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Advice To Power Supply Designers (Part 2): The High-Performance Semiconductor Vendor Brings Value

by P.S. Wachter, Semiconductor Industry Veteran

In part 1,* I discussed how engineers working at power supply companies can identify the “needy” component vendors, who tend to waste the engineer’s time, compete almost solely on price and don’t offer much in the way of leading technology or service. While it’s important to recognize and avoid such vendors, it’s equally important that designers be able to identify those vendors who do bring value and help the customers design and build better products.

High-performance vendors (we can also call them *preferred* vendors) are typically not recognized as price leaders and as such it’s likely they won’t offer the lowest pricing during the quoting process. While not the lowest, their pricing will still be competitive because this vendor makes the proper effort and investment to have the best process. This vendor is more concerned with “getting it right” than cutting upfront costs. They understand the extra upfront investment will later add to the bottom line and produce meaningful long-term results. Consequently, they are not as concerned about the bottom line on a short-term basis.

As a general rule this vendor also offers stable pricing structures regardless of market conditions. Their product releases are crisp and well organized offering “whole and complete products”. In other words, everything is available when the product is released including world class documentation and other supporting materials to aid the designer in the development process right from the beginning.

The process follows a plan that was clearly defined and established in advance. (In contrast, the needy vendor doesn’t appear to have a committed or firm roadmap and their roadmap always appears to be in a state of flux.)

Besides stable pricing and complete product documentation, there are other ways that a preferred vendor can help customers realize greater revenue and returns. For example, a preferred vendor is a market leader in terms of delivering technology. This is because the preferred vendor understands the end applications and the challenges that exist today.

Their new technology is designed to enable the customers to achieve functionality that is important to them but might not have been previously possible with the earlier generations of parts. This capability creates demand for the vendor’s products as preferred vendors do a good job of anticipating market trends and offering technology to readily address those needs.

The newer components are in most cases easily scalable and the customer’s designs can be easily migrated to the newer technology with minimal re-design effort and consumption of customer resources. Therefore customers are able to easily adopt the new technology for fast time to market.

As part of the customer interface strategy the high-performance vendor also provides valuable technical training and the latest in technical research. Most importantly, however, they offer top notch documentation and design collateral, which includes SPICE models and functional evaluation boards that make for easy adoption of new components in the customer’s designs.

Sometimes a custom evaluation board is needed. The high-performance vendor provides this option via a staff of highly qualified application engineers. These vendors also recognize the value of well written and reliable application notes, providing useful design information for engineers. These are considered important tools for engaging with customers and building credibility.

High-performance vendors recognize the importance of application notes to the development effort by ensuring that their company is well represented in terms of detailed and published application notes. They also offer design tools as a means to assist the customer design effort with various options that can be quantified upfront, improving development time and reducing effort upfront.

For example, consider a case where a customer needs to design an LLC resonant tank for a power supply. The high-performance vendor would offer detailed application notes describing how the tank circuit would be designed and would likely also include some form of calculation tool to assist the customer in this initial phase of the design.

Although the resonant tank consists of passive inductor and capacitor components, which to an outsider may not seem part of the MOSFET selection, the tank circuit is in fact critical for determining the MOSFET package and its $R_{DS(ON)}$ class. In this case, the vendor that brings greater value to the design process establishes their company as a key resource for the customer and is not merely a parts seller. In contrast the needy vendor is unable or unwilling to provide guidance on how to select the resonant tank components and the proper MOSFET for the application. Instead they ask the customer what part they are using and only attempt to provide a cross reference alternative.

To establish a meaningful meeting with the customer where new or existing products are being presented for consideration—what we would consider a sales call in traditional terms—the high-performance vendor describes how to apply important underlying concepts in conjunction with the presented and proposed products. Ideally this presentation is conducted through a qualified field application engineer (FAE) acting as the single point of technical contact for the customer.

Unfortunately, in recent years, semiconductor vendors have de-emphasized the role of their FAEs, opting instead to place multiple product line marketing engineers in front of the customer. This is done under the auspices that marketing knows their products better and can present them more effectively. But this strategy and deployment of resources approach ends up confusing the customer since there are now multiple people from the same vendor calling on the engineers at a given company.

This approach also results in multiple extended meetings, requiring more customer time be allocated because now every product group wants a specified amount of time to discuss their products. In addition this multi-interface structure does not allow the different products from the various business groups to be linked together as a meaningful solution for the customer. Nor does it communicate an overall technical value solution/proposition. That's where the value of the field application engineer lies and sadly that role has been diminished and de-emphasized in recent years.

The ability to provide key knowledge and innovative product updates for effective implementation as part of a clearly defined meeting agenda is also an important attribute of a high-quality vendor. These meetings bring value to the customer's engineering staff. As part of the presented material the preferred vendor proactively works to provide current solutions based on previous customer challenges encountered and shows how existing or new products might help address those challenges.

Ideally, the content for this meeting is a fully customized presentation compiled by the FAE and reflects the FAE's thorough understanding of the customer's objectives. It would provide solutions and ideas aimed at solving the customer's challenges. This material would be developed from the FAE's history of working with the customer over the course of their various product generations. By consistently engaging with the customer in this type of meaningful way, vendors are likely to find that customers welcome the scheduled meetings.

Additionally when a quality vendor targets a device or series of devices for obsolescence, they have a proposed alternate device already in place that allows customers to make an easy transition with sufficient transition time. Typically this vendor would offer last-time buys for up to a full year or longer while also allowing customers another full year to take possession of the product.

This flexibility on the vendor's part gives the customer's design teams adequate time to arrange their design resources to make the transition to the newer device. It also ensures customers need not disperse a large cash outlay by having to purchase all the parts right away. Thus when dealing with the high-quality vendor the customer need not incur the upfront cost for storage space and materials that they would otherwise need for the transition period.

In this two-part article, we have examined two different types of semiconductor vendors. There is the high-performance vendor which seeks to earn business based on the overall value it attempts to bring to the customer. It offers key technology, proper field resources and a strong marketing business plan that includes effective manufacturing processes, development tools and educational materials. In contrast, the needy vendor offers none of these options and tries to win business by simply offering a cheaper price. Overall, the needy vendor is more concerned about what customers can do to help their business prospects than in producing something useful for the customer.

The one benefit of the needy vendor is that it provides the customer with price leverage to ensure that the high-performance vendors do not overcharge them. But engaging with a needy vendor for this purpose and this purpose alone is not a wise use of time.

* "[Advice To Power Supply Designers \(Part 1\): Beware The Needy Semiconductor Vendor](#)" by P.S. Wachter, How2Power.com's FAE Confidential, August 2019.

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