

AN7337NS

7-element graphic equalizer IC for Hi-Fi audio equipment

■ Overview

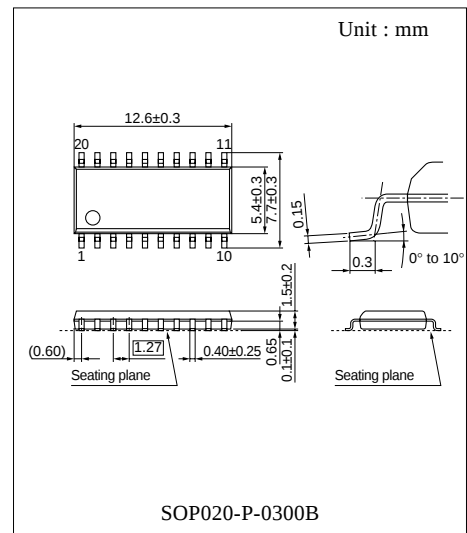
The AN7337NS is a graphic equalizer IC for high performance Hi-Fi audio equipment developed for deck. It incorporates an output buffer circuit and 7 resonance buffer circuits, and can set resonance frequency by external capacitor.

■ Features

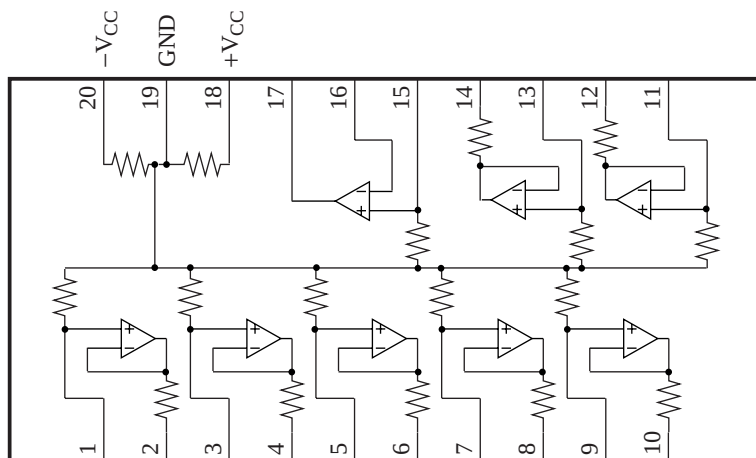
- Low distortion (max.: 0.03%)
- Low noise voltage (input short circuit: max.: 30 $\mu\text{V}(\text{rms})$)
- High output voltage (typ. 9.5 V)

■ Applications

- Mini-component stereo, system component stereo



■ Block Diagram



■ Pin Descriptions

Pin No.	Description	Pin No.	Description
1	In 1	11	In 6
2	NF 1	12	NF 6
3	In 2	13	In 7
4	NF 2	14	NF 7
5	In 3	15	Non-inverting input
6	NF 3	16	Inverting input
7	In 4	17	Output
8	NF 4	18	+ V _{CC}
9	In 5	19	GND
10	NF 5	20	– V _{CC}

■ Absolute Maximum Ratings

Parameter	Symbol	Rating	Unit
Supply voltage	V _{CC}	± 18	V
Supply current	I _{CC}	± 50	mA
Power dissipation *2	P _D	230	mW
Operating ambient temperature *1	T _{opr}	–20 to +75	°C
Storage temperature *1	T _{stg}	–55 to +125	°C

Note) *1 : All items are at T_a = 25°C, except for the operating ambient temperature and storage temperature.

*2 : Referring to "■ Technical Information" for power dissipation at T_a = 75°C, use the circuit under the conditions of the V_{CC} × I_{CC} is not exceeding the P_Dmax.

■ Recommended Operating Range

Parameter	Symbol	Range	Unit
Supply voltage	V _{CC}	± 4.0 to ± 18.0	V

■ Electrical Characteristics at V_{CC} = ±15 V, T_a = 25°C

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Total circuit current	I _{CC}	V _{IN} = 0 mV	8	12	16	mA
Voltage gain FLAT	G _{V(FLAT)}	f = 1 kHz, V _{IN} = –10 dBm	– 0.6	– 0.3	0	dB
Voltage gain BOOST	G _V (BOOST)	FLAT V _O = 0 dB, V _{IN} = –10 dBm	10.4	12.0	14.0	dB
Voltage gain CUT	G _{V(CUT)}	FLAT V _O = 0 dB, V _{IN} = –10 dBm	–14.0	–12.0	–10.4	dB
Total harmonic distortion	THD	f = 1 kHz, V _O = 1 V[rms]	–	0.002	0.03	%
Max. output voltage	V _{OM}	f = 1 kHz, THD = 0.1%	8.0	9.5	–	V[rms]
Output noise voltage	V _{NO}	Input short circuit DIN AUDIO	–	4	30	μV[rms]
Output noise voltage	V _{NOM}	Input short circuit DIN AUDIO All Boost	–	31	100	μV[rms]

■ Electrical Characteristics at $V_{CC} = \pm 15\text{ V}$, $T_a = 25^\circ\text{C}$ (continued)

• Design reference data

Note) The following characteristics are the reference values for design and not guaranteed values.

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Resonance frequency	f_{O1}	$V_{IN} = -10\text{ dBm}$, $V_O = G_V\text{ PEAK}$	47.3	57	73.6	Hz
Resonance frequency	f_{O2}	$V_{IN} = -10\text{ dBm}$, $V_O = G_V\text{ PEAK}$	93.3	113	145	Hz
Resonance frequency	f_{O3}	$V_{IN} = -10\text{ dBm}$, $V_O = G_V\text{ PEAK}$	285	347	444	Hz
Resonance frequency	f_{O4}	$V_{IN} = -10\text{ dBm}$, $V_O = G_V\text{ PEAK}$	0.851	1.04	1.32	kHz
Resonance frequency	f_{O5}	$V_{IN} = -10\text{ dBm}$, $V_O = G_V\text{ PEAK}$	1.98	2.41	3.08	kHz
Resonance frequency	f_{O6}	$V_{IN} = -10\text{ dBm}$, $V_O = G_V\text{ PEAK}$	5.23	6.37	8.14	kHz
Resonance frequency	f_{O7}	$V_{IN} = -10\text{ dBm}$, $V_O = G_V\text{ PEAK}$	12.4	15.1	19.3	kHz

■ Technical Information

• $P_D - T_a$ curves of SOP020-P-0300B

