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CREATING
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**AMERICAN CIRCUITS FUSES
QUALITY AND ON-TIME DELIVERY**



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American Circuits Fuses Quality and On-Time Delivery

Copper is the primary element embedded in electronic circuit boards. But when Vic Gondha looks at a board, he sees a golden opportunity—to build a business, create jobs, feed families and strengthen our domestic and local manufacturing base.

For over two decades, his company, American Circuits, Inc., a full-service electronics contract manufacturer, has been offering design, prototype and printed circuit board fabrication as well as assembly services. As a matter of fact, the minority-owned business is the only manufacturer in North Carolina producing bare boards from start to finish.

“Most companies don’t do both—turnkey assembly and bare board fabrication. We are really unique in that aspect, we can control the entire process from design to finished assembly with remarkable quality and speed” says Vic, 66, president of the small business and a native of India.

“And we offer turnkey assembly for prototype quantities from 1 to 100,000-plus. Offering flexible, specialized service is the key to our success at American Circuits.”

Used in even the simplest of electronics, a printed circuit board, or PCB as it’s commonly referred to, mechanically supports and electrically connects electronic components using conductive tracks, pads and other features etched from copper sheets laminated onto a non-conductive substrate, mainly fiberglass.

PCBs can be single-sided, double-sided or multi-layer. Conductors on different layers are connected with plated-through holes. Advanced PCBs may contain components—capacitors, resistors, or other miniature active devices—embedded in the substrate.

American Circuits makes and distributes circuit boards to approximately 400 customers within a wide variety of industries from defense to health care with diverse applications from robotics to LED lighting.

“Customers include General Electric and KEYper Systems in Charlotte, which specializes in security and key control systems,” Vic lists.

Vic admits, “We really don’t do a lot of marketing or selling of ourselves—our name and our service really speak for us.”

Smart Moves

Vic is especially proud of his small company’s “Made in the USA” appeal. He grew up very poor in the village of Mervadar, located on a small peninsula in the central western portion of India. There, he learned the basics of running a business by helping out on peanut and cotton farms, and also learned to read and write English.

He hungered for education. After completing seventh grade, he headed to a boarding school 25 miles away for high school, paid for by a community organization. An undergraduate college degree in mechanical engineering followed. “I knew that getting a good education was getting ahead,” says Vic.

After securing two student loans in India to study abroad, Vic moved to the United States in 1970—alone, but at his parents’ urging to further his education. He arrived in Kansas and earned a master’s in industrial technology from Pittsburg State University.



In 1972, he began working in Missouri as a process engineer in machining. Then in 1975, he returned to Kansas to oversee the manufacture of circuit boards for King Radio, a manufacturer of general aviation avionics and aviation gauges and indicators.

By that time, Vic had married his bride in India, become a U.S. citizen thanks to a sponsor employer, and added two children to the mix while in Kansas. Over the following decade, Vic began a series of engineering and manufacturing jobs, crisscrossing the nation from New York to Texas to Alabama to Massachusetts.

During those years, Vic sponsored four brothers, a sister and his parents for immigration to the United States. (All are U.S. citizens, and the brothers currently work at American Circuits.)

His entrepreneurial desire was ever-present, so he kept an eye out for opportunities. "I wanted to have my own business, to settle in and improve the lot of my family," he says. "I wanted my family to have a better life; that was my ultimate goal."

Making the Connection

In 1990, when he heard of a circuit board company going out of business in Melbourne, Fla., he quit his Massachusetts job and headed for warmer weather. Along with his four brothers as stakeholders, Vic bought the equipment from the struggling company and began operations as Printed Circuit Technologies that same year.

"I started improving the company and its processes. In a few short years, we were making and distributing circuit boards to about 200 businesses throughout the U.S. and had grown to 22 employees. We were very successful," he recounts proudly.

"But then a fire occurred and nearly everything was lost," says Vic of the 1994 fire that originated in a hydraulic press left running due

to a faulty electrical controller. "We were underinsured by about 50 percent—we had grown substantially and added more equipment. It was a big loss to my whole family."

Despite the fact that the business was ravaged by fire, Vic made sure that every single customer's shipping deadline was met. Rather than calling it a force majeure, which would certainly have been acceptable, Vic felt that meeting customer expectations was paramount, even in the face of severe hardship.

