

Audio Limiter

■ GENERAL DESCRIPTION

The **NJM2761** is the audio limiter for speaker protection. The limit level is adjustable by external resistor. It is suitable for PC, portable audio and others.

■ PACKAGE OUTLINE

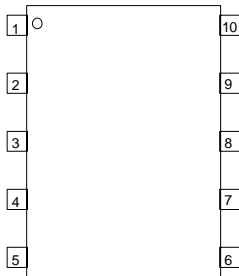


NJM2761RB2

■ FEATURES

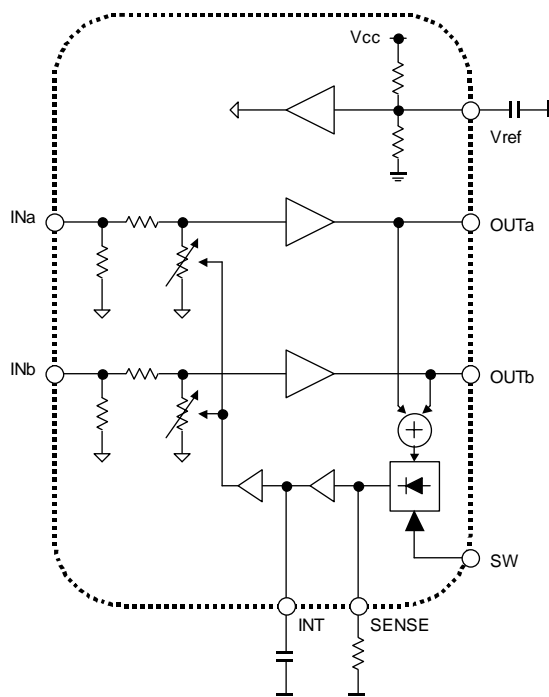
- Wide Operating Voltage +2.7V to +13.0V
- Variable Limit Level by external resistor 0.2 to 1V
- Low Output Noise -90dBV max.
- Bipolar Technology
- Package Outline TVSP10

■ PIN CONFIGURATION



1. V+
2. OUTa
3. INa
4. INT
5. VREF
6. SENCE
7. SW
8. INb
9. OUTb
10. GND

■ BLOCK DIAGRAM



NJM2761

■ABSOLUTE MAXIMUM RATING (Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V ⁺	14	V
Power Dissipation	P _D	320	mW
Operating Temperature Range	T _{opr}	-20 to +75	°C
Storage Temperature Range	T _{stg}	-40 to +125	°C

■ELECTRICAL CHARACTERISTICS

● POWER SUPPLY (Ta=25°C, V⁺=5V unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Voltage	V ⁺	-	2.7	5.0	13.0	V
Operating Current	I _{CC}	No Signal	-	1.5	2.0	mA
Reference Voltage	V _{ref}	No Signal	2.2	2.5	2.7	V

● AC CHARACTERISTICS

(Ta=25°C, V⁺=5V, V_{IN}=1V_{rms}/f=1kHz, R_{sense}=20kΩ, BW=400-30kHz unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Limit Level 1	G _{LIM1}		150	200	250	mV _{rms}
Limit Level 2	G _{LIM2}	V ⁺ =13V, R _{sense} =4kΩ	0.7	1.0	1.3	V _{rms}
Limit Off	G _{OFF}	SW=2V	0.9	1.0	1.1	V _{rms}
Output Noise	V _{NO}	R _S =0Ω, A-weighting, V _{IN} =2V _{rms}	-	-100 (10)	-90 (31.6)	dBV (μV _{rms})
Total Harmonic Distortion	THD+N		-	-	1	%
Cross Talk	CT		-	-	-70	dB
Ripple Rejection	RR	V _{ripple} =100mV _{rms} , f=1kHz	-	-	-70 (316)	dBV (μV _{rms})

● CONTROL CHARACTERISTICS (Ta=25°C, V⁺=5V unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Low Level Input Voltage	V _{IL}	-	-	-	0.5	V
High Level Input Voltage	V _{IH}	-	2.0	-	-	V

■CONTROL TERMINAL EXPLANATION

SW(7pin)

MODE	STATUS	NOTE
Limiter ON	L	Limiter is active.
Limiter OFF	H	Limiter is not active.

