L/H	H	Inside DC

■ Test Circuit

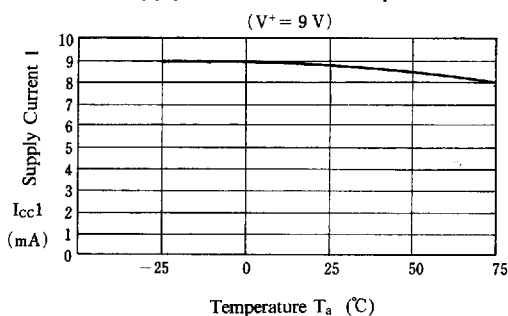


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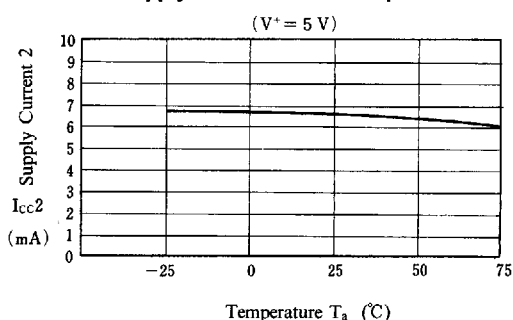
Parameter	S 1	S 2	S 3	S 4	S 5	S 6	Test Part
I _{CC1}	1	1	1	1	1	1	V ⁺
I _{CC2}	1	1	1	1	1	1	
G _{v1}	2	1	1	1	1	1	v _o
G _{f1}	2	1	1	1	1	1	
DG ₁	2	1	1	1	1	1	
DP ₁	2	1	1	1	1	1	
V _{OS1}	1	1	1	2	1	1	V _O
CT 1	2	1	1	2	1	1	v _o
CT 2	2	1	1	1	2	1	
CT 3	1	2	1	1	1	1	
CT 4	1	2	1	2	2	1	
CT 5	1	1	2	1/2	1	1	
CT _{M1}	2	1	1	1	1	2	v _o
CT _{M2}	1	2	1	2	1	2	
CT _{M3}	1	1	2	1/2	2	2	
V _{OS1}	1	1	1	2	1	1	V _O
V _{C1}	2	1	1	V _C	1	1	V _C
THD	2	1	1	1	1	1	v _o

