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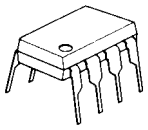
2-INPUT 1-OUTPUT VIDEO SWITCH

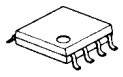
■ GENERAL DESCRIPTION

The **NJM2533** is a video switch for VCR, TV, and others.
It contains two bias-type inputs and one buffer-type output.

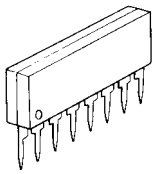
■ PACKAGE OUTLINE



NJM2533D



NJM2533M



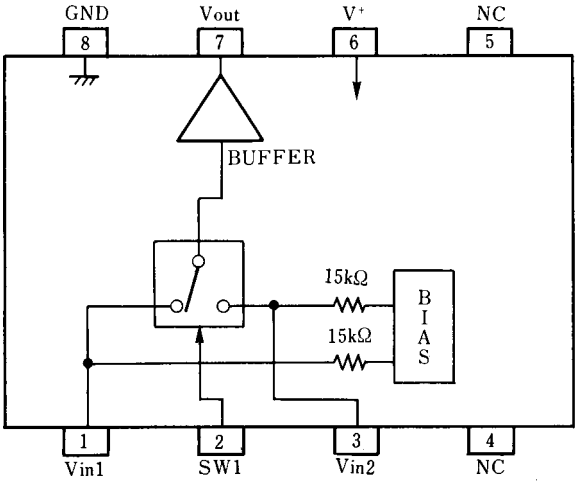
NJM2533L

NJM2533V

■ FEATURES

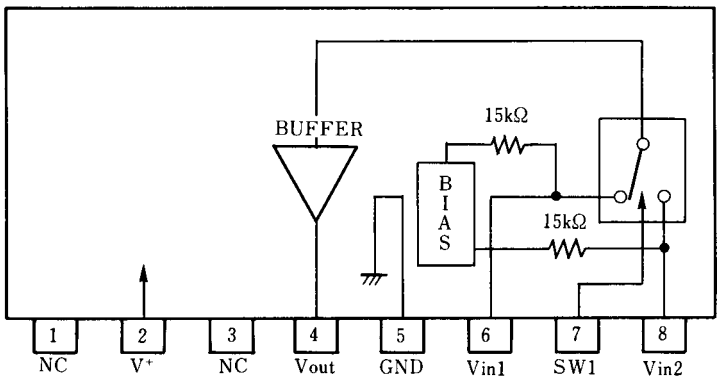
- Operating Voltage (+4.75V to +13V)
- Low Operating Current (MAX : 3.7mA)
- Crosstalk (-70dB)
- 2-Input, 1-Output
- Bipolar Technology
- Package Outline DIP8, DMP8, SIP8, SSOP8

■ PIN CONFIGURATION



PIN FUNCTION
1 : Vin1
2 : SW1
3 : Vin2
4 : NC
5 : NC
6 : V^+
7 : V_{OUT}
8 : GND

NJM2533D
NJM2533M
NJM2533V



PIN FUNCTION
1 : NC
2 : V^+
3 : NC
4 : V_{OUT}
5 : GND
6 : Vin1
7 : SW1
8 : Vin2

NJM2533L

■ ABSOLUTE MAXIMUM RATINGS

(T_a = 25ºC)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V^+	+15	V
Power Dissipation	P_D	(DIP-8) 500 (DMP-8) 300 (SIP-8) 800 (SSOP-8) 250	mW
Operating Temperature Range	T_{opr}	-40 to +85	ºC
Storage Temperature Range	T_{stg}	-40 to +125	ºC

