

WINCHESTER THIN FILM HEAD SERVO PREAMP



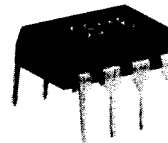
DESCRIPTION

The CS-116 is a high performance differential amplifier used as a preamplifier for the magnetic servo thin film head in Winchester disk drives.

The CS-116 is pin compatible with the CS-101A.

ABSOLUTE MAXIMUM RATINGS

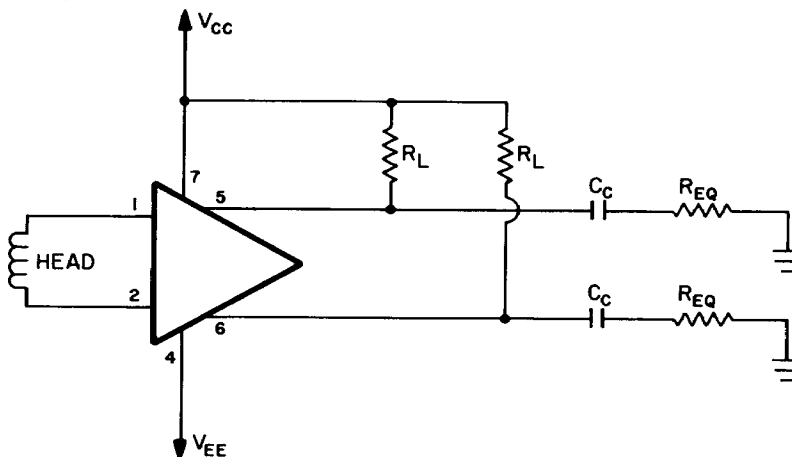
Power Supply Voltage ($V_{CC}-V_{EE}$)	14V
Operating Power Supply Range	7.45V to 13.2V
Differential Input Voltage	$\pm 1V$
Storage Temperature Range	$-65^{\circ}C$ to $150^{\circ}C$
Operating Ambient Temperature	(T_A) $15^{\circ}C$ to $60^{\circ}C$
Operating Junction Temperature	(T_J) $15^{\circ}C$ to $125^{\circ}C$
Output Voltage	$V_{CC}-2.0V$ to $V_{CC}+0.4V$



FEATURES:

- Low ($1nV/\sqrt{Hz}$) noise
- 50 MHz bandwidth
- IBM 3370/3380 compatible performance
- Operates from any of three standard supply voltages
 - 8.3V (IBM Compatible)
 - 10.0V
 - 12.0V
- Available in 8 pin plastic DIP and 8 pin SO

CONNECTION DIAGRAM



Recommended Load Conditions

1. Input must be AC coupled
2. C_c 's are AC coupling capacitors
3. R_L 's are DC bias and termination resistors, 100Ω recommended
4. R_{EQ} represents equivalent load resistance
5. Ceramic capacitors ($0.1 \mu F$) are recommended for good power supply noise filtering

ELECTRICAL CHARACTERISTICS $T_i = 15^\circ\text{C}$ to 125°C , $(V_{CC}-V_{EE}) = 7.9\text{V}$ to 13.2V , $R_L = 100\ \Omega$.

PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNITS
Gain (Differential)	$V_{in} = 1\text{mVpp}$, $T_A = 25^\circ\text{C}$, $F = 1\text{MHz}$	200	250	310	mV/mV
Bandwidth (3dB)	$V_{in} = 1\text{mVpp}$, $C_L = 15\text{pF}$ C_L -Pin 5 to Ground -Pin 6 to Ground	20	50	—	MHz
Gain Sensitivity (Supply)	—	—	—	1.0	%/V
Gain Sensitivity (Temp.)	$15^\circ\text{C} < T_A < 55^\circ\text{C}$	—	-0.16	—	%/C
Input Noise Voltage	Input Referred, $R_s = 0$	—	0.7	0.94	nV/ $\sqrt{\text{Hz}}$
Input Capacitance (Differential)	$V_{in} = 0$, $f = 5\text{MHz}$	—	40	60	pF
Input Resistance (Differential)	—	—	200	—	Ω
Common Mode Rejection Ratio Input Referred	$V_{in} = 100\text{mVpp}$, $f = 1\text{MHz}$	60	70	—	dB
Input Signal Level	Common Mode	—	—	300	mVpp
Power Supply Rejection Ratio Input Referred	$V_{ee} + 100\text{mVpp}$, $f = 1\text{MHz}$	46	52	—	dB
Input Dynamic Range (Differential)	DC input voltage where AC gain is 90% of gain with 0.2mVpp input signal	—	—	± 0.75	mV
Output Offset Voltage (Differential)	$V_{in} = 0$	-600	—	600	mV
Output Voltage (Common Mode)	Inputs shorted together and Outputs shorted together	$V_{CC}-1.0$	$V_{CC}-0.6$	$V_{CC}-0.45$	V
Single Ended Output Resistance	$R_L = \infty$	10	—	—	K Ω
Single Ended Output Capacitance	$R_L = \infty$	—	—	10	pF
Power Supply current	$V_{CC}-V_{EE} = 9.15\text{V}$ $V_{CC}-V_{EE} = 11\text{V}$ $V_{CC}-V_{EE} = 13.2\text{V}$	— — —	— — —	40 42 38	mA
Input DC Voltage	Common Mode	—	$V_{EE}+2.6$	—	V
Input Resistance	Common Mode	—	80	—	Ω

Recommended Operating Conditions	Min.	Type	Max.	Units
Supply Voltage ($V_{CC}-V_{EE}$)	7.45 9.0 10.8	8.3 10.0 12.0	9.15 11.0 13.2	V V V
Input Signal V_{in}	—	1	—	mVpp
Ambient Temp. T_A	15	—	65	$^\circ\text{C}$

ORDERING INFORMATION

PART NUMBER	DESCRIPTION
CS-116D	8 Lead SO
CS-116N	8 Lead PDIP

CHERRY
SEMICONDUCTOR

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