Typical Characteristics

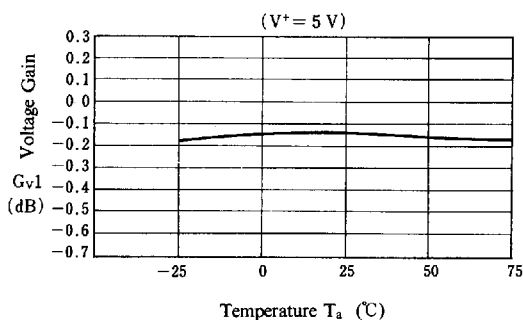
Supply Current 1 vs. Temperature



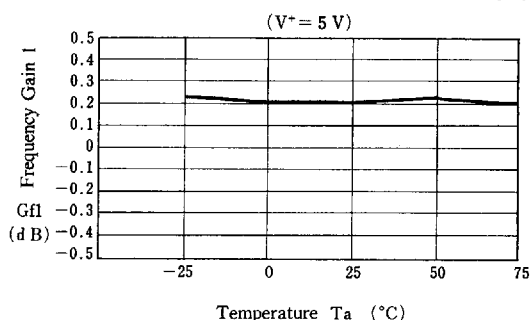
Supply Current 2 vs. Temperature



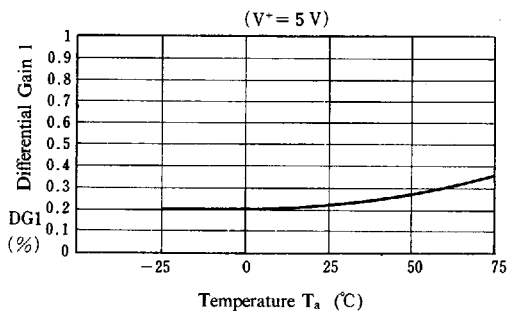
Voltage Gain 1 vs. Temperature



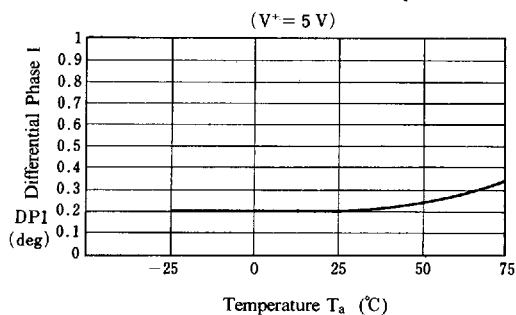
Frequency Gain 1 vs. Temperature T_a (°C)



