Unit: mm

AN7333S

4-Element Graphic Equalizer IC for Radio/Radio Cassette Recorder

100

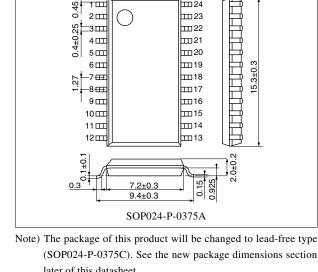
Overview

The AN7333S is an integrated circuit for 4element graphic equalizers most suitable for radio cassette / portable component stereo equipment.

2-channel 4-element graphic equalizer can be configured by applying frequency setting capacitors and variable resistors externally. Non-step adjustment of the boost and the cutting quantitiy is possible by variable resistors.

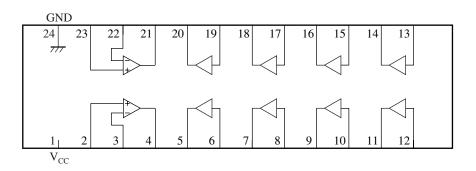
Features

- The resonance frequency can be freely set by optional selection of the capacitor capacitance.
- Low distortion rate: THD = 0.04% (V_{CC} = 5 V)
- Wide dynamic range: $V_0 = 800 \text{ mV}[\text{rms}]$ (at Boost THD = 1%)
- Low noise level: $V_{no} = 10 \,\mu V \,(V_{CC} = 5V)$



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(SOP024-P-0375C). See the new package dimensions section later of this datasheet.



Block Diagram

Pin Descriptions

Pin No.	Description	Pin No.	Description
1	Power supply	13	Input pin
2	Non inverting input	14	Negative feedback
3	Inverting input	15	Input pin
4	Output	16	Negative feedback
5	Negative feedback	17	Input pin
6	Input pin	18	Negative feedback
7	Negative feedback	19	Input pin
8	Input pin	20	Negative feedback
9	Negative feedback	21	Output
10	Input pin	22	Inverting input
11	Negative feedback	23	Non inverting input
12	Input pin	24	GND

Absolute Maximum Ratings

Parameter	Symbol	Rating	Unit	
Supply voltage	V _{CC}	14.4	V	
Supply current	I _{CC}	30	mA	
Power dissipation	P _D	432	mW	
Operating ambient temperature *1	T _{opr}	-20 to +75	°C	
Storage temperature *1	T _{stg}	-55 to +125	°C	

Note) *1: Except for the operating ambient temperature and storage temperature, all ratings are for $T_a = 25^{\circ}C$.

Recommended Operating Range

Parameter	Symbol	Range	Unit
Supply voltage	V_{CC1}, V_{CC2}	4 to 14	V

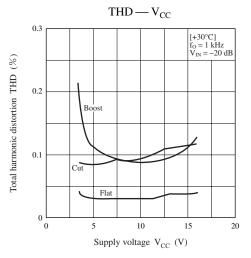
Electrical Characteristics at $V_{CC} = 5 \text{ V}, T_a = 25^{\circ}\text{C}$

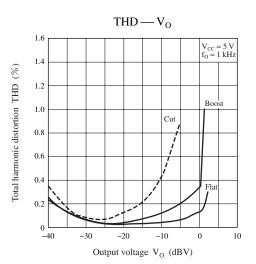
Parameter	Symbol	Conditions	Min	Тур	Max	Unit
Total circuit current	I _{tot}	$V_{IN} = 0 mV$	—	7.5	_	mA
Voltage gain	G _V	$f = 1 \text{ kHz}, V_0 = -10 \text{ dBV}$	_	-1.5		dB
Boost quantity	Boost	$V_0 = -20 \text{ dBV}$ is set to 0 dBV	_	9.5		dB
Cut quantity	Cut	$V_0 = -20 \text{ dBV}$ is set to 0 dBV	_	-9.5		dB
Total harmonic distortion	THD	$f = 1 \text{ kHz}, V_0 = -20 \text{ dBV}$	_	0.04		%
Output noise voltage	V _{no}	$R_g = 0 \Omega$, Total Flat, DIN/AUDIO	_	10	_	μV
Crosstalk	СТ	$f = 1 \text{ kHz}, R_g = 0 \Omega$, Total Flat, $V_0 = -20 \text{ dBV}$	_	12		μV

Terminal Equivalent Circuits

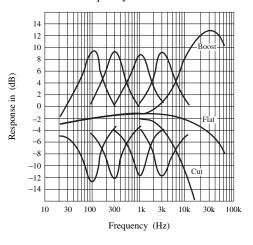
Pin No.	Equivalent circuit	Description	Pin voltage (V)	
1	_	Power supply: Supply pin	5	
2 23		Non inverting input: Output buffer circuit non-inverting input pin	$\frac{1}{2}$ V _{CC}	
3 22		Inverting input: Output buffer circuit inverting input pin	Center electric potential	
4 21	3 4 V _{CC} V _{CC}	Output: Output buffer output pin	Center electric potential	
5, 7, 9, 11, 14, 16, 18, 20		Negative feedback: Resonance circuit negative feedback pin	Center electric potential	
6, 8, 10, 12, 13, 15, 17, 19		Input pin: Resonance circuit input pin	Center electric potential	
24		GND pin:	0	

Main Characteristics

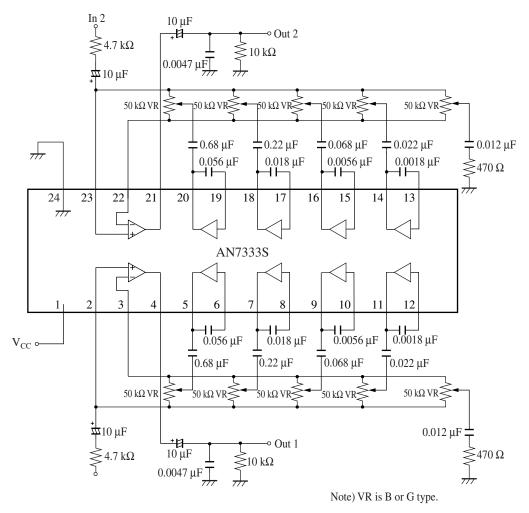




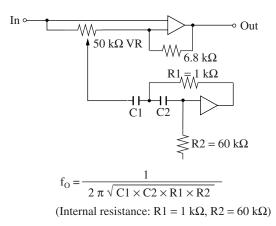
Frequency characteristics



Application Circuit Example

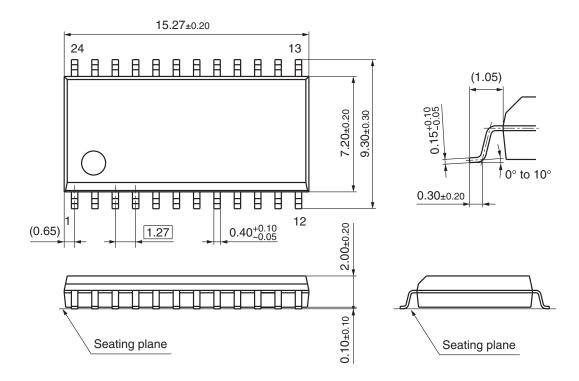


· Resonant frequency fo



- * Internal resistance: As R1 and R2 of internal resistors are common in each oscillation circuit,
- f_O can be adjustable from an external capacitor.
- * Gain can be adjusted by the 50 k $\!\Omega$ variable resistor.

- New Package Dimensions (Unit: mm)
- SOP024-P-0375C (Lead-free package)



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