■ ELECTRICAL CHARACTERISTICS

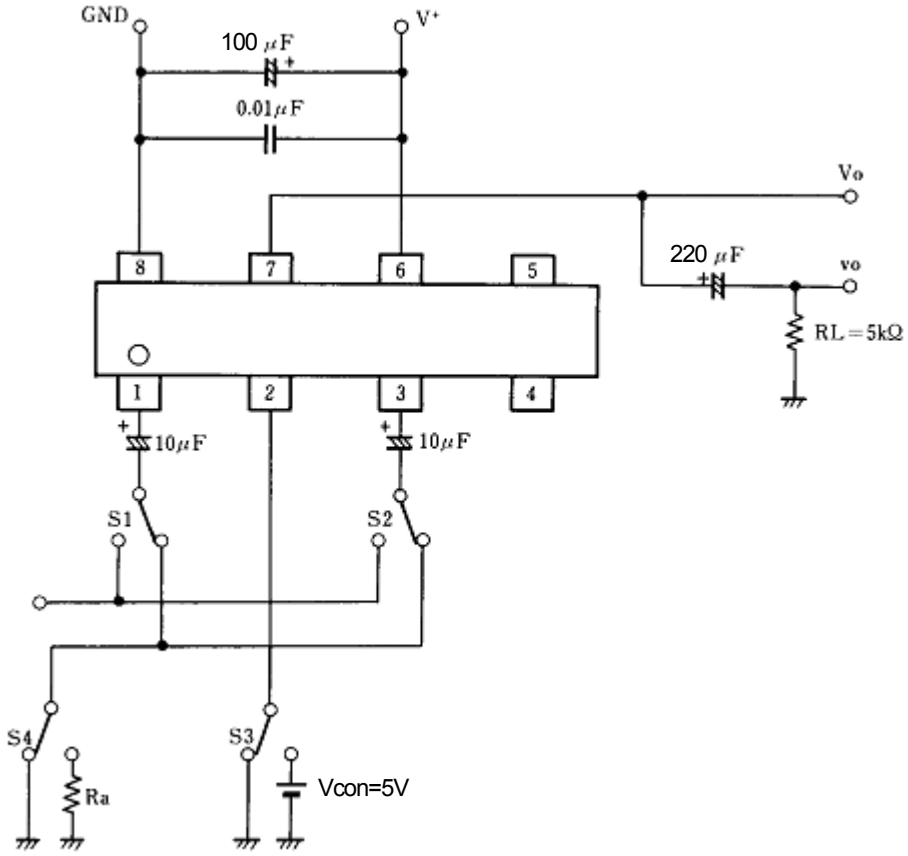
(V^+ = 5V, T_a = 25°C)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Operating Voltage	V^+		+4.5	-	+13.0	V
Operating Current	I_{CC}		-	2.7	3.7	mA
Frequency Characteristics	G_f	V_{IN} = 2V_{PP}, V_O = 10MHz/100kHz	-1.0	0	+1.0	dB
Voltage Gain	G_v	V_{IN} = 2V_{PP}, 100kHz	-0.5	0	+0.5	dB
Total Harmonic Distortion	THD	V_{IN} = 2.5V_{PP}, 1kHz	-	0.05	0.1	%
Differential Gain	DG	V_{IN} = 2V_{PP}, Standard staircase signal, APL = 50%	-	0.2	3.0	%
Differential Phase	DP	V_{IN} = 2V_{PP}, Standard staircase signal, APL = 50%	-	0.2	3.0	deg
Output Offset Voltage	V_{off}		-15	0	+15	mV
Crosstalk	CT	V_{IN} = 2V_{PP}, 4.3MHz	-	-70	-60	dB
Switching Voltage	V_{CH}		2.4	-	-	V
	V_{CL}		-	-	0.8	V
Input Impedance	R_I		-	30	-	kΩ
Output Impedance	R_O		-	25	-	Ω
Input Bias Voltage	V_{IN}		-	2.5	-	V

■ CONTROL SIGNAL-OUTPUT SIGNAL

SW1	OUTPUT SIGNAL
L	V_{IN}1
H	V_{IN}2

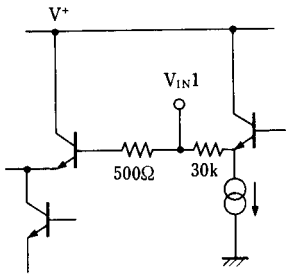
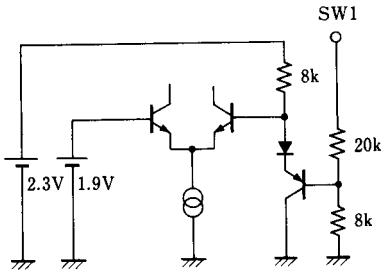
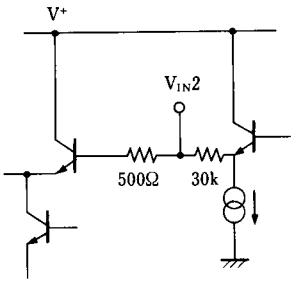
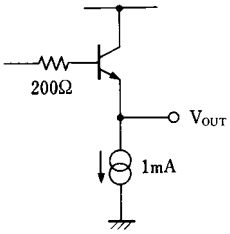
■ TEST CIRCUIT