■TERMINAL DESCRIPTION

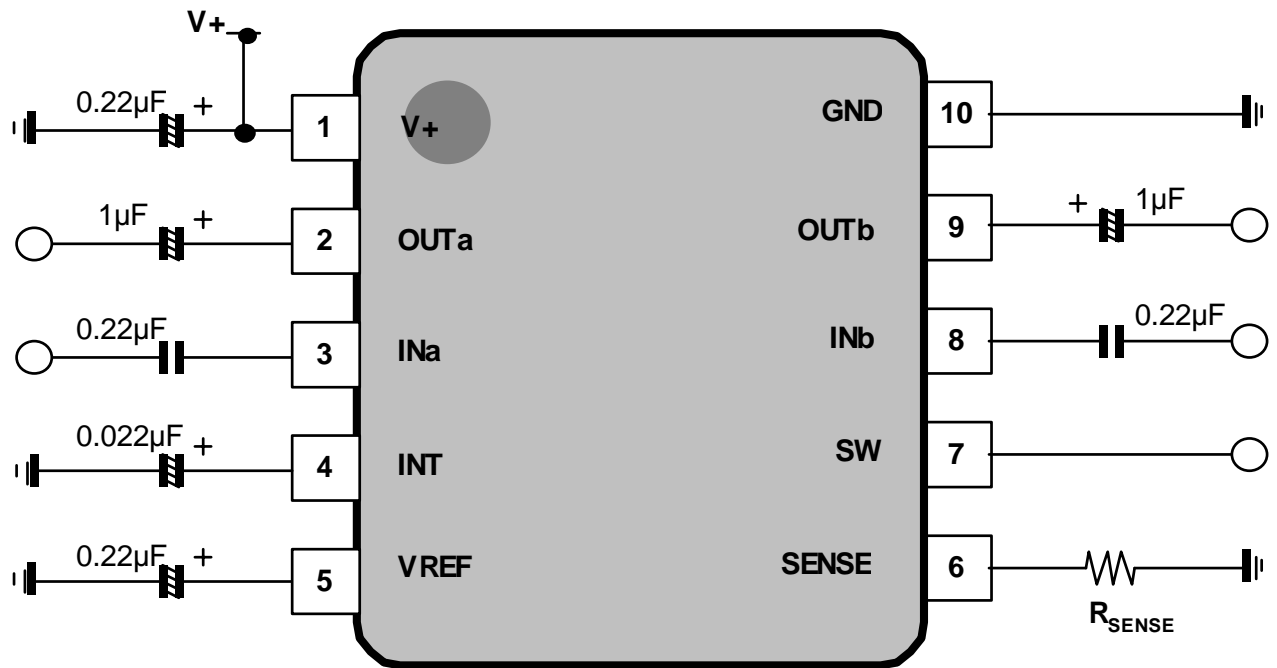
No.	SYMBOL	FUNCTION	EQUIVALENT CIRCUIT	VOLTAGE
1	V+	Power Supply Terminal	—	-
2 9	OUTa OUTb	Ach Output Terminal Bch Output Terminal		$V+/2$
3 8	INa INb	Ach Input Terminal Bch Input Terminal		$V+/2$
4	INT	Smoothing Capacitor Connection Terminal		0.7V
5	VREFIN	Reference Voltage Stabilizing Capacitor Connection Terminal		$V+/2$

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■TERMINAL DESCRIPTION

No.	SYMBOL	FUNCTION	EQUIVALENT CIRCUIT	VOLTAGE
6	SENSE	Resister Connection Terminal for Limit Level Setting		0V
7	SW	Limiter ON/OFF Switch	<p>The diagram shows a terminal labeled 'SW' connected to a switch. The switch is in series with a diode pointing towards the terminal. Below the switch, there is a node connected to a 150k resistor and the base of a transistor. The emitter of the transistor is connected to ground, and its collector is connected to a 270k resistor, which is also connected to ground. Another diode is connected between the node above the 150k resistor and ground, pointing towards the node.</p>	-
10	GND	Ground Terminal	—	-

