

DYNAMIC SOUNDS ASSOCIATES
PHONO – ONE

The Secrets Behind the DSA *Phono – ONE*

On several occasions I have been asked to explain why the DSA *Phono – ONE* provides such a rich and full sound, while also being highly detailed and dynamic. In truth, there are no secrets involved, other than very careful attention to even the minutest of details, a refusal to compromise on any aspects of the overall system design, and the use of the finest components. When I founded DSA to produce the highest quality audio electronic components, I adopted a design philosophy, which I believe, has been critical to the success of the DSA *Phono – ONE*. The components of this philosophy are as follows:

- Base designs on the use of JFETs and MOSFETs exclusively. For all practical applications these devices perform just like vacuum tubes, but with improved linearity. Our JFETs and MOSFETs are specifically selected for high gain and low noise and; in some instances, we employ costly, tightly matched pairs of devices within a single package to ensure that our design goals are achieved.
- Employ highly regulated power supplies for the high voltage rail to the amplifier boards, but also utilize separate voltage regulators and constant current sources for every gain stage. We use regulated DC rail voltages on the order of $\pm 60\text{VDC}$, or higher, in all of our designs. While these voltages may seem excessive for the amplification of signals measured in mV, the use of such high voltages ensures that our designs possess a virtually unlimited dynamic range capability.
- Design every gain stage to be a “stand-alone” stage with low distortion, very high dynamic range, and bandwidths exceeding that of the audio band by orders of magnitude. These characteristics provide transient response and a dynamic capability that is capable of extracting the finest details from LP recordings, while also allowing us to use as many gain stages as required to achieve the design goals without impacting the overall sonic characteristics.
- We do not use any form of global or loop feedback within the design. Not only is such feedback not required for high quality sonic reproduction, its elimination removes the potential for transient intermodulation distortion which is the source of “glare” or harshness in other amplifiers and preamplifiers.
- Where frequency filtering is required, as in providing the correct RIAA compensation for LP playback, we only use passive low pass filters located between individual gain stages.
- Avoid the use of coupling capacitors in the audio chain. Coupling capacitors, even those of the highest quality, suffer from internal losses and some small degree of hysteresis, which is a function of how they are biased. Both of these factors result in the loss, or blurring, of the critical micro-dynamic information that gives music its unique character. The DSA *Phono – ONE* is unique in its design since it has no coupling capacitors from the input to the output. Yet, through an innovative design topology, it provides very high throughput gain combined with zero gain at DC to ensure total stability and immunity from DC drifts and offsets.
- Utilize separate, low impedance, output driver stages. This isolates the amplifier section from the outside load conditions, such as long cables, or loads having

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impedances that could impair the performance of the final gain stage. It also allows a large output voltage swing capability that supports the very high dynamic range capability of the amplifier section.

- Employ great care in the layout in the components and traces on the printed circuit boards used in our amplifiers. This includes minimizing trace lengths between components and ensuring that trace lengths for balanced signals are matched to within a few one-thousand's of an inch.
- Finally, we hand craft our units using the finest components to ensure many years of trouble free performance that will not degrade over time.

The results of applying these tenets of our design philosophy are evident in the overall sonic quality of the DSA *Phono – ONE*.

Sincerely,

Douglas H. Hurlburt, Ph.D.
Pres. and Chief Design Engineer
Dynamic Sounds Associates, LLC