Terminal DC voltage at test circuit (Ta=25°C)

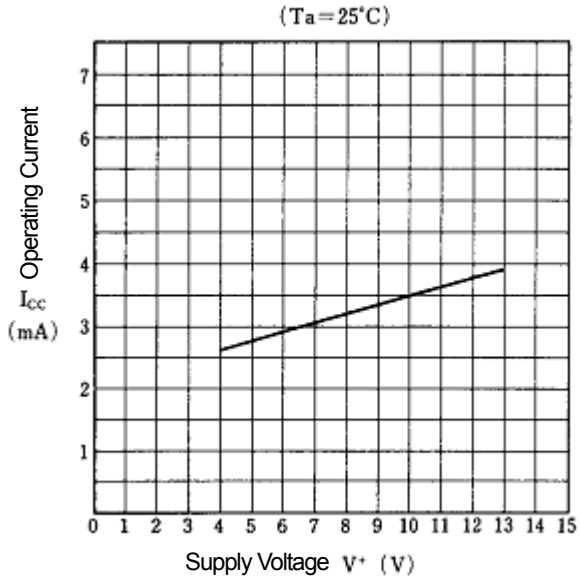
Terminal name	Vin1	Vin2	Vout
DC voltage (V)	$V^+/2$	$V^+/2$	$V^+/2$ - 0.7

■ **TERMINAL DESCRIPTION** (Terminal number indicates the DIP , DMP, SSOP)

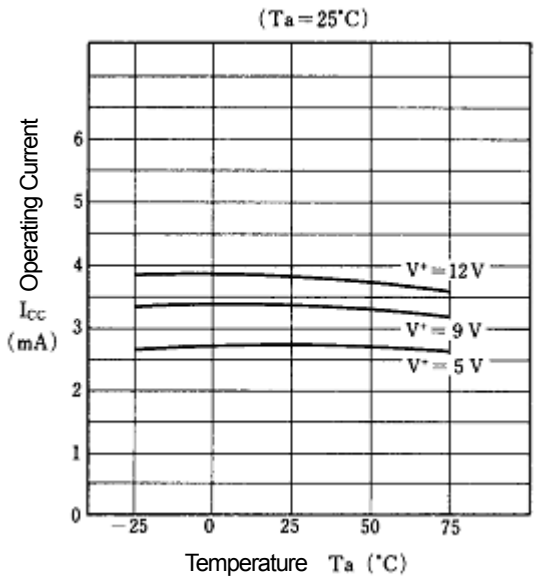
No.	SYMBOL	EQUIVALENT CIRCUIT	No.	SYMBOL	EQUIVALENT CIRCUIT
1	$V_{IN}1$		5	NC	———
2	SW1		6	V^+	———
3	$V_{IN}2$		7	V_{OUT}	
4	NC	———	8	GND	———

