

# AN8303S

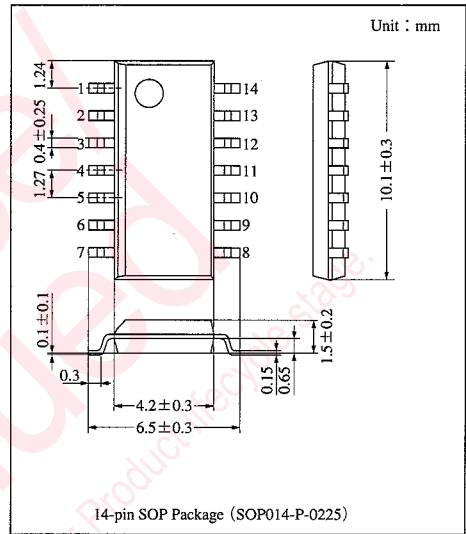
## 4-ch, Optical Disk Head Amp. IC

### Overview

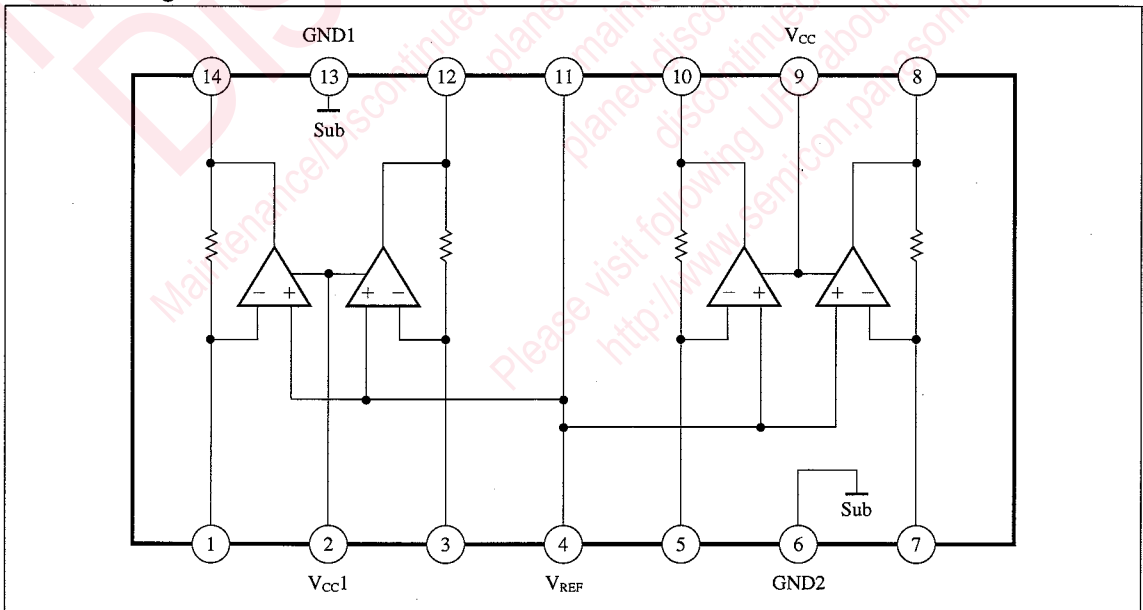
The AN8303S is a head amplifier IC for MO, CD-R, CD and DVD. The 4ch. head amplifier incorporating the resistor is built in one package. It is designed, taking into consideration the relative accuracy, and is featured by small dispersion particular to 4ch. However, it is easy to oscillate for its wide band width design, and may oscillate under some mounting conditions. The supply voltage is typically 12V. However, though its characteristics are changed, it can operate even with 5V and may be used.

