

July, 1990

### DESCRIPTION

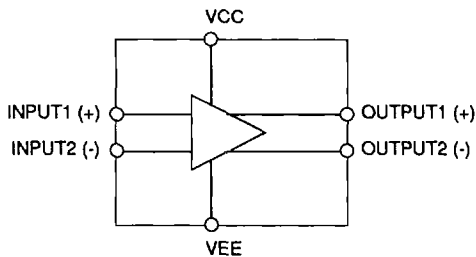
The SSI 32H101 is a two stage differential amplifier applicable for use as a preamplifier for the magnetic servo head circuit of Winchester technology disk drives.

### FEATURES

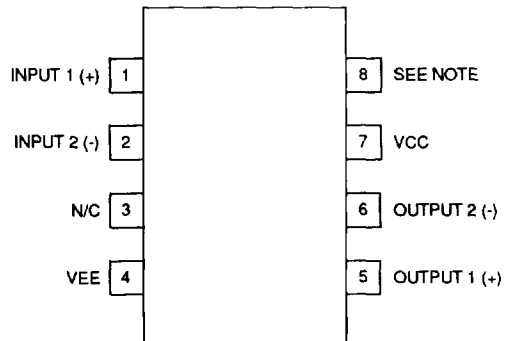
- Very narrow gain range
- 30 MHz bandwidth
- Electrically characterized at two power supply voltages: IBM Model 3340 compatible (8.3V) and standard OEM industry compatible (10V)
- Mechanically compatible with Model 3348 type head arm assembly
- SSI 32H1012 available to operate with a 12V power supply
- Packages include 8-pin DIP or SON

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### BLOCK DIAGRAM



### PIN DIAGRAM



### 8-Pin PDIP, SON

Note : Pin must be left open and not connected to any circuit etc.

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

# SSI 32H101

## Differential Amplifier

### ELECTRICAL CHARACTERISTICS

$T_A = 25\text{ }^\circ\text{C}$ ,  $(V_{CC} - V_{EE}) = 8.3\text{ to }10\text{V} \pm 10\%$  (12V  $\pm 10\%$  for 101-2)

### ABSOLUTE MAXIMUM RATINGS

Operation above absolute maximum ratings may permanently damage the device.

PARAMETER	RATING	UNIT
Power Supply Voltage ( $V_{CC} - V_{EE}$ )	12	V
SSI 32H1012	14	V
Differential Input Voltage	$\pm 1$	V
Storage Temperature Range	-65 to 150	$^\circ\text{C}$
Operating Temperature Range	0 to 70	$^\circ\text{C}$

### DC ELECTRICAL CHARACTERISTICS

PARAMETER	CONDITIONS	MIN	NOM	MAX	UNITS
Gain (differential)	$R_P = 130\Omega$	77	93	110	
Bandwidth (3dB)	$V_{IN} = 2\text{ mVpp}$	10	20		MHz
Input Resistance		750		1200	$\Omega$
Input Capacitance			3		pF
Input Dynamic Range (Differential)	$R_L = 130\Omega$	3			mVpp
Power Supply Current	$(V_{CC} - V_{EE}) = 9.15\text{V}$		26	35	mA
	$(V_{CC} - V_{EE}) = 11\text{V}$		30	40	mA
	$(V_{CC} - V_{EE}) = 13.2\text{V}$ (32H101A-2)		35	45	mA
Output Offset (Differential)	$R_S = 0, R_L = 130\Omega$			600	mV
Equivalent Input Noise	$R_S = 0, R_L = 130\Omega, BW = 4\text{ MHz}$		8	14	$\mu\text{V}$
PSRR, Input Referred	$R_S = 0, f \leq 5\text{ MHz}$	50	65		dB
Gain Sensitivity (Supply)	$\Delta(V_{CC} - V_{EE}) = \pm 10\%, R_L = 130\Omega$		$\pm 1.3$		%
Gain Sensitivity (Temp.)	$T_A = 25\text{ }^\circ\text{C to }70\text{ }^\circ\text{C}, R_L = 130\Omega$		-0.2		$\% / ^\circ\text{C}$
CMRR, Input Referred	$f \leq 5\text{ MHz}$	55	70		dB

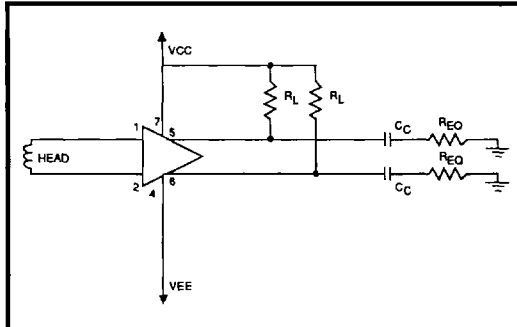
### RECOMMENDED OPERATING CONDITIONS

PARAMETER	CONDITIONS	MIN	NOM	MAX	UNITS
Supply Voltage ( $V_{CC} - V_{EE}$ )		7.45	8.3	9.15	V
		9.0	10.0	11.0	V
	32H1012 only	10.8	12.0	13.2	V
Input Signal $V_{IN}$			2		mVpp
Ambient Temp. $T_A$		0		70	C

# SSI 32H101 Differential Amplifier

## APPLICATIONS INFORMATION

### CONNECTION DIAGRAM



### RECOMMENDED LOAD CONDITIONS

1. Input must be AC coupled
2. Cc's are AC coupling capacitors
3. RL's are DC bias and termination resistors (recommended 130Ω)
4. REO represents equivalent load resistance
5. For gain calculations  $R_P = \frac{R_L \cdot R_{EO}}{R_L + R_{EO}}$
6. Differential gain = 0.72 R<sub>P</sub> (± 18%) (R<sub>P</sub> in Ω)
7. Ceramic capacitors (0.1 μF) are recommended for good power supply noise filtering

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## ORDERING INFORMATION

PART DESCRIPTION	ORDERING NUMBER	PACKAGE MARK
SSI 32H101 Differential Amplifier		
8-Pin PDIP	SSI 32H101-CP	32H101-CP
8-Pin SON	SSI 32H101-N	H101
SSI 32H1012 Differential Amplifier		
8-Pin PDIP	SSI 32H1012-P	32H1012-P
8-Pin SON	SSI 32H1012-N	H1012

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