

Renco Electronics, Inc.

Engineering Success Story

Nelson Garcia - Engineering Manager

Volume 2, Issue 2



In the previous issue of Renco Electronics' *Engineering Success Story* it was illustrated how Renco Electronics' Design Engineering team was able to quickly assist a customer by developing a drop in replacement for a flyback transformer that was a competitor's standard product with very long lead times. In this installment of the *Engineering Success Story* a different type of customer need and the Renco Electronics' solution is discussed.

Renco Electronics' experienced design engineers stay connected with field application engineers from a variety of semiconductor companies that specialize in Switched Mode Power Supply (SMPS) ICs. These relationships come in handy when assisting customers with the design of their transformers and inductors for power supplies utilizing SMPS ICs from a number of different semiconductor companies. Renco Electronics' experienced design engineers specialize in designing custom magnetics based on a few specifications while also reviewing the application notes and additional resources related to the IC from the chosen semiconductor company. The following is another custom magnetics design success story.

On Tuesday, March 31st, a Renco Electronics' Design Engineer, Business Development Manager, and manufacturer's representative were visiting a number of different customers on the East Coast. While visiting one particularly frustrated customer it was evident that the customer's custom magnetics needs were not being met in a timely and efficient manner by Renco Electronics' competitors.

Part of the customer's frustration was due to receiving transformer samples for a previous power supply design after a long period of waiting and having the transformer samples get warmer than expected when tested in the power supply.

During the meeting with the customer, the design engineer did mention that he was a generalist in the electrical engineering world and had only started designing power supplies a year earlier. Previous power supply designs that the design engineer completed were done using the design software provided by the SMPS IC semiconductor companies. Unfortunately, the software provided by the SMPS IC semiconductor companies will only get the power supply designed 80% of the way. This is the point where a close partnership with a reputable custom magnetics company like Renco Electronics is crucial. In this customer's case Renco Electronics' competitors did not provide the best of technical support.

The customer went on to describe an urgent need for a 60 Watt flyback transformer for use in a Quasi-Resonant power supply utilizing an SMPS IC from a semiconductor company well known to Renco Electronics' Design Engineering team. He was still working on the design specification and promised to provide a draft specification in a day or so.

The specification for the 60 Watt flyback transformer was received on Wednesday, April 1st, while the Renco Electronics Design Engineer was still on the road visiting customers. The Renco Electronics' Design Engineer immediately began conducting research into the IC the customer was using for his power supply.

After the initial design research was completed, an e-mail dialogue began between the customer and the Renco Electronics Design Engineer that lasted until the paper design for the flyback transformer, designed in an EER35H package, was completed on Sunday evening, April 5th. See Figure 1. This dialogue was an important factor in ensuring the customer's transformer needs were met in the required time frame.

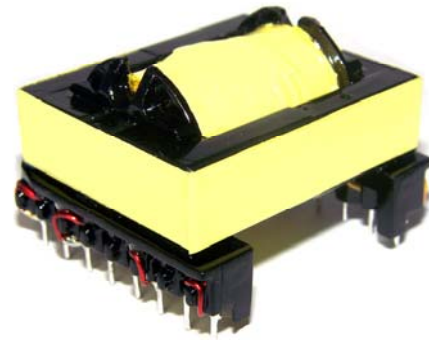


Fig. 1 EER35H Transformer Package

Once the customer completed a final design review, the transformer sample building process began on

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Tuesday, April 7th. The samples were completed and shipped to the customer on Wednesday, April 8th.

The customer reported on Monday, April 20th that the transformer samples were performing well in the circuit and had a measured temperature of only 55° C. In the customer's previous attempt at a similar power supply the competitor's transformer samples had a measured temperature of 110° C.

This paper design and sample delivery process was not completed in a few weeks, but instead happened in 9 days and the customer's immediate transformer sample needs were met.

Renco Electronics will soon start working on other custom transformer and inductor designs for this satisfied customer.

Assisting customers with the custom magnetics for their power supply while reviewing the application notes related to the chosen SMPS IC occurs more often than some of Renco Electronics' customers realize. More than 50% of Renco Electronics' Design Engineering Team's time is spent working on custom magnetics.

If you have just begun working on a new power supply design and all you have done is selected the SMPS IC or a partial power supply has been designed and you need further assistance with the custom magnetics, contact Renco Electronics' highly skilled Design Engineering team to discuss your custom magnetics needs. Renco Electronics will work with you to develop the custom magnetics for your chosen SMPS IC.

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