### Features

- 4-ch. head amplifier built-in
- Low offset voltage ( $\pm 7\text{mV}$ )
- High relative accuracy resistor built-in (Approx.  $20\text{k}\Omega$ , relative accuracy  $\pm 2\%$ )
- Wide band (Reference value :  $f-3\text{dB}=\text{approx. }10\text{MHz}$ )
- Low noise (Reference value :  $-87\text{dBm}=58\text{nV}/\sqrt{\text{Hz}}$ )
- Small offset voltage relative temperature change (Reference value :  $\pm 60\ \mu\text{V}/^\circ\text{C}$ )



### Block Diagram



### Pin Name

Pin No.	Symbol	Function	Pin No.	Symbol	Function
1	INA	A ch. input	8	OUT <sub>D</sub>	D ch. output
2	V <sub>CC1</sub>	Power supply 1	9	V <sub>CC2</sub>	Power supply 2
3	INB	B ch. input	10	OUT <sub>C</sub>	C ch. output
4	V <sub>REF</sub>	Reference voltage	11	V <sub>REF</sub>	Reference voltage
5	INC	C ch. input	12	OUT <sub>B</sub>	B ch. output
6	G <sub>ND2</sub>	Ground 2	13	G <sub>ND1</sub>	Ground 1
7	IND	D ch. input	14	OUT <sub>A</sub>	A ch. output

### Absolute Maximum Rating (Ta=25°C)

Parameter	Symbol	Rating	Unit
Supply voltage <sup>Note)</sup>	V <sub>CC</sub>	13.5	V
	V <sub>ref</sub>	6.0	
Output terminal current (+)	+I <sub>O</sub>	1	mA
Output terminal current (-)	-I <sub>O</sub>	-1	mA
Power dissipation	P <sub>D</sub>	190	mW
Operating ambient temperature	T <sub>opr</sub>	-20 to +75	°C
Storage temperature	T <sub>stg</sub>	-55 to +125	°C

Note) Do not set the V<sub>ref</sub> over V<sub>CC</sub>.

### Recommended Operating Range (Ta=25°C)

Parameter	Symbol	Range
Operating supply voltage	V <sub>CC</sub>	10V to 13V
	V <sub>ref</sub>	4.5V to 5.5V

### Electrical Characteristics (V<sub>CC</sub>=12V, V<sub>ref</sub>=5V, Ta=25±2°C)

Parameter	Symbol	Condition	min	typ	max	Unit
Supply current	I <sub>CC</sub>	V <sub>CC</sub> =12V, V <sub>ref</sub> =5V	18	—	25	mA
Conversion resistance value	R	Measured under non-operation	18	—	22	kΩ
Conversion resistance dispersion	ΔR	Measured under non-operation : Difference from average	-2	—	+2	%
Offset voltage	V <sub>os</sub>	V <sub>CC</sub> =12V, V <sub>ref</sub> =5V	-7	0	+7	mV
Offset voltage difference AB	ΔV <sub>os1</sub>	V <sub>CC</sub> =12V, V <sub>ref</sub> =5V, V <sub>14</sub> -V <sub>12</sub>	-5	—	+5	mV
Offset voltage difference CD	ΔV <sub>os2</sub>	V <sub>CC</sub> =12V, V <sub>ref</sub> =5V, V <sub>10</sub> -V <sub>8</sub>	-5	—	+5	mV
Offset voltage temperature drift difference	ΔV <sub>os,T</sub>	Between A- and B-ch ; Between C- and D-ch	(-60)	—	(+60)	μV/°C
Maximum output amplitude	V <sub>oMax</sub>	Input current 130 μA	(2.4)	—	(3.4)	V
Output impedance	Z <sub>OUT</sub>	Output current ±500 μA	—	(1)	(20)	Ω
Cut-off frequency	f <sub>-3dB</sub>	Input resistance 22KΩ	(8)	(10)	—	MHz
Output noise voltage	V <sub>NO</sub>	f=5MHz ; VBW=1KHz RBW=30kHz	—	—	(-86)	dBm

Note) Characteristic value in ( ) is a design reference value but not guaranteed one.

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