

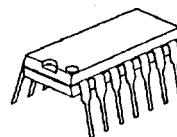
AUDIO FILTER AMPLIFIER

■ GENERAL DESCRIPTION

The NJM2133 is a dual audio filter amplifier for digital audio. It includes two-channel voltage follower, capacitors, and resistors for Low Pass Filter. It also includes standby function which applies to low consumption power design.

It is suitable for CD, CD-ROM, DVD, and any other digital audio equipments.

■ PACKAGE OUTLINE


NJM2133D

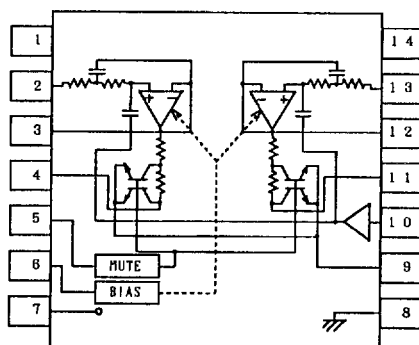
NJM2133M

NJM2133V

■ FEATURES

- Single Supply
- Operating Voltage ($V^+ = 4.5 \sim 5.5V$)
- Internal voltage follower (Two channels)
- Internal C and R for LPF
- Standby Function
- Mute Function
- High S/N Ratio (86dB typ.)
- Bipolar Technology
- Package Outline DIP14, DMP14, SSOP14

■ PIN CONFIGURATION



NJM2133D
NJM2133M
NJM2133V

PIN FUNCTION

- | | |
|------------|------------|
| 1: NC | 8: GND |
| 2: IN1 | 9: REF2 |
| 3: OUT1 | 10: REF1 |
| 4: MUTE1 | 11: MUTE 2 |
| 5: MUTE | 12: OUT2 |
| 6: STANDBY | 13: IN2 |
| 7: V^+ | 14: NC |

■ ABSOLUTE MAXIMUM RATINGS

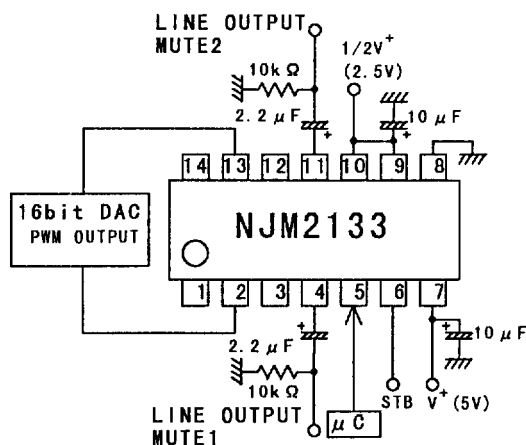
($T_a = 25^\circ C$)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V^+	12	V
Power Dissipation	P_D	(DIP8) 700 (DMP8) 300 (SSOP8) 300	mW
Operating Temperature Range	T_{opr}	$-25 \sim +75$	$^\circ C$
Storage Temperature Range	T_{stg}	$-40 \sim +125$	$^\circ C$

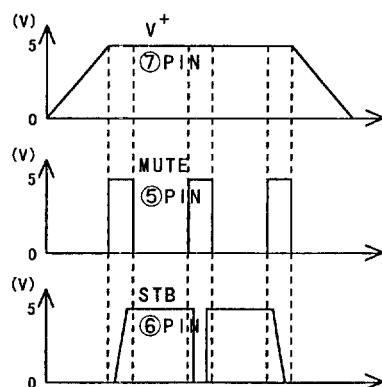
$(V^+=5V, f=1kHz, V_i=1.0V_{rms}, V_{ref1}=2.5V, V_{ref2}=2.5V, R_L=10k\Omega, T_a=25^\circ C)$

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Current	Icc1		—	4.0	6.0	mA
Standby Operating Current	Icc2	6pin=GND	—	1	—	mA
Voltage Gain1	Gv1		-1.0	0	1.0	dB
Voltage gain2	Δ Gv2	f=20kHz, Difference from Gv1	-0.5	0	0.5	dB
Voltage Gain3	Gv3	f=80kHz	—	-3	—	dB
Channel Balance	Δ Gv1	at Gv1	-0.5	0	0.5	dB
Total Harmonic Distortion	THD	Vo=0.2Vrms	—	0.015	0.05	%
S/N Ratio	S/N	BW=20~20kHz, Rg=0 Ω Vi=1.0Vrms reference	80	86	—	dB
Channel Separation	CS	Measuring CH:no signal, BW=20~20kHz Other CH:Vi=1.0Vrms	74	80	—	dB
Mute Attenuation	ATT	Vi=1.0Vrms, 5pin=V ⁺ , 6pin=GND	70	90	—	dB
Output Offset Voltage Drift	Voff	at Mute ON/OFF	-10	0	10	mV
Mute Voltage	Vmute	5pin, at Mute	3.5	—	—	V
Standby Voltage	Vstb	6pin, at Standby	—	—	1.5	V

