



## *SonicMaster1* Subwoofer Processor Module

AutoEQ, Speaker and Room Compensation,  
Crossover and Limiter Protection  
For Active Subwoofers

Anadigm's SonicMaster 1™ is a subwoofer module solution for quickly upgrading existing subwoofer plate amplifier designs with an enhanced feature set that allows for state-of-the-art subwoofers with minimal cost and negligible product development effort. Anadigm's audio dpASP (dynamically programmable Analog Signal Processor) makes it simple to add AutoEQ, or just open-loop equalization and band-pass filtering and limiter protection to an active subwoofer design.

SonicMaster1 is available from Anadigm a number of international OEM and ODM subwoofer plate amplifier vendors as a separate daughter board or integrated plate amp design. It comes out of the box with useable pre-sets: no engineering time or money is wasted on a steep learning curve. You may customize the default settings using an easy, graphics based package. There is no need to teach yourself how to use DSP, or hire a DSP programmer: this system works in the analog domain. If you want to get under the hood and adjust settings for, say, the compressor, it is simple using supplied software.

### **SonicMaster 1™ Features**

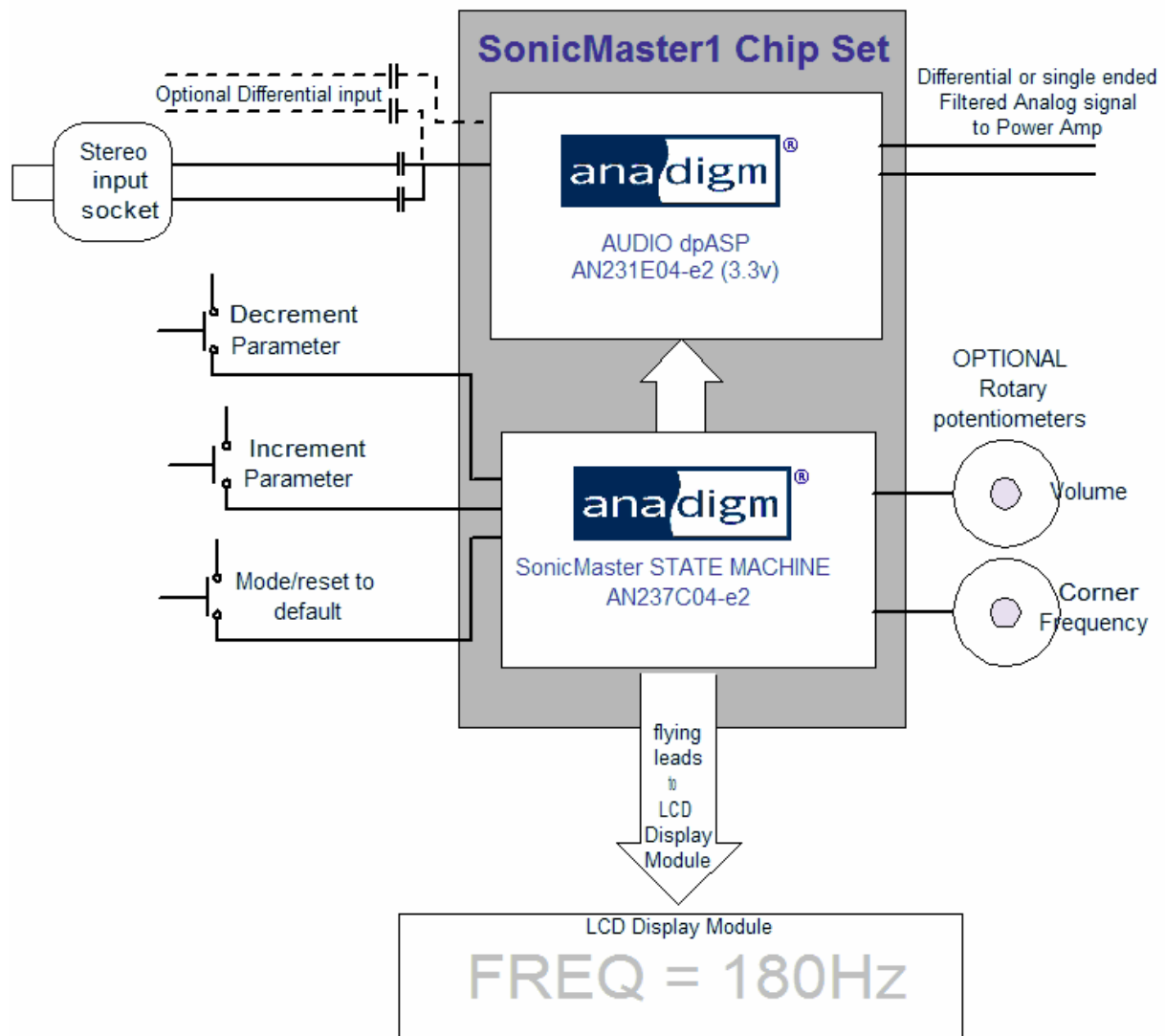
- 100% analog signal path for Pure Analog Sound Quality.
- Options for push button or slider adjust for EQ and crossover frequency and gain.
- Option to add a LCD display module.
- Options for factory pre-set and end user adjustments for EQ and compression.
- Option for custom installer to match subwoofer parameters to the room.
- One base circuit can be tuned to support multiple products.
- Preconfigured analog modules allow user control of subsonic filter, audio compressor, Linkwitz transform, equalizer, low pass filter.
- All functions can be dynamically configured under simple software control: complex filtering (high pass & low pass, notch, Band pass, Linkwitz transform), compression, automatic gain control, signal generation and mixers.
- Programmable standby power mode.
- Auto mute feature eliminates low level noise between cuts or when in standby mode.
- Stereo inputs mixed properly
- Optional active differential input connections
- Full Featured starter kit for evaluation including board, embedded software and PC GUI.
  
