AN7379NSH

Dolby* B-type Noise Reduction Decoder for 1.5V Headphone Stereo

■ Overview

The AN7379NSH is an IC for Dolby B-type noise reduction playback suitable for 1.5V headphone stereo and incorporates multi-purpose buffer amp., GND switch and stand-by function in a single chip.

■ Features

- Operating voltage range : V_{CC} =1.0 to 3.6V
  Head room (Dolby Level +12dB) is guaranteed to 1.1V.
- Low consumption current : 1 total =3.6mA
- Small number of parts
- Buffer amplifier with switches, GND switch pin
- Stand-by switches greatly saving the consumption current
- Small package : 0.5mm pitch 24-lead SOP type

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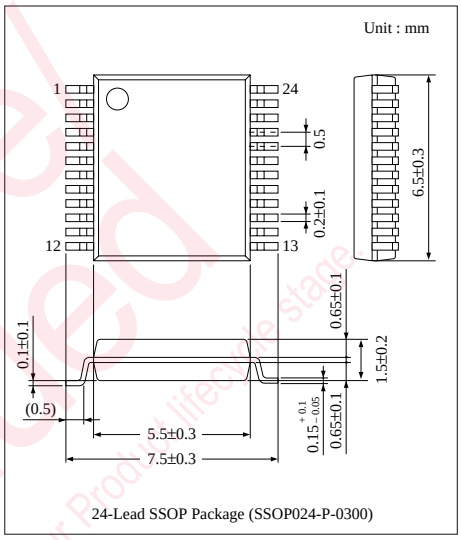
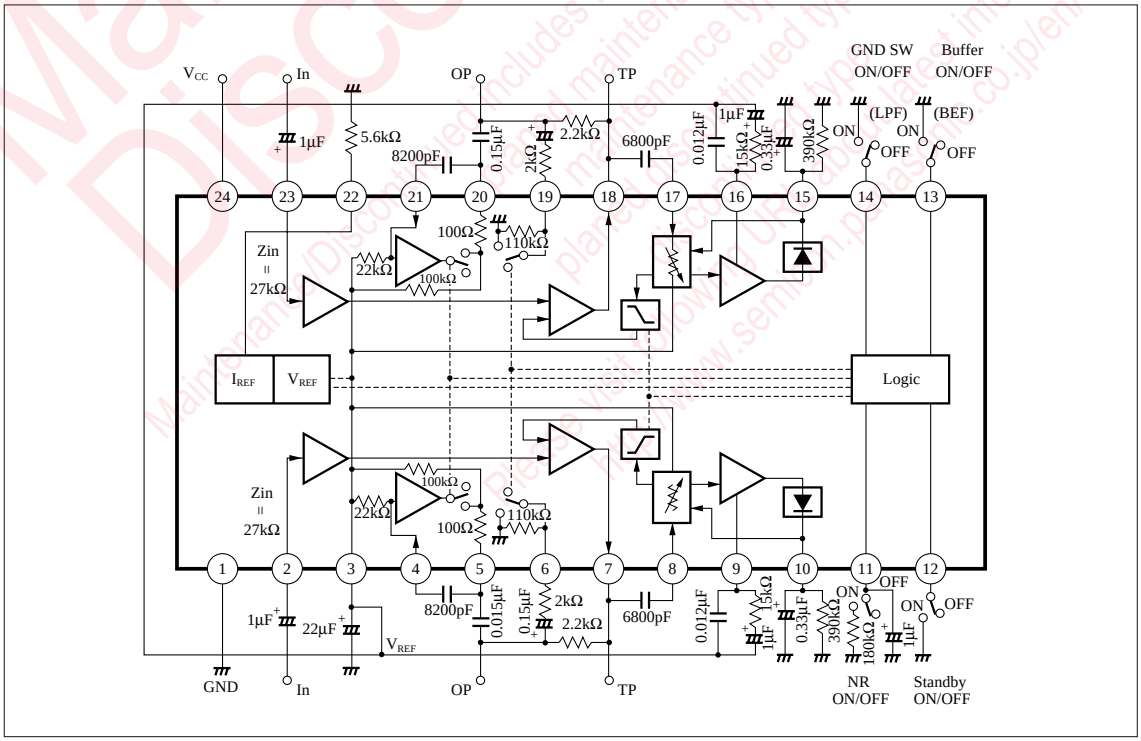


24-Lead SSOP Package (SSOP024-P-0300)

■ Block Diagram



■ Pin Description

Pin No.	Pin Name	Pin No.	Pin Name
1	GND	13	Buffer Amp. ON/OFF
2	NR Decode Input	14	GND Switch ON/OFF
3	V_{REF}	15	Control Voltage
4	Buffer Amp. Input	16	Weighting Amp. Filter
5	Buffer Amp. Output	17	Side Chain Filter
6	GND Switch	18	NR Decode Output
7	NR Decode Output	19	GND Switch
8	Side Chain Filter	20	Buffer Amp. Output
9	Weighting Amp. Filter	21	Buffer Amp. Input
10	Control Voltage	22	I_{REF}
11	NR ON/OFF	23	NR Decode Input
12	Stand-by ON/OFF	24	V_{CC}

■ Absolute Maximum Ratings (Ta=25˚C)