■ TYPCAL CHARACTERISTICS

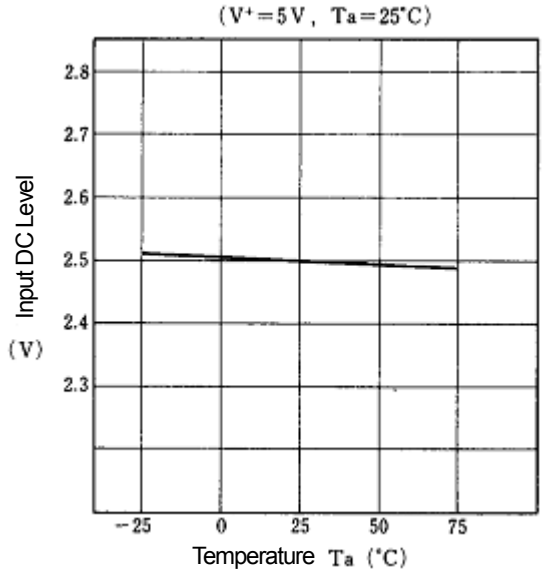
Operating Current vs. Supply Voltage



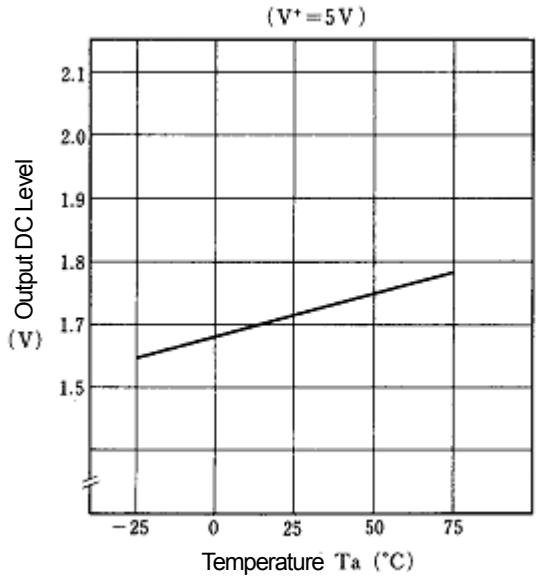
Operating Current vs. Temperature



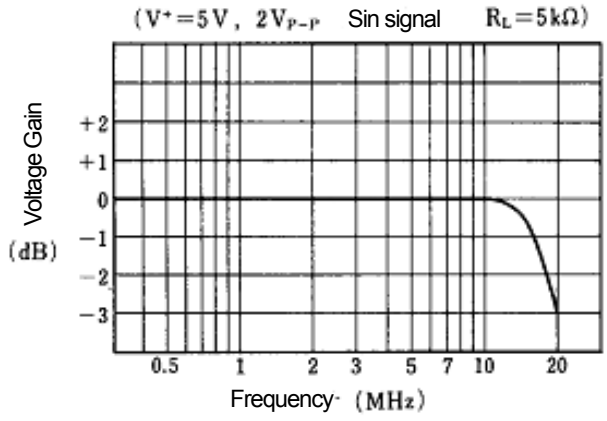
Input DC Level vs. Temperature



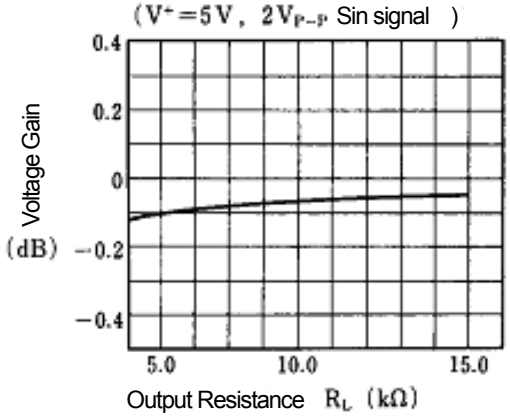
Output DC Level vs. Temperature



