

December 1992

DESCRIPTION

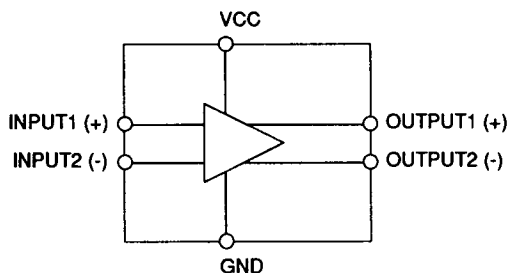
The SSI 32H6110 is a high performance, differential amplifier used as a preamplifier for the magnetic servo thin-film head in Winchester disk drives. The SSI 32H6110 is offered in an 8-pin SON package.

FEATURES

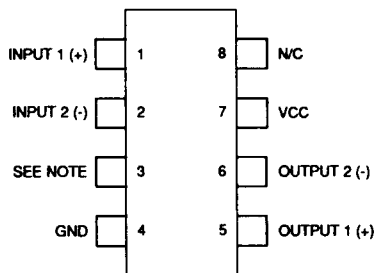
- High gain ($A_v=300$)
- Low noise, $0.85 \text{ nV}/\sqrt{\text{Hz}}$ maximum
- Operates with a +5V power supply

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BLOCK DIAGRAM



PIN DIAGRAM



8-Pin SON

CAUTION: Use handling procedures necessary for a static sensitive component.

SSI 32H6110

Differential Amplifier

ELECTRICAL SPECIFICATIONS

ABSOLUTE MAXIMUM RATINGS – operating above maximum ratings may damage the device

PARAMETER	RATING	UNIT
Power Supply Voltage (VCC)	7	V
Differential Input Voltage	±1	V
Storage Temperature Range	-65 to 150	°C
Operating Ambient Temperature, Ta	10 to 100	°C
Operating Junction Temperature, Tj	10 to 135	°C

RECOMMENDED OPERATING CONDITIONS

PARAMETER	CONDITIONS	MIN	NOM	MAX	UNIT
Supply Voltage (VCC)		4.50	5.0	5.50	V
Input Signal (Vin)			1.0		mVpp
Ambient Temperature		0		+100	°C
Operating Junction Temperature		0		+135	°C

ELECTRICAL CHARACTERISTICS

Unless otherwise specified, recommended operating conditions apply.

PARAMETER	CONDITIONS	MIN	NOM	MAX	UNIT
Gain (Differential)	RL = 120Ω Vin = 1mVpp, RL = 120Ω Ta = 25°C, f = 1 MHz	225	300	375	mV/mV
	RL = 100Ω Vin = 1mVpp, RL = 100Ω Ta = 25°C, f = 1 MHz	200	250	300	mV/mV
Bandwidth (3 dB)	Vin = 1mVpp, CL = 15 pF RL = 120Ω	10	30		MHz
Gain Sensitivity (Supply)	Ta = 25°C			4.0	%/V
Gain Sensitivity (Temp.)	15°C < Ta < 55°C			-0.16	%/°C
Input Noise Voltage	Input Referred, Rs = 0		0.6	0.85	nV/√Hz
Input Capacitance (Differential)	Vin = 1 mVpp, f = 5 MHz			35	pF
Input Resistance (Differential)			200		Ω
Common Mode Rejection Ratio (Input Referred)	Vin = 100 mVpp, f = 1 MHz	60			dB
Power Supply Rejection Ratio (Input Referred)	Vin = 100 mVpp, f = 1 MHz	54			dB

SSI 32H6110 Differential Amplifier

ELECTRICAL CHARACTERISTICS, (Continued)

Unless otherwise specified, recommended operating conditions apply.

PARAMETER	CONDITIONS	MIN	NOM	MAX	UNIT
Input Dynamic Range (Differential)	AC input voltage where gain falls to 90% of its small signal value, $f = 5\text{MHz}$, $R_L = 120\Omega$	5.0			mVpp
Output Offset Voltage (Differential)	Inputs shorted	-400	± 50	+400	mV
Output Voltage (Common Mode)	Inputs shorted together and Outputs shorted, $R_L = 120\Omega$	$V_{CC}-0.56$	$V_{CC}-0.88$	$V_{CC}-1.2$	V
Single Ended Output Capacitance				10	pF
Power Supply Current	$V_{CC} = 5\text{V}$		23	34	mA
Input DC Voltage	Common Mode		2.0		V

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APPLICATION INFORMATION

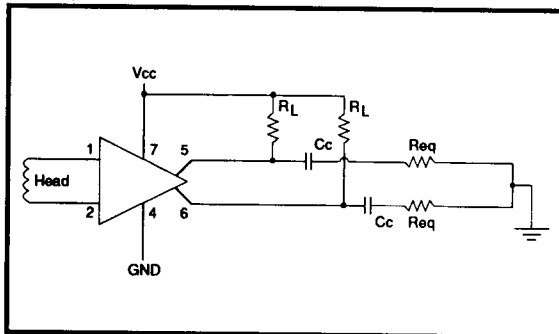


FIGURE 1: Connection Diagram

RECOMMENDED LOAD CONDITIONS

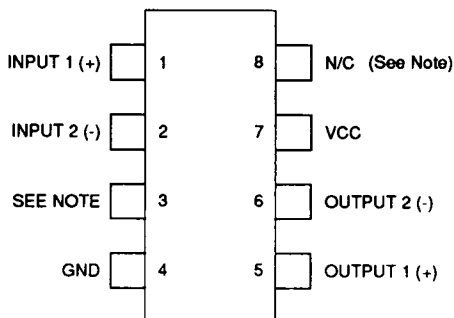
1. Input is directly coupled to the head.
2. Cc's are AC coupling capacitors.
3. RL's are DC bias and termination resistors, 120 Ω recommended.
4. REQ. represents equivalent load resistance.
5. Ceramic capacitors (0.1 μF) are recommended for good power supply noise filtering.

SSI 32H6110

Differential Amplifier

PACKAGE PIN DESIGNATIONS

(Top View)



8-Pin SON

NOTE : N/C pin must be left open and not connected to any circuit etch.

ORDERING INFORMATION

PART DESCRIPTION	ORDERING NUMBER	PACKAGE MARK
SSI 32H6110 Differential Amplifier		
8-Pin SON	32H6110-CN	H6110

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