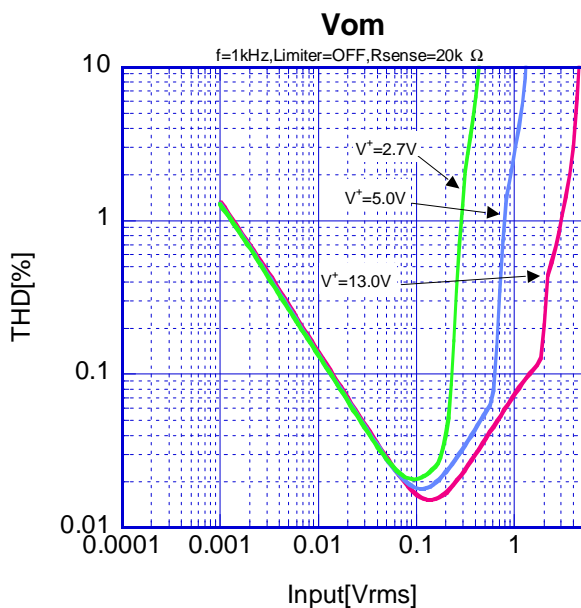
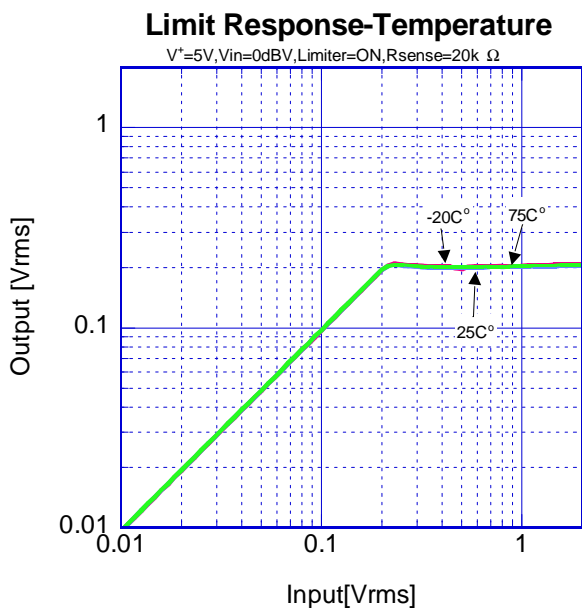
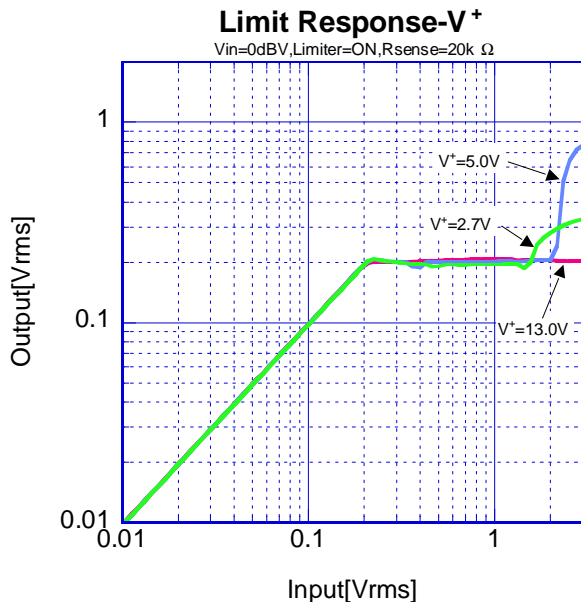