Voltage Gain vs. Frequency

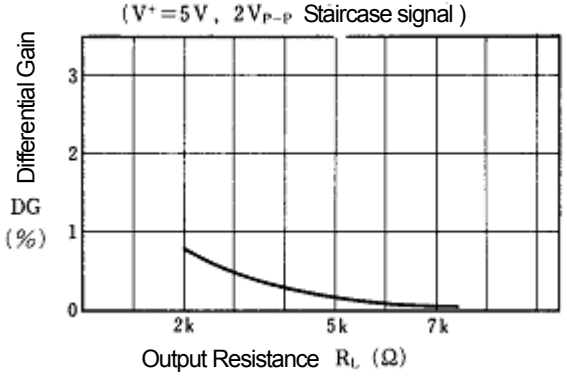


Voltage Gain vs. Output Resistance

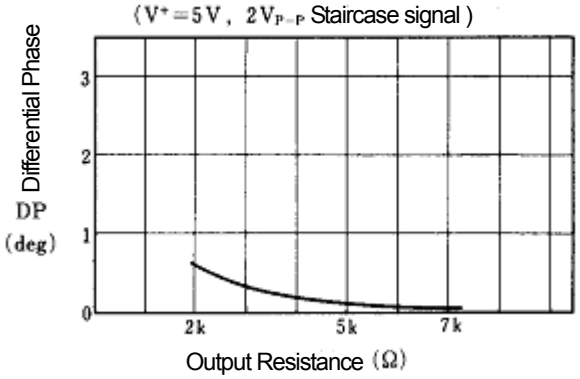


■ TYPCAL CHARACTERISTICS

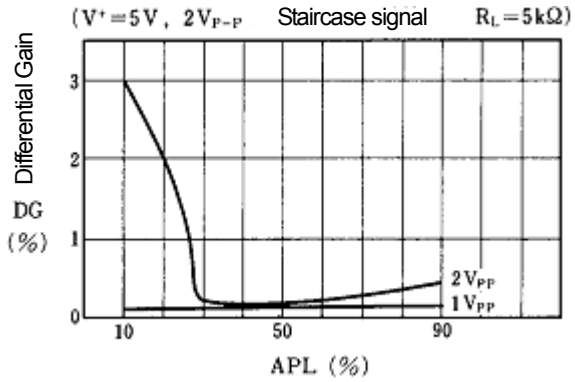
Differential Gain vs. Output Resistance



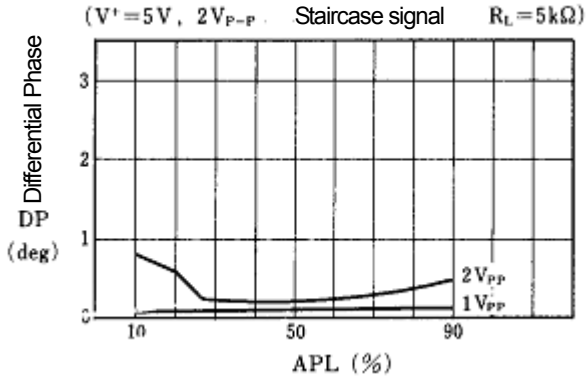
Differential Phase vs. Output Resistance