■ APPLICATION CIRCUIT

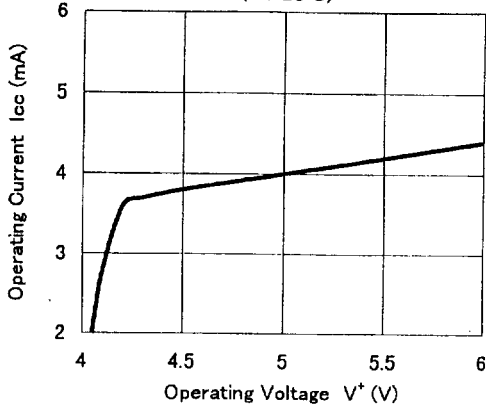


■ POWER ON TIMING CHART

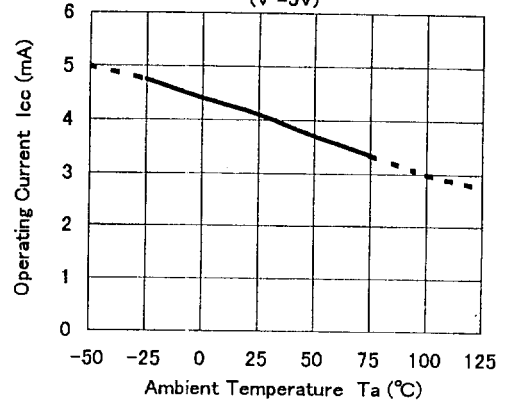


■ TYPICAL CHARACTERISTICS

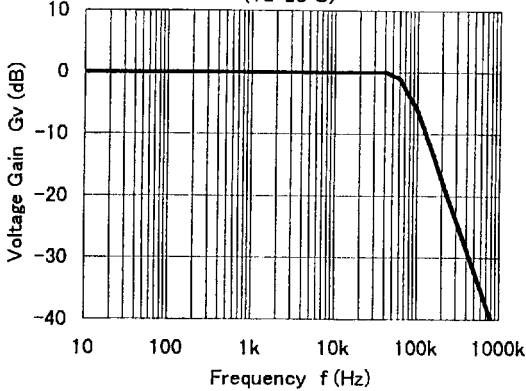
Operating Current vs. Operating Voltage
($T_a = 25^\circ\text{C}$)



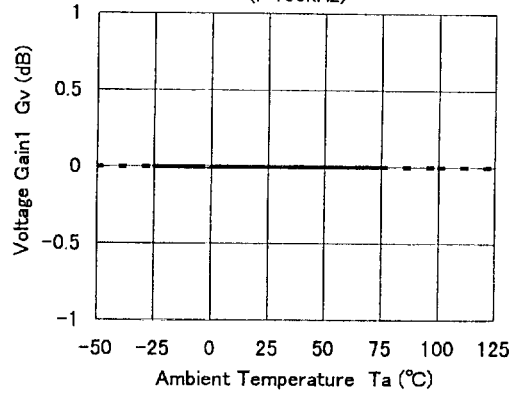
Operating Current vs. Temperature
($V^* = 5\text{V}$)



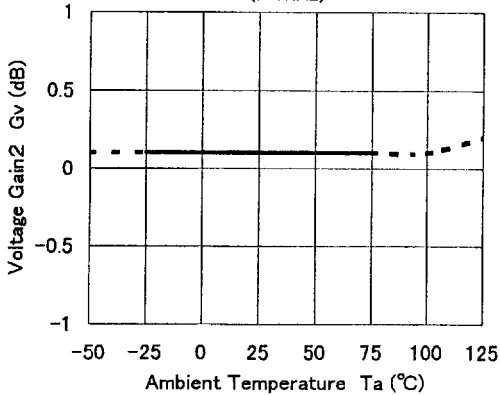
Voltage Gain vs. Frequency
($T_a = 25^\circ\text{C}$)



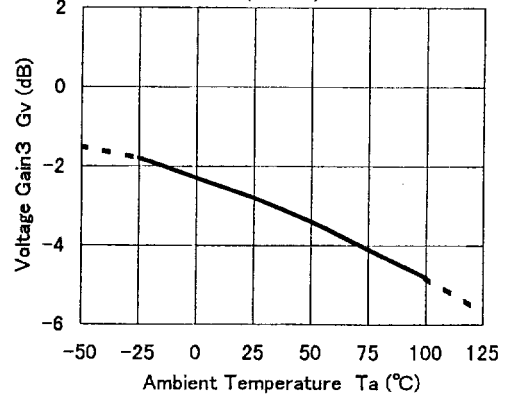
Voltage Gain1 vs. Temperature
($f = 100\text{kHz}$)



Voltage Gain2 vs. Temperature
($f = 1\text{kHz}$)

