Connector Supplier

PRODUCT WORKSHEET

Who ya gonna call for LED lighting connectors? Contact 3M, Molex, TE Connectivity, AVX, JAE, Hirose, and Amphenol.

Seeing the Light

By Steven A. Neu, Product Engineering Supervisor, 3M Electronic Solutions Division

The future of LED lighting looks bright. The global LED lighting market has enjoyed rapid growth due to demand for efficient fixtures and the demise of the inefficient incandescent light bulb, which will be banned by most major countries by 2017. The construction of new, green buildings and efficiency upgrades to existing buildings will drive demand for energy-efficient LED lighting fixtures well into the future. In fact, LED products' share of the general lighting market will jump from 7% in 2010 to an estimated 64% in 2020, according to a 2011 McKinsey & Company research report.

As LED lighting proliferates, lighting designers and manufacturers are faced with new connectivity challenges. Unlike traditional lighting sources, LED fixtures are powered by semiconductors mounted on a printed circuit board (PCB), requiring board-to-wire connections. Plus, LED lighting is often packaged in rigid or flexible strips, which are mounted on walls, ceilings, or cabinets. A lighting design may require power to branch, with multiple LED strips sharing the same power source. Your basic bulky wire nut, requiring considerable wire preparation and labor, won't suffice for installing many LED lighting designs.

A few interconnect products specifically geared toward the LED lighting segment have appeared on the market. However, some LED lighting manufacturers and designers are choosing easy-to-use connectors with years of proven reliability. Many of them have recently discovered that two lines of 3M connecters work well for their LED ambient lighting products, reducing installation time and cable costs.

Link Connectors and Mini-Clamp Connectors from 3M were originally designed for factory automation applications. The connectors, featuring 3M insulation displacement contact (IDC) technology, are currently deployed in factories around the world, providing reliable, long-lasting, easy-to-install connections in electronic manufacturing machinery and sensor systems. They are also used in conveying systems, building automation, and communication networks.

The 3M Mini-Clamp Connector family includes a plug, socket, and straight or right-angle board mount connectors. The semi-transparent cover allows for visual inspection of the wire position.

However, 3M Link and Mini-Clamp Connectors are also well suited for the assembly and installation of LED products for general lighting applications, such as residential, office, and hospital environments. The Link Connector family includes two- and four-position wiremount and boardmount products that can be used for wire-to-board and wire-to-wire applications. Link Connectors can be used for applications with current requirements up to 5 amps per conductor. The smaller Mini-Clamp Connectors are available in three-, four-, six-, and eight-position configurations and can be used for applications up to 3 amps per conductor.

The connectors incorporate IDC technology — first developed for electronic applications by 3M more than 50 years ago — enabling quick and easy installation and labor savings compared to traditional wire termination methods, such as crimp or soldering. No wire preparation, insulation stripping, or special tools are required. The technician simply inserts the wire into the connector and terminates the wire by squeezing with a pair of pliers. Both 3M Link and Mini-Clamp Connectors have polarization and latching features to help ensure proper installation and reliable connections. Moreover, the connectors' flexible design makes them compatible with a variety of custom LED lighting designs.

3M Link Connectors can accommodate discrete or flat ribbon cable with conductor sizes between 18 and 22 AWG. The wire-mount connectors (Series 381) feature a hermaphroditic four-point contact mating structure that allows the connector to mate to itself, so only one type of connector is required for each connection, reducing the

The 3M Link Connector enables quick, easy wire termination. The hermaphroditic design allows the connector to self-mate, saving space.

number of different components needed to interconnect a system. The connector's T-Tap termination enables mid-cable terminations for easy installation of branched configurations, and dual latches provide a secure connection. The boardmount version (Series 382) is available in straight and right-angle configurations.

The 3M Mini-Clamp family of connectors features a compact design that saves space, yet doesn't compromise on reliability. The semi-transparent cover allows for visual inspection of the wire position prior to the termination of the wire. A latch provides a secure connection, even under severe conditions, such as mechanical stress and vibration. The Mini-Clamp family includes a plug, socket, and straight- or right-angle boardmount connectors, and can accommodate conductors between 20 and 28 AWG.

LED lighting does present new connectivity challenges. Link and Mini-Clamp Connectors from 3M help meet those challenges. IDC technology makes assembly and installation quick and easy. Position and retention features ensure that the connectors are installed properly and maintain a reliable connection. They are available in wiremount and boardmount versions. And, the Link Connector's self-mating design and the Mini-Clamp Connector's compact footprint save space. Visit 3Mconnectors.com for more information on Link Connectors and Mini-Clamp Connectors from 3M.

Molex LED Array Holder Provides Single Piece, Solder-Free Connector for Sharp High-Powered LED Lighting Solutions

Molex Incorporated's solderless LED Array Holders are now compatible with Sharp Zenigata LED lighting products, including the 15W, 25W, and 50W Mega Zenigata and the 4W-15W Mini Zenigata. The Molex LED Array Holders provide unique compression contacts to power the arrays while eliminating the need for hand-soldering or expensive surface mount technology (SMT) equipment. Ideal for light fixture original equipment manufacturers (OEMs), the holders reduce installation time and increase connectivity options while lowering costs. The solderless screw-down connection allows for a standardized manufacturing process, adding to the design flexibility. In addition, Sharp has specifically developed a new contact pad structure for use with solderless LED Array Holders.

"The Molex LED Array Holders allow Sharp to provide the same superb light quality and energy-saving products our customers expect, while simplifying the installation and integration process," said Rob Winlow, engineering manager, Sharp Laboratories of Europe. "This is critical as LED lighting becomes more widespread in retail, hospitality, commercial, and government applications and customers look for flexible and cost-efficient solutions to bring the next generation of lighting to these markets."

Molex's LED Array Holders are ideal for all general illumination applications, including downlighting, architectural lighting, and area lighting. With a double-ended wire trap terminal, the holders simplify array assembly by allowing flexibility in wire orientation to achieve optimal wire routing. A releasable wire trap enables field replacements and facilitates upgrades to current applications. The thermoplastic housing supports high heat-generating environments and the holders comply with UL 496 specifications. In addition, for the Mega Zenigata Molex offers an optional LED protective cover that aligns with Zhaga specifications.

Molex LED Array Holders are available through Molex franchised distributors. For more information, please visit Molex online.

AVX Develops Ultra-Low Profile LED Lighting Connectors for Fluorescent Light Retrofit and Replacement

AVX Corporation has developed two new series of connectors for LED lighting systems that maintain the same luminosity and light intensity as fluorescent strip lights. The standard length of most fluorescent lights is 1.2m, and currently it is impossible to reflow-mount LEDs on such a long printed circuit board placed in the fitting. As a result, the lighting strip is divided into shorter lengths joined by connectors. AVX's new 9608 Series LED lighting connector and 9609 Series LED backlight connectors feature the lowest profile in the industry at 1.4mm, which minimizes the spacing between PCBs and allows for even light distribution.

The low-profile lighting connectors utilize a common footprint that eliminates the need for different PCB combinations, while providing maximum luminosity. Additional design simplifications, including the fully customizable harness and the single-pole variation, allow for easy assembly and more LED fixtures at the center of PCB.

The 9609 Series LED backlight connectors are single-pin, board-to-board style connectors that can be mounted on the outside of lighting strips to provide a higher density of LEDs on the PCB. The design and mounting process is aided by the availability of similarly shaped receptacle connectors in both joint and wire-to-board styles.

Visit AVX online.

HOME TOP

CONTACT US SUBSCRIBE MEDIA KIT