



Triangle BioSystems, Int'l.

16 Channel, Gain 1000 Tethered Headstages

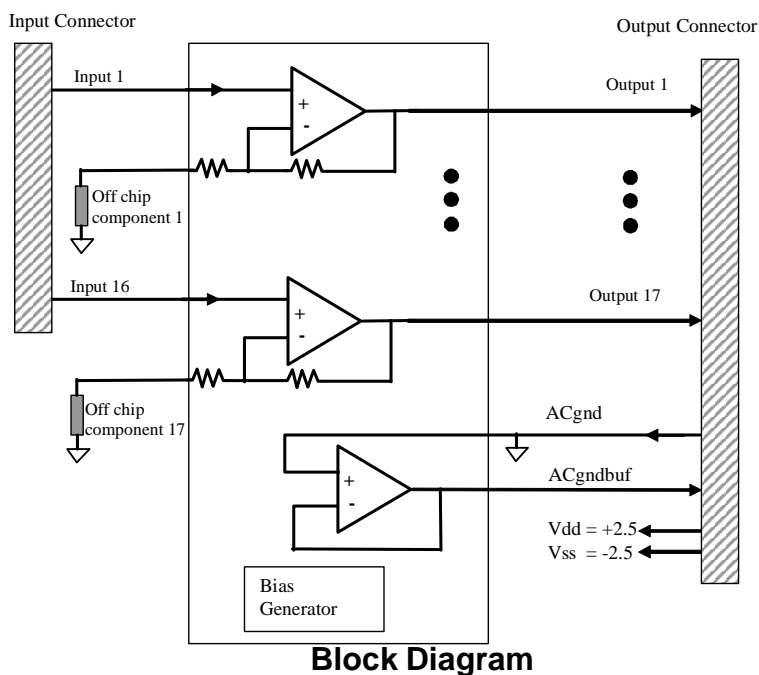


Headstage Features

- Custom VLSI circuit provides small size & reduced weight
- Weight < 1.2 grams
- 16 channels total (16 data channels and 1 reference channel)
- Gain **1000 with Bandpass filtering**
- Unity gain ground buffer output
- Selectable bandpass filtering per channel
- 3v/5v operation
- Size: 5x16x23 mm (includes connectors)

Triangle BioSystems, Int'l. offers a family of 16-channel analog headstage subassemblies that are used to provide a wired connection between implanted electrodes and neural recording and analysis equipment. The main function of the headstage is to precondition the neuron pulse signals and provide a buffered connection over a low impedance cable. Each headstage design is based on a custom, low power VLSI developed by TBSI. The result is a solution with superior performance in a very small form-factor with less weight.

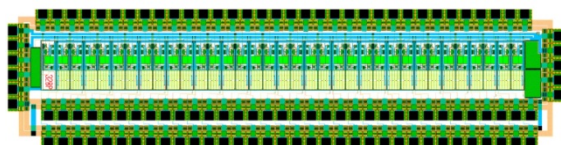
The 16-channel headstages has gain of 1000 and includes a selectable bandpass filter.



Headstage Specifications

Electrical

Parameter	Min	Typ	Max	Units	Notes
3.3v Power Supply					
3 volt Supply	3.0	3.3	3.6	Volts	3.3v Bipolar power supply (+/- 1.65volts)
Average Icc	5.6	6.1	6.7	ma	180 uA Icc typical per channel
5.0v Power Supply					
5 volt Supply	4.5	5.0	5.5	Volts	5v Bipolar power supply (+/- 2.5v olts)
Average Icc	6.75	7.5	8.25	ma	220 uA Icc typical per channel
Analog Channel Specs					
Input Voltage Range	-1.2	0	1.8	Volts	For bipolar 5v power supplies
Input Voltage Range	-.6	0	.8	Volts	For bipolar 3.3v power supplies
Common Mode Center		0		Volts	For bipolar power supply
DC offset	-10		10	mVolts	
Amp Open Loop BW		24		kHz	
Amp Open Loop Gain		112			Open Loop without feedback
Input Impedance		10M		ohms	At 5kHz
Output Impedance		158		ohms	At 5kHz
THD			-63	dB	@ 5Khz and max input range
Input Referred Noise			6.2uV	rms	for 20Khz bandwidth with all inputs grounded
BandPass Filter Specs (see bode plot on page 3)					
Low Pass Location	G1000	19		kHz	for 5v (15Khz for 3.3v)
High Pass Location		.8		Hz	for 5v and 3.3v
Mechanical Specs					
Width, Length, Height		16 x 23 x 5		mm	
Weight			1.2	grams	
Connector Options					Omnetics connector for input and output
Miscellaneous					
Reference bias Current		76		uA	Preset at factory
Junction temperature	-40	25	125	C	



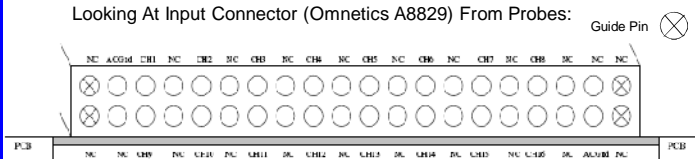
Custom VLSI ASIC



Compact Size

Connectors

Looking At Input Connector (Omnetics A8829) From Probes:



16 channel headstage Gain 1000 Bode Plot