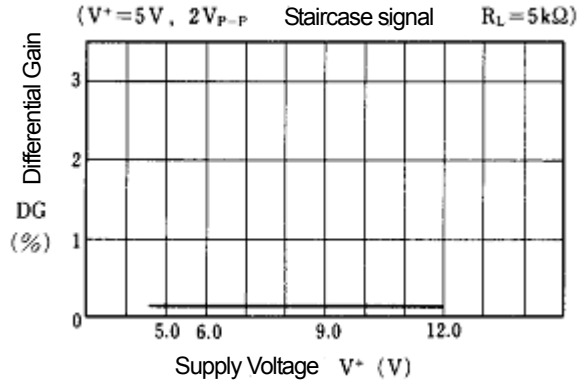
Differential Gain vs. APL



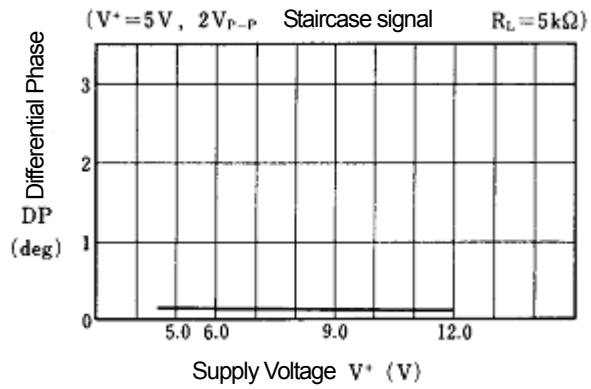
Differential Phase vs. APL



Differential Gain vs. Supply Voltage

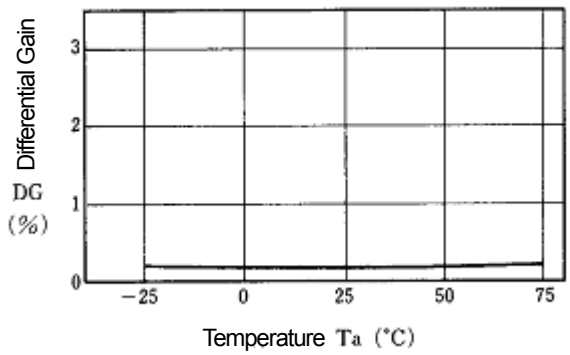


Differential Phase vs. Supply Voltage

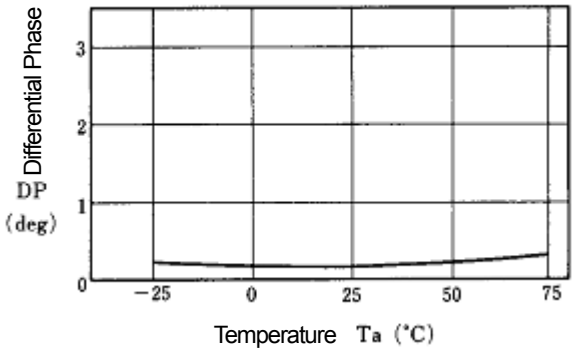


■ TYPCAL CHARACTERISTICS

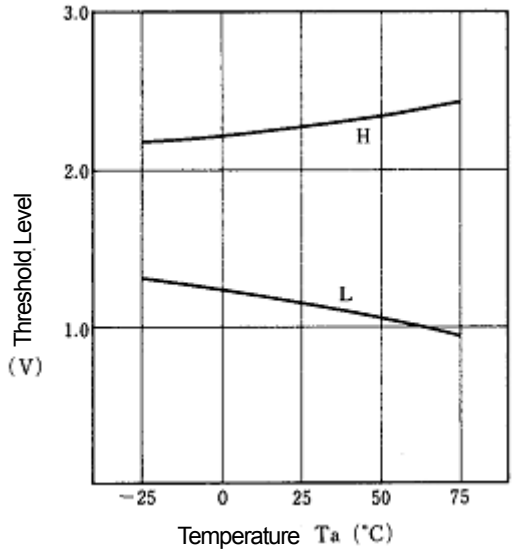
Differential Gain vs. Temperature
($V^+=5V$, $2V_{P-P}$ Staircase signal)



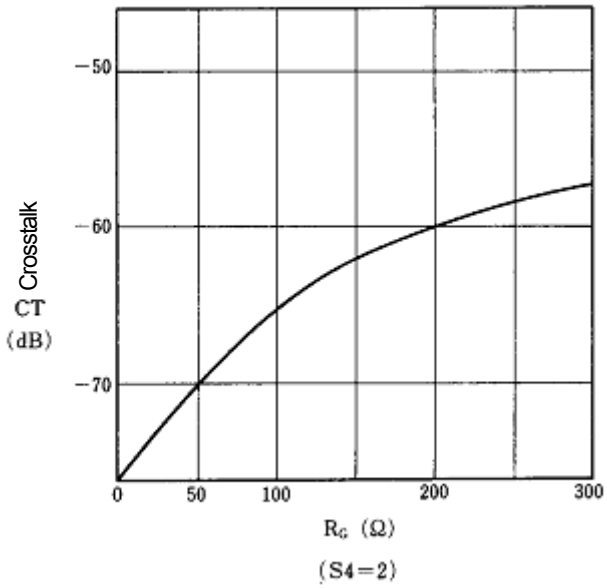
Differential Phase vs. Temperature
($V^+=5V$, $2V_{P-P}$ Staircase signal)



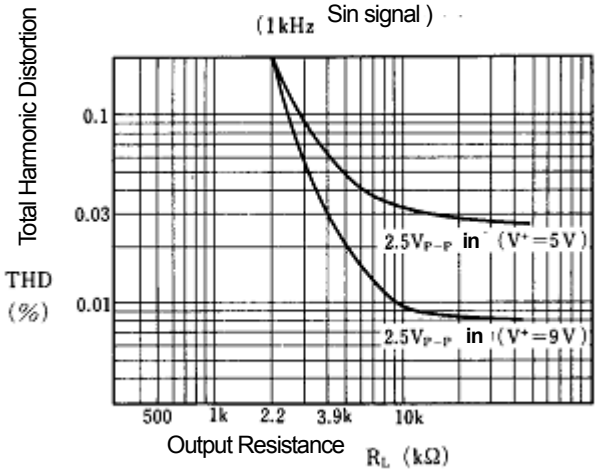
Threshold Level vs. Temperature
($V^+=5V$)



Crosstalk vs. Rg
($V^+=5V$, 4.43MHz $2V_{P-P}$ Sin signal)



Total Harmonic Distortion vs. Output Resistance
(1kHz Sin signal)



■ APPLICATION

This IC requires 0.1μF capacitor between INPUT and GND for bias type input at mute mode.