But down was not out. That same year, Vic, ever the entrepreneur, had learned of a business with PCB manufacturing equipment for sale in Charlotte. He decided it was the right opportunity, and he and the extended family relocated all operations to the Queen City. He began operations as American Circuits, Inc. and set about slowly building a profitable business again.

"I purposefully chose to come to Charlotte," says Vic. "It seemed full of opportunities. You just don't give up. You work hard and try to continually improve the operations. It takes time to be financially viable, and that is what we have done to be successful."

In 1997, the company invested in a new 12,500-square-foot Latrobe Drive location to increase capacity with automated machines.

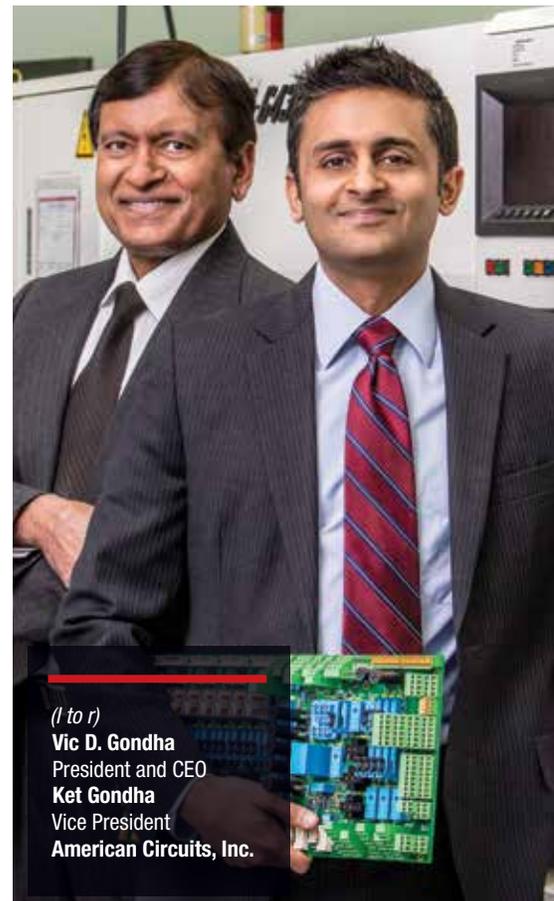
American Circuits has continued to pursue acquisitions as a growth strategy. In 2001, it purchased Charlotte-based Excel Electronics, but did not add any employees. That helped the company weather the recession at the time when revenues dropped 15 to 20 percent. As a result, no employees were laid off, but those who left were not replaced.

In 2005, American Circuits bought S.M. Circuits in Asheville as it was going out of business. That resulted in four new hires, and a great deal of more modern equipment.

Smart moves—and rather extraordinary intelligence—appear to run in the family. Vic's son, Ket, joined American Circuits in 2012. He comes from a background that couldn't be more different: he's a former financial analyst with Lehman Brothers and Standard & Poor's.

Although born in Kansas and having moved quite a bit with the family, Ket, now 34, attended Sun Valley High School in Union County. There, he earned a Merit Scholarship to the University of North Carolina at Chapel Hill, and then an MBA and law degree from Columbia University in New York City, where he lived for 11 years.

Says Vic, "I asked him if he would join American Circuits, and he thought long and hard about it, and decided it was for him. The long-term plan is that when I retire in a couple of years he will take over."



Ket, now vice president, admits he has massive shoes to fill, but thinks his business experience will be key to maximizing the company's continued success.

"It will be a challenge pivoting from Fortune 500 companies in financial services to a niche electronics manufacturing business with primarily domestic customers," says Ket. "But the background I have helps. I am more critical to the business and have a greater impact here than in previous employment."

From Offshoring to Reshoring

Companies that buy circuit boards usually buy them in bulk: hundreds of thousands. And they usually buy them overseas. But selected industries are now looking for circuit board manufacturers that are more localized or can build prototypes to medium quantities, says Ket.

In the 2000s, U.S. multinational corporations that employ a fifth of all American workers cut their domestic work forces by 2.9 million, while increasing employment overseas by 2.4 million.