Differential Gain 1 vs. Temperature



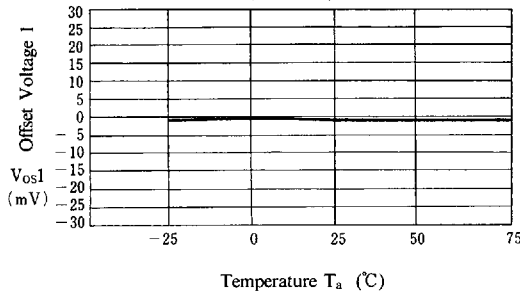
Differential Phase 1 vs. Temperature



■ Typical Characteristics

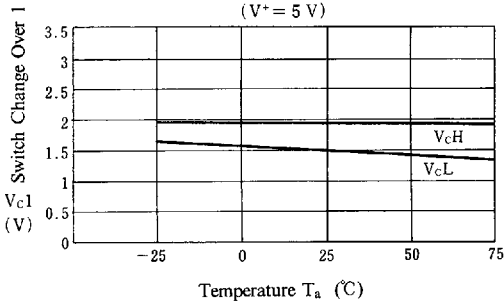
Offset Voltage 1 vs. Temperature

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



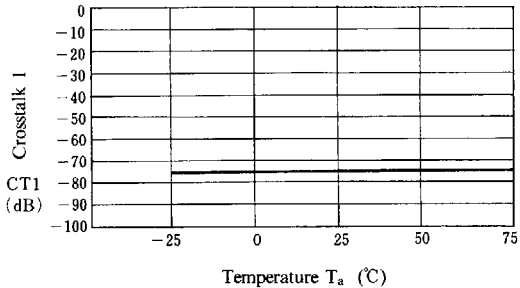
Switch Change Over 1 vs. Temperature

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



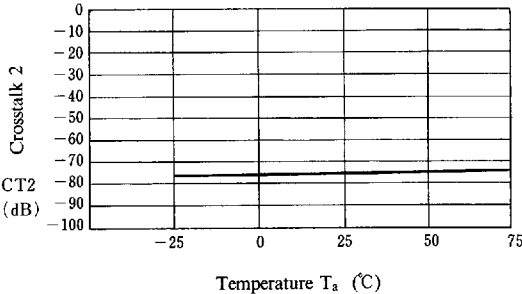
Crosstalk 1 vs. Temperature

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



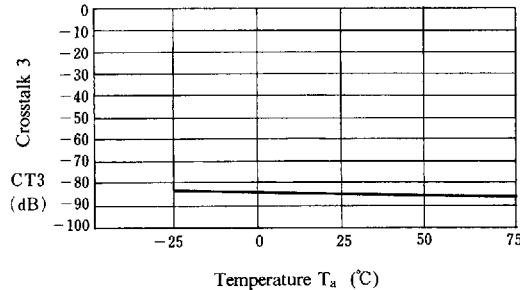
Crosstalk 2 vs. Temperature

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



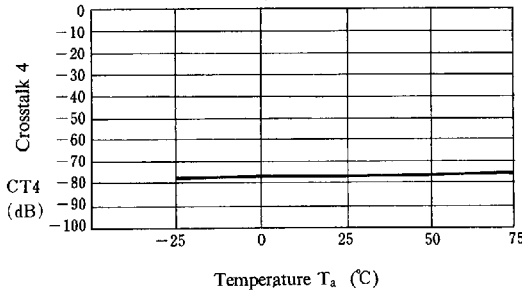
Crosstalk 3 vs. Temperature

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



Crosstalk 4 vs. Temperature

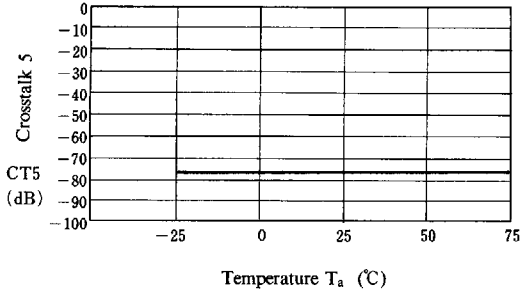
($V^+ = 5\text{ V}$)



