



### Challenge

Replacing residential CFL fixtures with compact LED fixtures that are compatible with Brazil's line voltage of 127V.

### Solution

Audax Electronics and Lumileds designed a variety of LED modules for different commercial lighting fixtures including wall packs, wall sconces, bollards and pendants for the Brazilian market. LUXEON 3535 HV high voltage LED technology enabled compact fixture designs with simplified drivers.

### Benefits

High voltage LED technology enabled compact driver design with fewer than 20 components, reducing the overall cost of the lighting fixtures and streamlining the inventory that fixture manufacturers need to maintain.

### Results

Commercially available lighting fixtures for residential applications in Brazil, formerly based on compact fluorescent technology, are cost-effectively addressed by high voltage LED modules. Meeting the requirement of Brazil's line voltage of 127V, 48V Lumileds mid-power LEDs used with compact drivers can reduce the size and cost of wall packs, sconces and pendants.

# Compact Fixtures Turn to High Voltage LEDs

High voltage LEDs provide the ideal solution for low-cost residential LED fixtures such as wall packs, wall sconces and pendants.

Retailers in Brazil have chosen a low-cost, modular style design using 48V mid-power LEDs from Lumileds that accompanies the country's line voltage—delivering the required lumen output using up to 5 LEDs per module for over 30 different commercial fixtures.

## Challenge

A variety of commercial lighting fixtures are making the switch from compact fluorescent technology (CFL) to LED. The reasoning behind this change is multifaceted: high voltage LED technology allows a lower overall costdown of the driver itself with the added benefit of more compact designs (due to the small size of the driver and the high lumens offered by the LUXEON 3535 HV LEDs, which allows you to reduce LED count in the fixture). LED solutions have become cost-competitive with CFL; and the long lifetime offered by LED fixtures is highly attractive to consumers.

A project in Brazil, headed by LED module supplier Audax Electronics, sought to create reasonably priced LED-based wall sconces, wall packs, bollards and pendants based on high voltage LED technology. The line voltage in Brazil is in majority 127V, so the selection of three 48V LEDs ideally suited the designers of these commercial fixtures, which are being sold by retailers at reasonable prices throughout the country.

## Solution

Audax Electronics sought to deliver a variety of LED modules that could be used in multiple commercial lighting fixtures. Specifically, the requirements for these fixtures included a compact design and also low cost, in order to compete with the CFL predecessor. The advantage to modules based on high voltage LEDs is that they utilize drivers containing on average less than 20 components, relative to standard LED drivers that contain 50 components. As a result, fixture designers can provide a 50% lower cost solution with high voltage LEDs, while minimizing the amount of inventory they need to carry to design the driver.



Audax chose the Lumileds LUXEON 3535 HV LED for several reasons: high reliability relative to comparable products in the market, competitive pricing and the ability to deliver the required voltages and lumen output for over 30 kinds of fixtures.

## Benefits

The residential consumer lighting market is extremely cost sensitive. Since the driver represents a considerable portion of LED fixture cost, the use of high voltage LEDs represents a compelling solution—the compatible high voltage drivers themselves are less expensive than standard drivers. Furthermore, the small size of the high voltage drivers simplifies the overall design process and enables more compact fixtures. Lumileds offers the LUXEON 3535 HV LEDs in 24V and 48V formats and have a comprehensive ecosystem of drivers available (which can be found at [lumileds.com/designtools](http://lumileds.com/designtools)). The result is compact and cost efficient fixture design and faster time to market of LED fixtures.

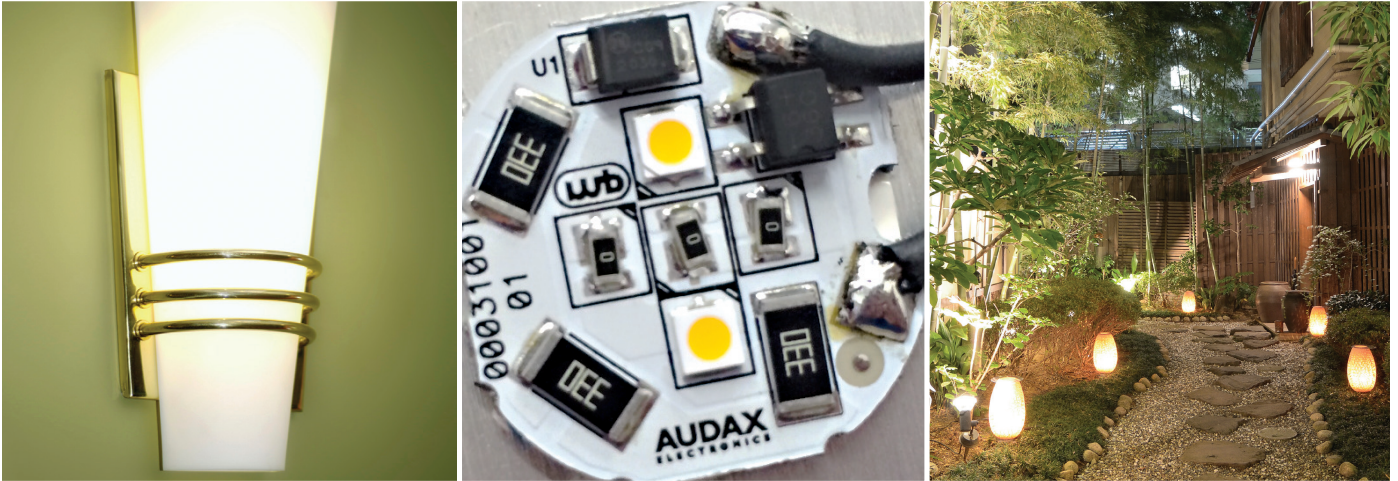
## Results

For the residential market in Brazil, Audax's residential lighting products signify a successful departure from traditional CFL-based lighting. Using Lumileds LUXEON 3535 HV LEDs in conjunction with high voltage drivers designed in-house, Audax was able to produce standard boards which are used in over 30 different kinds of fixtures such as wall packs, wall sconces, bollards and pendants. "Audax Electronics chose the LUXEON 3535 HV LED to use in its modules based on its high reliability, ability to achieve a low cost point for consumer lighting, and also the high lumens and overall performance offered by the 48V product," said Rafael Grassi, Director of Audax Electronics. The high voltage driver design and high lumens produced by the LUXEON 3535 HV 48V ultimately resulted in a design that was compact yet powerful, making these residential LED fixtures competitive with their CFL predecessors.

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— Rafael Grassi  
Director, Audax Electronics





Audax Electronics LED module, using LUXEON 3535 HV emitters

## About Lumileds

Lumileds is the light engine leader, delivering innovation, quality, and reliability.

For 100 years, Lumileds commitment to innovation has helped customers pioneer breakthrough products in the automotive, consumer and illumination markets.

Lumileds is shaping the future of light with our LEDs and automotive lamps, and helping our customers illuminate how people see the world around them.

To learn more about our portfolio of light engines visit [lumileds.com](http://lumileds.com).

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