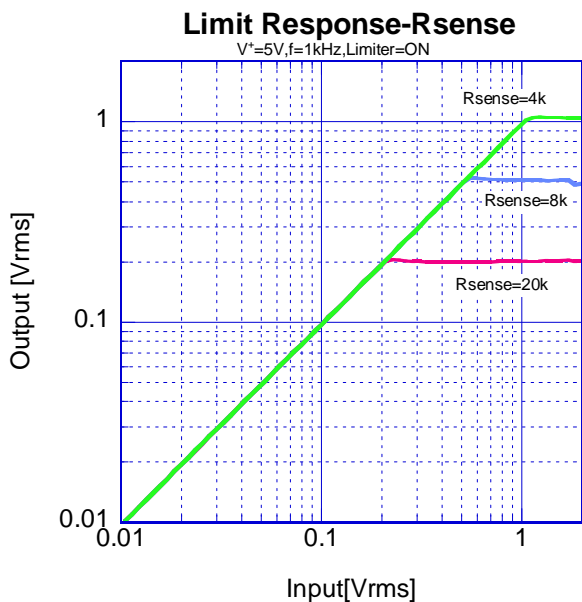
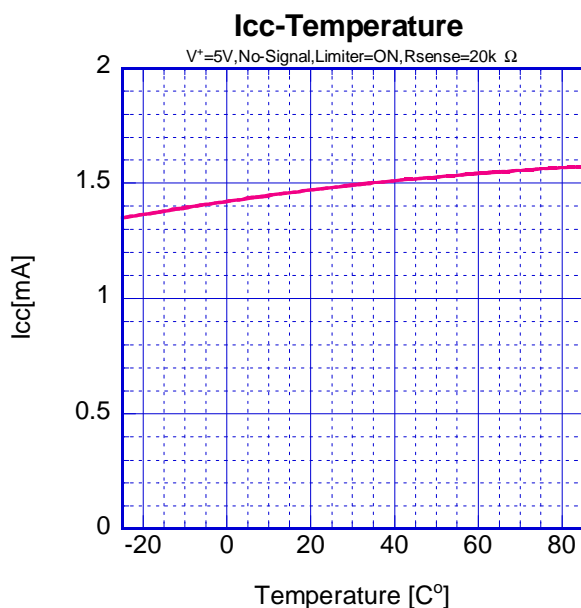
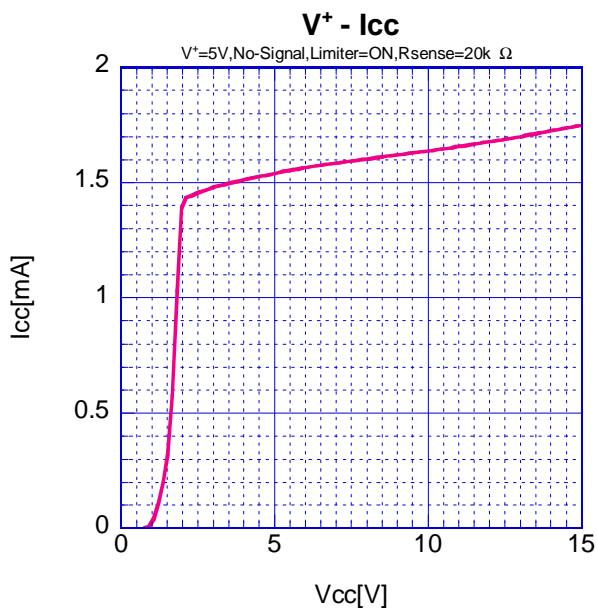
APPLICATION CIRCUIT