■ Typical Characteristics

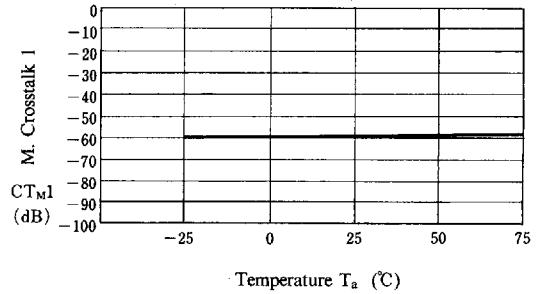
Crosstalk 5 vs. Temperature

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



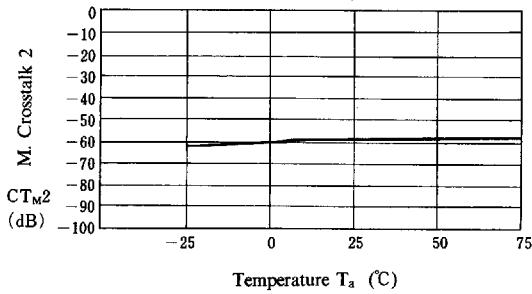
M. Crosstalk 1 vs. Temperature

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



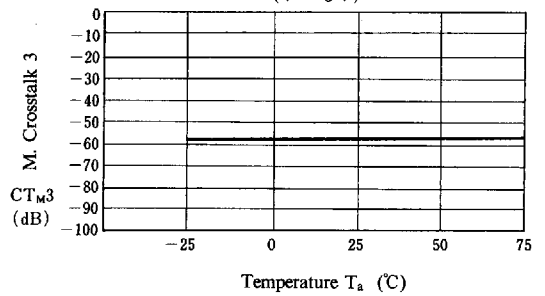
M. Crosstalk 2 vs. Temperature

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



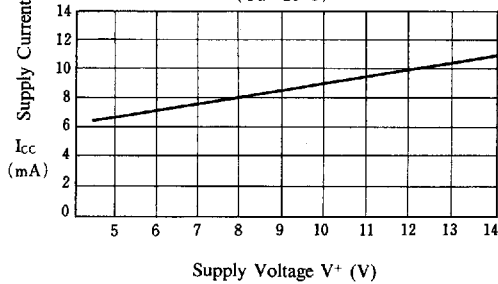
M. Crosstalk 3 vs. Temperature

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



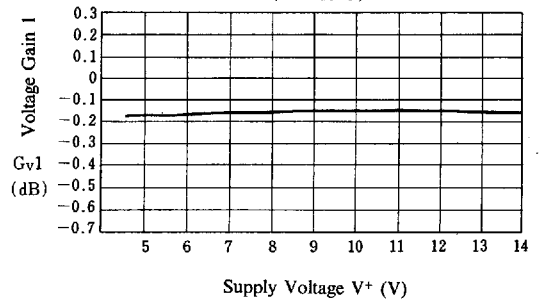
Supply Current vs. Supply Voltage

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



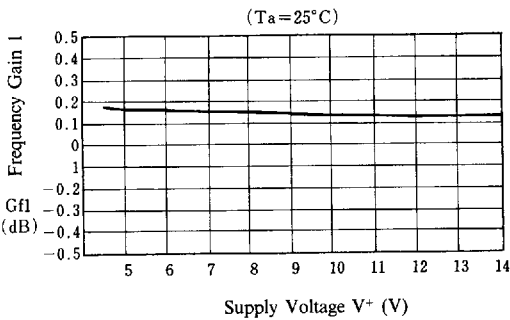
Voltage Gain 1 vs. Supply Voltage

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

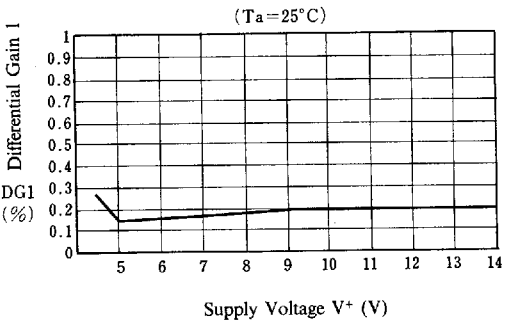


■ Typical Characteristics