- Additionally, the SonicMaster1 is compatible with Auto room EQ.
  - Correction for reflections
  - Correct crossover phase

Subwoofer Module - SonicMaster1™ is a 3.3 volt, 2-chip solution using Anadigm's dynamically programmable Analog Signal Processor (dpASP) with an Audio State Machine, enabling audio designers to develop signal processing functions that can be dynamically configured under the control of simple, graphical software. Configurable functions include filters such as high pass and low pass (Linkwitz-Riley), notch, band pass, Linkwitz Transform. Compression with RMS peak detect, automatic gain control, and signal generation supporting equalization tuning and optional AutoEQ are all easily to implement.

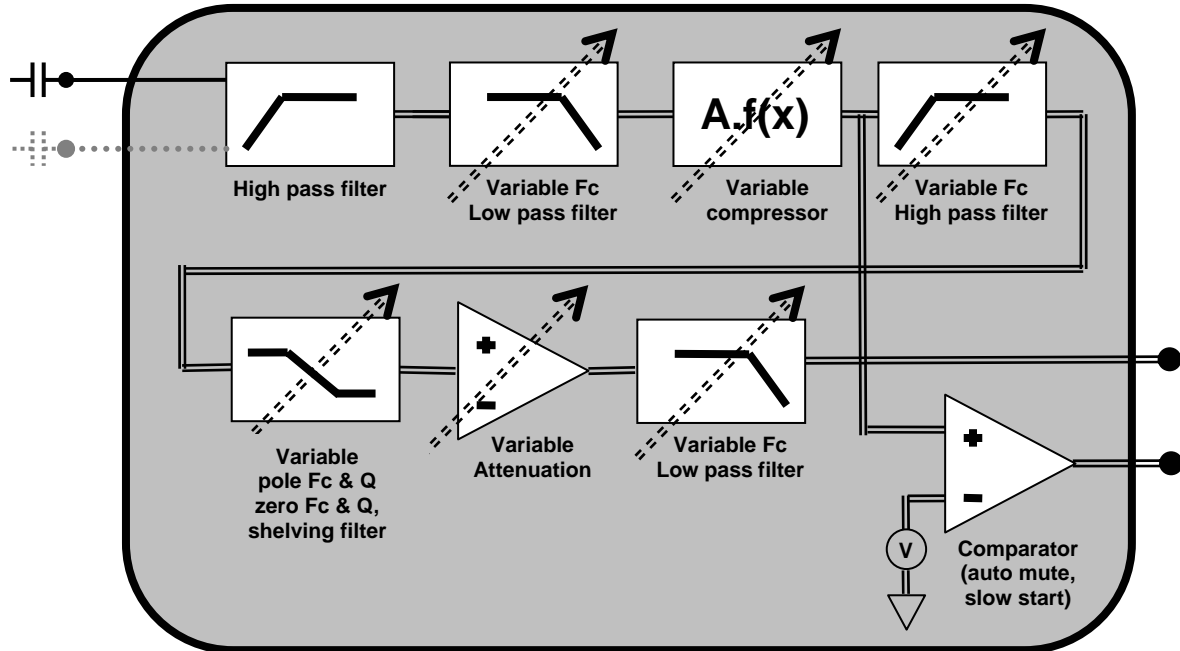
By allowing standardization around a single printed circuit board to serve multiple end products, SonicMaster™ Subwoofer Module 1 simplifies and improves product development, allowing greatly reduced development cost and faster time to market. Contact Anadigm to join the AutoEQ program for support. There are no fees for the complete reference design or technical support.