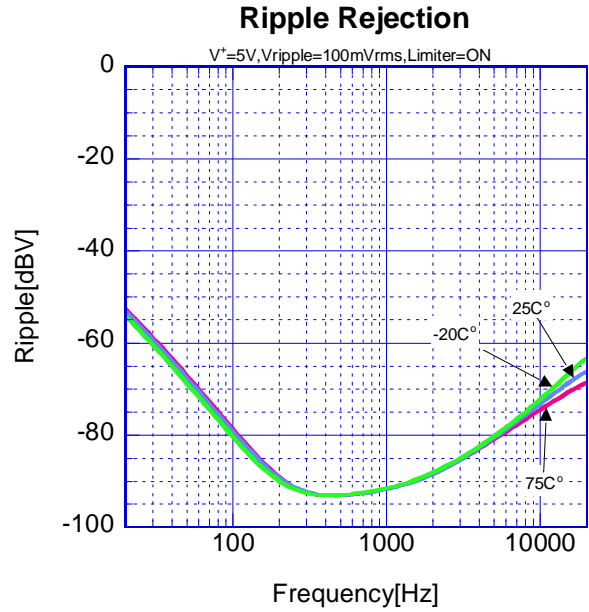
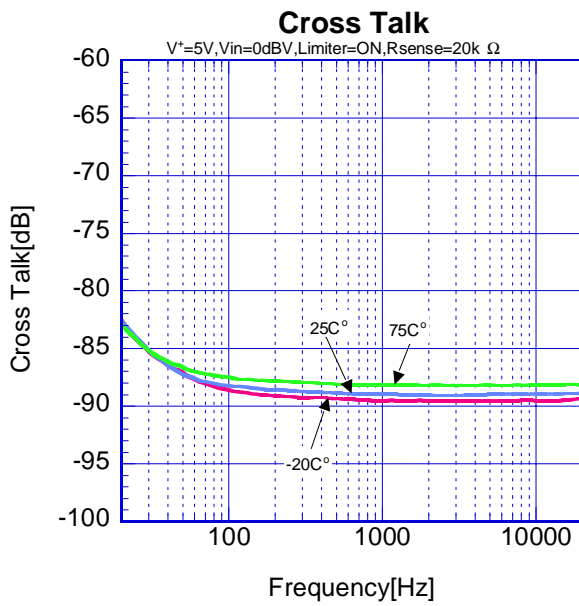
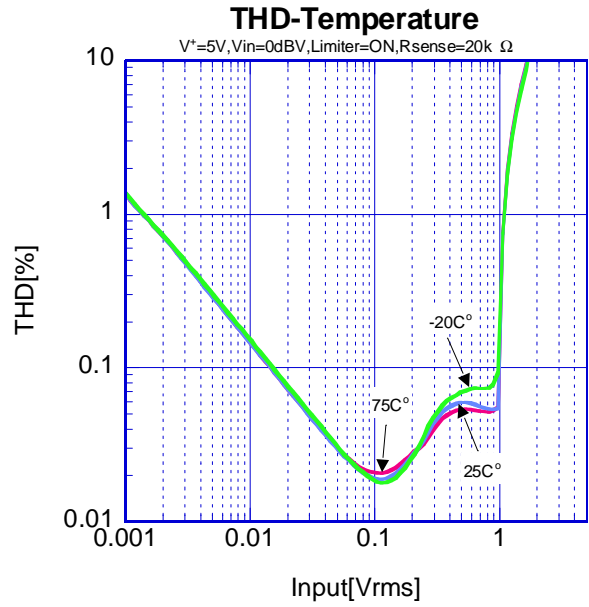
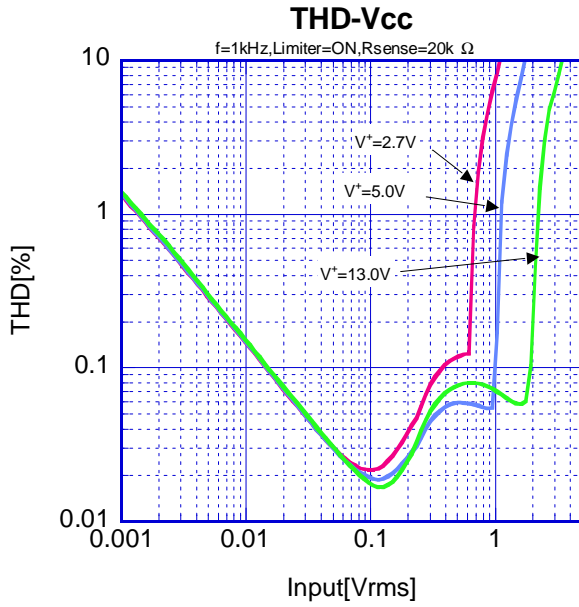
$$R_{SENSE} = 4000 / V_{LIMIT} [\Omega]$$

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TYPICAL CHARACTERISTICS



TYPICAL CHARACTERISTICS



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