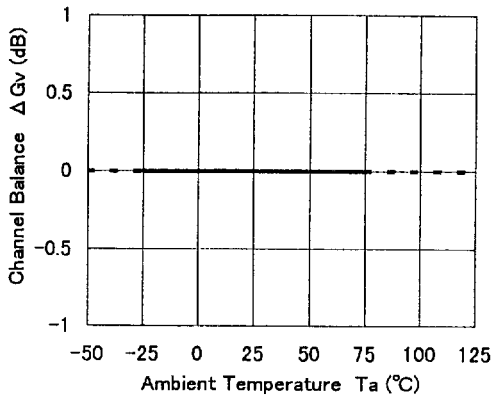


Voltage Gain3 vs. Temperature
($f = 1\text{kHz}$)

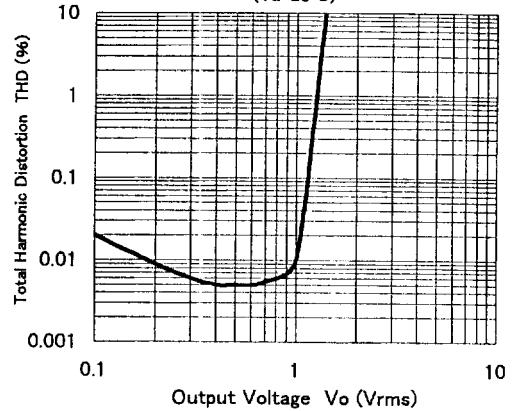


TYPICAL CHARACTERISTICS

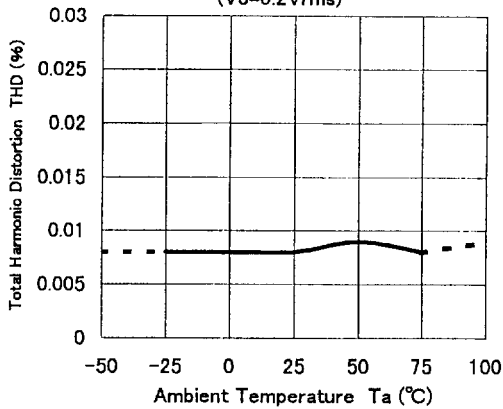
Channel Balance vs. Temperature
($f=1\text{kHz}$)



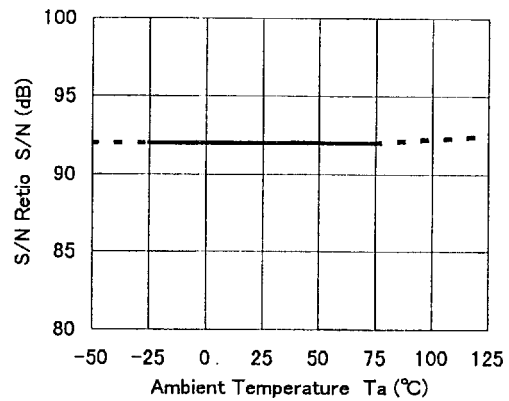
Total Harmonic Distortion vs. Output Voltage
($T_a=25^\circ\text{C}$)



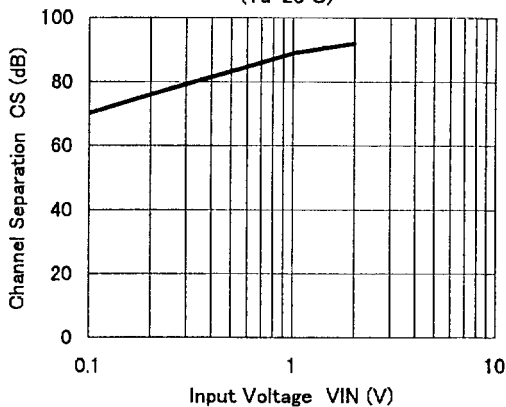
Total Harmonic Distortion vs. Temperature
($V_o=0.2\text{Vrms}$)



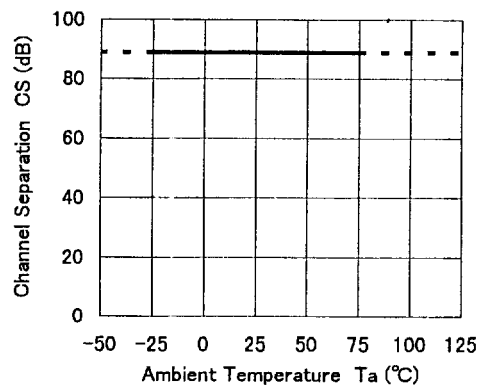
S/N Ratio vs. Temperature
($V^+=5\text{V}$)



Channel Separation vs. Input Voltage
($T_a=25^\circ\text{C}$)



Channel Separation vs. Temperature
($V_{IN}=1.5\text{Vrms}$)



■ TYPICAL CHARACTERISTICS