Firmware customized versions of this chipset can be developed for specific circuit requirements, if your exact requirements are not met contact Anadigm.

**SonicMaster1 Solution uses two chips**



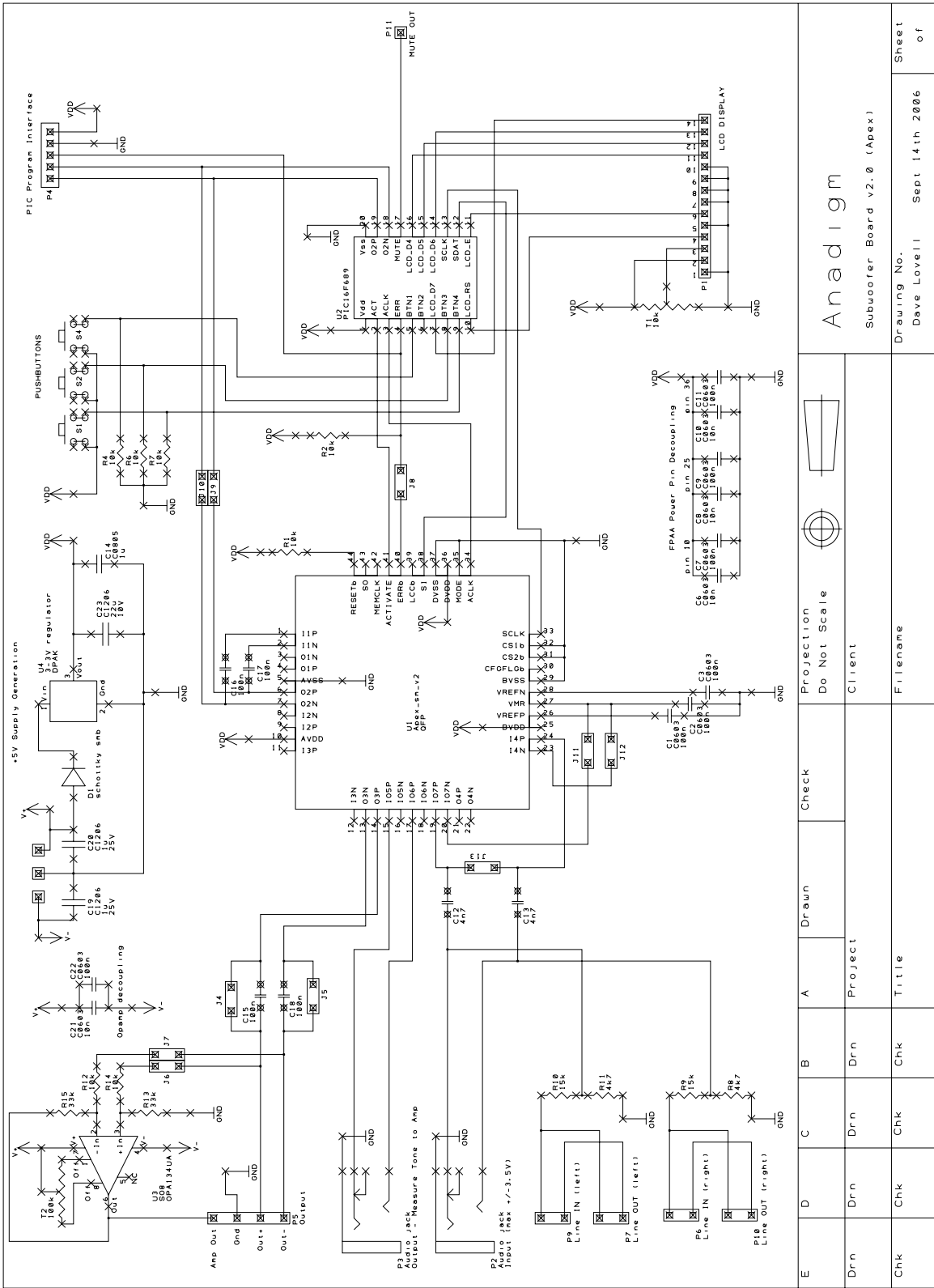
## dpASP Sub Module - Analog signal path