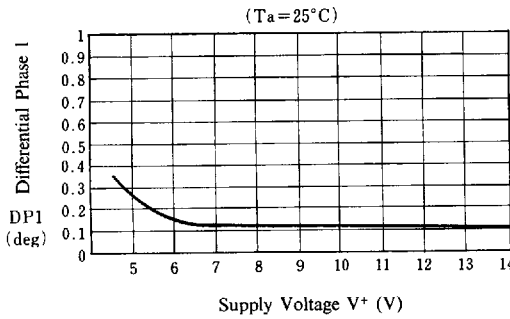
Frequency Gain 1 vs. Supply Voltage



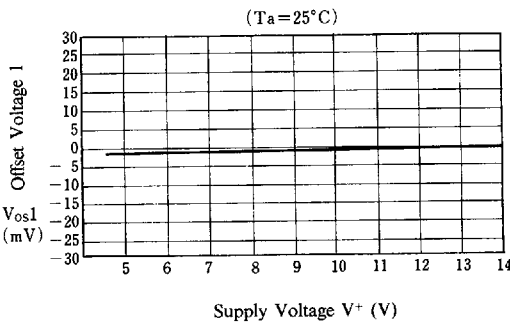
Differential Gain 1 vs. Supply Voltage



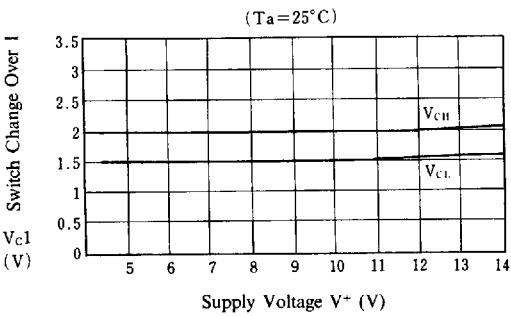
Differential Phase 1 vs. Supply Voltage



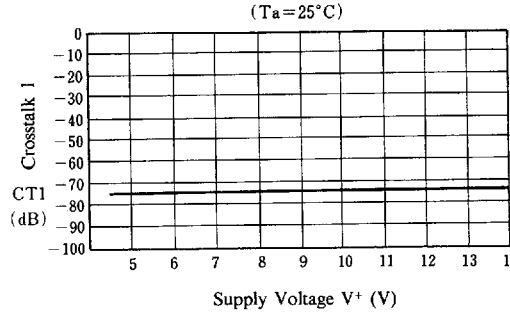
Offset Voltage 1 vs. Supply Voltage



Switch Change Over 1 vs. Supply Voltage



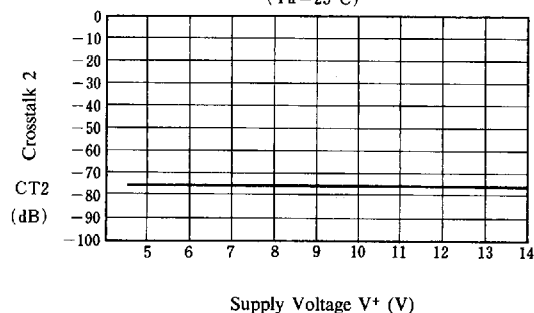
Crosstalk 1 vs. Supply Voltage



■ Typical Characteristics

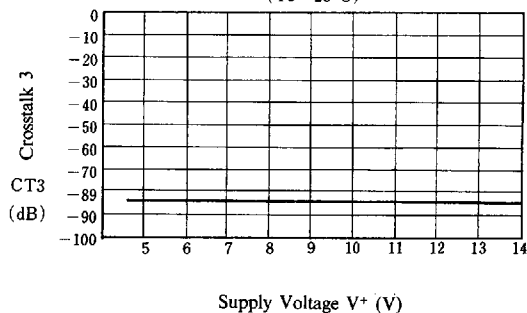
Crosstalk 2 vs. Supply Voltage

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



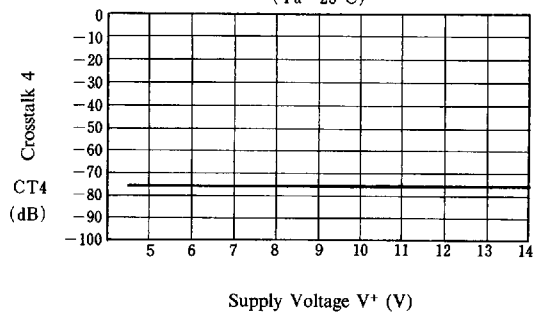
Crosstalk 3 vs. Supply Voltage

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



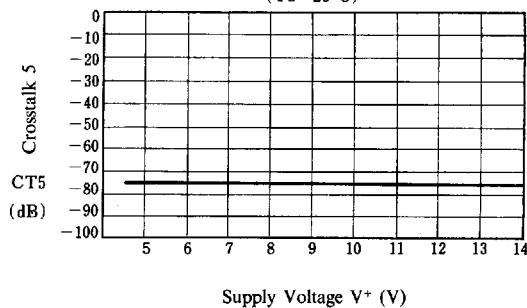
Crosstalk 4 vs. Supply Voltage

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



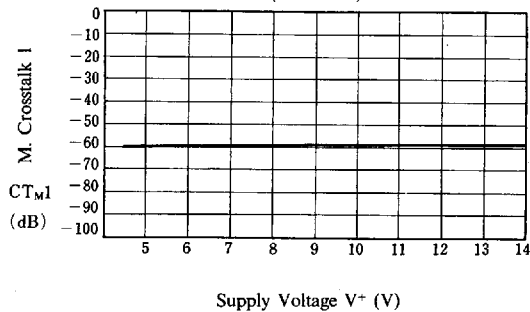