Circumstances of these countries have changed dramatically in recent years resulting in an economic turnabout. Labor costs in China have risen to record highs. Issues with quality control and the inability to quickly implement product design changes are

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problematic. Last year, a survey by the Boston Consulting Group indicated that 37 percent of large American employers were contemplating transfer of manufacturing from China to the U.S.

"In this industry, we have faced significant headwinds from outsourcing," comments Ket. "Considerable business in recent years has moved overseas. Globalization and low-cost manufacturing have hurt circuit board manufacturers, but we are now seeing some reshoring. Customers are seeking flexible, collaborative U.S. manufacturers with rapid response times—and we are ideally positioned."

Ket attributes American Circuits' viability in the wake of the outsourcing trend to the company's ability to make highly specialized PCBs, combined with close attention to quality control. He says that many regional and national companies turn to the boutique firm when they need small-to-medium amounts of PCBs with specialized customer service.

"Companies have started to realize that the savings from outsourcing are not all they're cracked up to be," Ket says. "And if they want changes to or have problems with circuit boards—or any manufacturing—it often takes a long time to correct the problem."

Ket also attributes the company's sustainability to short lead times, ease of freight, local and regional customer service, reduced costs, low customer returns and attentiveness to high quality. "People do business with us because we form a partnership, and we have an excellent engineering team," he affirms.

Smart (and Safe) Manufacturing

American Circuits' highly personalized orders often move between their two manufacturing locations. The company operates out of two buildings totaling 27,000 square feet. Their primary building on West 24th Street is home to bare board and thru-hole board assembly as well as the company's engineering department and corporate offices.

The other building on Latrobe Drive is dedicated to surface mount board assembly and has a faster automated line for PCB assembly. The surface mount equipment is also more accurate and able to surmount greater technological hurdles.

Both locations incorporate their customized service—from design to shipping. At the uptown location, employees are engaged in various production processes. One dips sheets of PCBs in tin or copper baths, followed by a specialized cleaning solution. Another sits before a microscopic lens, tirelessly soldering parts on boards—board by



board. Another meticulously adds U-shaped pins to pre-drilled holes in a long line of green fiberglass circuit boards.

The PCB manufacturing process involves a number of special chemicals and materials, and these chemicals are cleaned from the wastewater and spent solution to form clean water and solid waste that is recycled. Because of this, the uptown location focuses heavily on being environmentally friendly. Water purification and clean compressed air systems share space with an intricate vacuum structure.

For 11 years in a row now, the company has been awarded the Charlotte-Mecklenburg Environmental Excellence Award for keeping pollution out of the local water systems. Vic and Ket are especially proud of that valuable accomplishment.

At American Circuits' Latrobe site, visitors are greeted by large machines in a large white room that "screen-prints" a thin film of solder paste at the start of the assembly line with even larger machines automatically attaching additional components in harmony. The boards are later reflowed in a large, slow oven.

Travis George, an American Circuits engineer, describes it as "a big pizza oven to melt all the solder and components in place. We can process 6,000 or 7,000 components per hour. Then we send the boards back over to the other location for quality control and shipping."

Quality is what is stressed at American Circuits every step of the way, says Vic. Vic likes creating his specialty boards with care, proudly overseeing excellence in the manufacturing process. He has even been known to travel to a customer's plant to pick up PCB samples.

Ket assures that in the future they will continue to be focused on a process-driven approach: "It's important to make sure the process is right—what we really want is

a consistent and careful approach—quality will then follow naturally. That really ensures we're serving our customers every step of the way.

"Circuit boards will only become more pervasive as technology continues to progress. Yet, it is a highly competitive business, and our customers could go anywhere," acknowledges Ket.

"But they don't. They choose to trust us to build their products efficiently, on-time, and without error. We don't want to stray too far from our roots." 



AMERICAN CIRCUITS

American Circuits, Inc.
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Principals: Vic Gondha, President; Dhiraj Gondha, Jayant Gondha, Shantilal Gondha, Praful Gondha, Ket Gondha, Vice President
Established: 1990

Employees: 40

Annual Revenue: \$5 - \$10 million

Business: Electronic contract manufacturer specializing in printed circuit design, engineering, manufacturing, and assembly; end-markets include military, aerospace, energy, and medical throughout North America.

Website: www.americancircuits.com

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