- Single-end with true stereo mixing or differential input
- Selectable Subsonic filter (5-50 Hz high pass, external capacitors)
- Programmable low pass filters (50 to 400Hz, total of 4 poles)
- Almost infinitely variable Programmable Compressor
  - With Peak Detector, Look Up Table, and Variable/controlled gain stage
- Linkwitz type shelving filter, Pole, Zero and both Q's are variable
- Variable gain stage, gain 6dB to -60dB
- Level detect, using long time constant peak detect signal Peak

### **SonicMaster1: Programmable Feature Set.** (absolute values are firmware and can be changed)

	Mode Select	Function	Increment/decrement
<b>Suggested end user controls</b>	Hold for 5 seconds	Resets to factory default	-
	Tap once	Corner Frequency	50Hz to 400Hz 15steps 50, 59, 71, 84, 100, 119, 141,168, 180, 200, 215, 238, 283, 336 & 400Hz
	Tap again	Gain/attenuation	-60dB to +6dB, log scale.23 steps -60, -57, -54, -51,-48, -45, -42, -39 -36, -33, -30, -27, -24, -21, -18, -15 -12, -9, -6, -3, 0.0, +3 & +6dB,.
	Tap again	Phase	0 or 180 deg
<b>Suggested Factory default control</b>	Tap again	Compressor	1 of 4 factory programmed compression curves. 0, -6dB -12dB, & -18dB
	Tap again	Pole Frequency	25 to 100Hz in steps 25, 31, 40, 50, 63, 79 &100Hz Q=1.0
	Tap again	Zero frequency	25 to 100Hz in steps 25, 31, 40, 50, 63, 79 & 100Hz Q=2.0



Projection		Do Not Scale		Client		Filename	
D		Drn		Chk		Chk	
C		Drn		Chk		Chk	
B		Drn		Chk		Chk	
A		Project		Title		Title	
E		Drn		Chk		Chk	
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B		Drn		Chk		Chk	
C		Drn		Chk		Chk	
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Projection		Do Not Scale		Client		Filename	
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C		Drn		Chk		Chk	
D		Drn		Chk		Chk	
E		Drn		Chk		Chk	

Anadigm  
Subwoofer Board v2.0 (Apex)

Drawing No. Sept 14th 2006  
Dave Lovell

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**Product codes**

- Evaluation Kit AN237K04-EVAL2
- Sample Chipset AN237K04-SETSP (contains 1 x AN237E04-QFNSP and 1 x AN237C04-SSOSP)
- Volume Chipset AN237K04-SETTY (contains 1 x AN237E04-QFNTY and 1 x AN237C04-SSOTU)



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