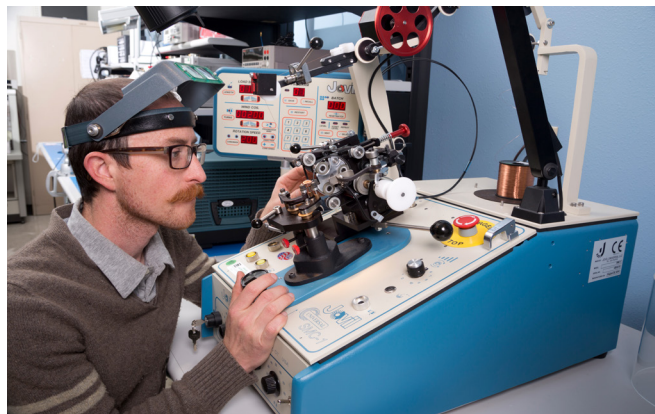


US Pat. No.: Patent Pending
Technology Readiness Level: 4

Component and/or system validation in laboratory environment

Researchers at Sandia National Laboratories have developed the hybrid transformer which has the benefit of a full planar transformer design, but uses a wire-wound secondary winding to keep the parasitic winding capacitances lower. Alone, planar transformers have the advantage of a lower profile and better reproducibility, but wire-wound transformers allow for less parasitic capacitances. By combining elements from traditional wire-wound transformers and planar transformers, Sandia has improved overall performance and reliability.

Sandia's hybrid transformer consists of a split planar primary winding. Between two primary planar printed circuit boards (PCBs), the secondary winding is wound using a traditional wire-wound transformer technique instead of conventionally stacking PCBs, which can lead to high parasitic winding capacitances. In addition, the use of the wire-wound technique reduces the profile height of the transformer, which would benefit many industries seeking to reduce volume of their assemblies. Separation between the primary and secondary wiring ensures the reliability of a high voltage transformer instead of relying on manual taping processes. The lowered parasitic capacitances can be beneficial for high voltage flyback transformers in which the parasitic secondary capacitance can significantly impact the output voltage performance.



TECHNICAL BENEFITS

- Lower profile height than conventional wirewound transformers
- Lower parasitic winding capacitances
- Higher voltage charges
- Increased performance and reliability
- Improved consistency of parts over conventional wirewound transformers
- Hybrid wire configuration can lead to a decrease in: shorts, instances of high voltage breakdown, and damage to equipment

INDUSTRIES & APPLICATIONS

- Companies offering high reliability high voltage transformers
- Suited for limited space applications – i.e. aerospace, personal power adapters, stacked circuit board, etc.