Crosstalk 5 vs. Supply Voltage

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



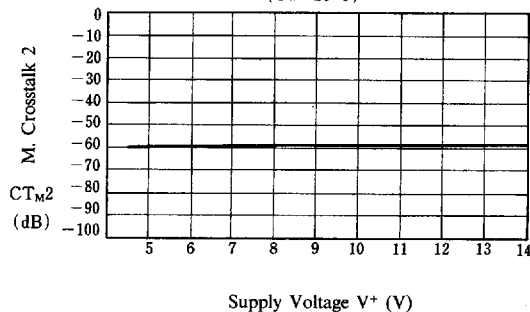
M. Crosstalk 1 vs. Supply Voltage

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



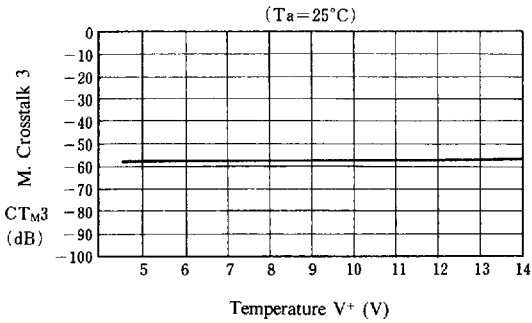
M. Crosstalk 2 vs. Supply Voltage

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

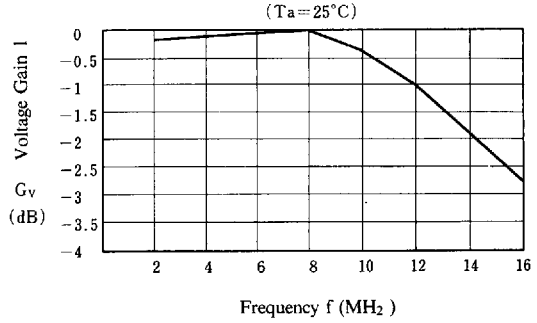


■ Typical Characteristics

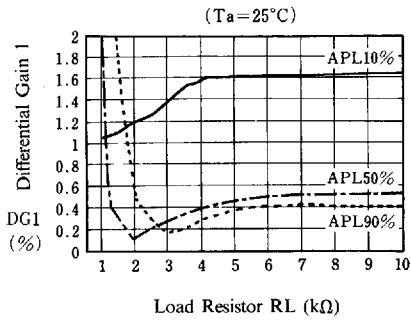
M. Crosstalk 3 vs. Temperature



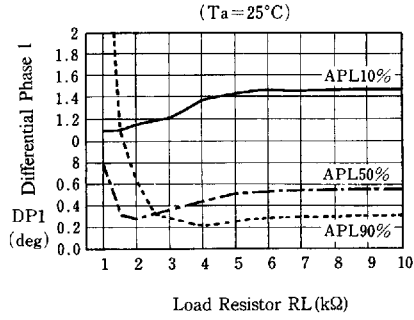
Voltage Gain 1 vs. Frequency



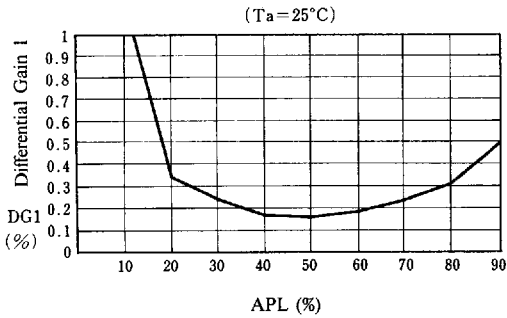
Differential Gain 1 vs. Load Resistor



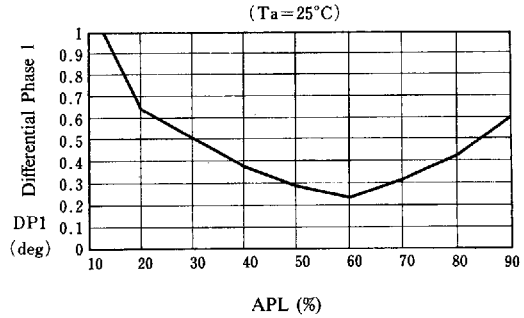
Differential Phase 1 vs. APL



Differential Gain 1 vs. APL



Differential Phase 1 vs. APL



■ Typical Characteristics

Total Harmonic Distortion 1 vs. Load Resistor