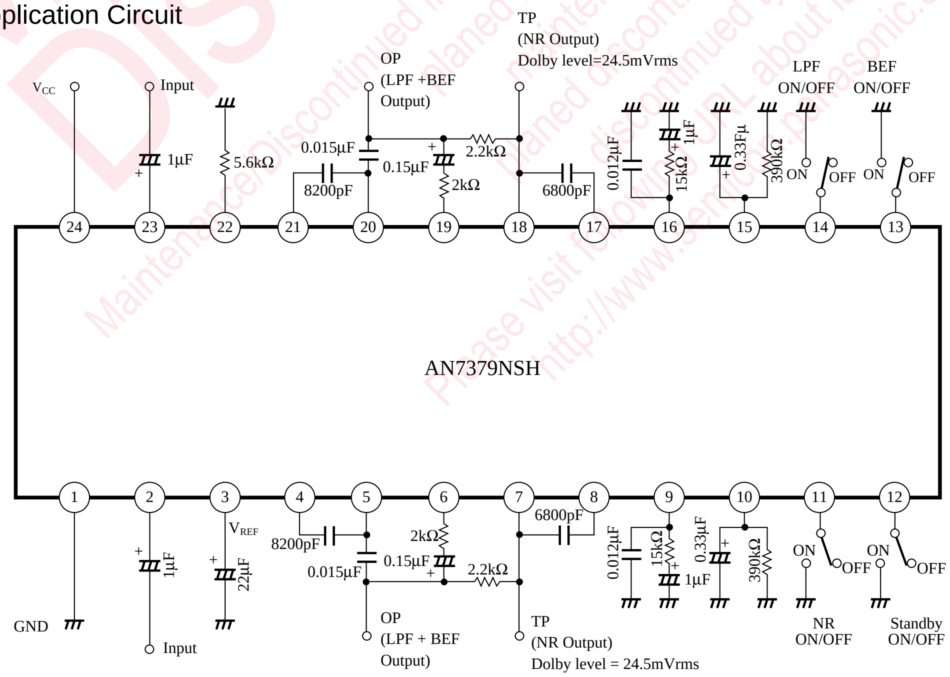
Parameter	Symbol	Rating	Unit
Supply Voltage	V_{CC}	4.5	V
Supply Current	I_{CC}	10	mA
Power Dissipation (Ta =75˚C)	P_D	45	mW
Operating Ambient Temperature	T_{opr}	–25 ~ + 75	˚C
Storage Temperature	T_{stg}	–55 ~ + 125	˚C

■ Recommended Operating Range (Ta= 25˚C)

Parameter	Symbol	Range
Operating Supply Voltage Range	V_{CC}	1V ~ 3.6V

Note) The minimum operating voltage to conform to the standards of Dolby B type NR is 1.1V.

■ Application Circuit



■ Electrical Characteristics (Ta=25˚C, V_{CC} = 1.2V, Dolby Reference Level ; 24.5mVrms (–30dBm) at TP)

Parameter		Symbol	Condition NR	LPF	BPF	f Hz	Others	min.	typ.	max.	Unit
Total Circuit Current	Standby OFF	I_{CC1}	OFF	OFF	OFF	—	No signals	2.8	3.8	5.0	mA
Total Circuit Current	Standby OFF	I_{CC2}	ON	OFF	OFF	—	No signals	2.8	3.9	5.1	mA
Total Circuit Current	Standby ON	I_{CC3}	OFF	OFF	ON	—	No signals	—	0	0.5	mA
Standard Input Level Note 1)		V_{in}	OFF	OFF	OFF	1k	V_O = 24.5mVrms	20	23	26	mVrms
Channel Balance		CB	OFF	OFF	OFF	1k	Channel Ratio	–1	0	–1	dB
NR–Decode Characteristics Note 2)	(1)	NRD1	ON	OFF	OFF	10k	V_{in} = –29.6dB Theoretical NRD = V_O +40dB	–2	0	2	dB
	(2)	NRD2	ON	OFF	OFF	1k	V_{in} = –23.9dB Theoretical NRD = V_O +30dB	–2	0	2	dB
	(3)	NRD3	ON	OFF	OFF	1k	V_{in} = –15.8dB Theoretical NRD = V_O +20dB	–2.5	0	2.5	dB
	(4)	NRD4	ON	OFF	OFF	10k	V_{in} = –17.4dB Theoretical NRD = V_O +20dB	–2.5	0	2.5	dB
	(5)	NRD5	ON	OFF	OFF	10k	V_{in} = 0.4dB Theoretical NRD = V_O dB	–2	0	2	dB
Total Harmonics Distortion Note 3)	(1)	THD1	OFF	ON	ON	1k	V_{in} = +10dB	—	0.2	0.5	%
	(2)	THD2	ON	OFF	OFF	1k	V_{in} = +10dB	—	0.3	0.8	%
Signal Handling Note 3)	(3)	THD3	ON	OFF	OFF	1k	V_{in} = +12dB	—	0.3	1.0	%
S/N Ratio Note 4)		S/N	ON	OFF	OFF	—	R_g = 5.6kΩ CCIR/ARM – Filter	70	72	—	dB
Filter Characteristics Note 5)	(1)	G_{V1}	OFF	OFF	OFF	1k	V_{in} = 0dB	–1.5	– 0.5	0.5	dB
	(2)	G_{V2}	OFF	ON	ON	1k	V_{in} = 0dB	–8	– 6.5	– 5	dB
	(3)	G_{V3}	OFF	ON	ON	5.5k	V_{in} = 0dB	–20	–17	–12	dB
Channel Crosstalk	NR : OFF	CT1	ON	OFF	OFF	1k	V_{in} = 0dB	—	50	—	dB
	NR : ON	CT1	OFF	OFF	OFF	1k	V_{in} = 0dB	—	50	—	dB

Note 1) Adjust input level for output level equal to 24.5mVrms, and set the reference input level to 0dB.
Note 2) Output level as compared with Standard 0dB = 24.5mVrms..Measurement point : TP
Note 3) Measurement point : OP
Note 4) Measurement point : TP
Note 5) Measurement point as compared with 24.5mVrms : Output level at OP

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