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Menlo Micro Enables New Class of Industrial Control Products with Smaller, Faster, Lighter Power Relays

New 200V/10A Digital-Micro-Switch Smart Power Relay Technology on Display at APEC 2018

SAN ANTONIO, March 6, 2018 – Today at APEC 2018, Menlo Micro announced its new 200V/10A Digital-Micro-Switch (DMS) Smart Power Relay technology. This technology represents another pivotal milestone for Menlo's Digital-Micro-Switch platform.

The new DMS Smart Power Relay technology opens the door to a wide array of vertical market segments. Until now, many industries have had to live with the tradeoffs of solid-state controls, including high-leakage currents, lack of air gap and complicated thermal management, or electromechanical solutions that are slow, bulky and expensive.

"Our DMS technology enables extremely small, lightweight power relays that combine the best features of solid-state and mechanical devices," noted Menlo Micro SVP of Products Chris Giovanniello. "The market is constantly demanding reductions in size, weight, power, and cost. We are now able to fulfill that demand and create an entirely new class of control products for industrial IoT markets."

Demonstrating the scalability of the technology, Menlo has combined over 200 micromechanical high-voltage switches, with fully integrated protection and controls, into a Smart Power Relay evaluation board. The credit-card-sized board is capable of carrying 10A of

DC current, without the need of a heat sink. This unprecedented level of current handling for a MEMS switching device is due to Menlo's proprietary materials, designs and wafer-level processing techniques.

High-power, high-reliability RF switches manufactured by Menlo are already in applications such as medical instrumentation, test and measurement equipment, and reconfigurable software-defined radios. Typically, these switches are 3-terminal devices operating in the 25W to 50W range. For the Smart Power Relay, Menlo has created a fully isolated 4-terminal architecture, complete with advanced features such as over-current protection. Some of the advantages of the DMS Power Relay architecture include:

- 80-90 percent reduction in volume and weight. Each metal-to-metal contact is smaller than a human hair, and when combined in massive arrays, can provide extremely low on-state losses (<10mohm) in a very small package, eliminating the need for large, heavy heat sinks. This will enable entirely new form factors for power electronics designers.
- 1000x improvement in switching speed over traditional electromechanical relays.
- Smart features. While the DMS Power Relay retains the galvanic isolation properties of traditional mechanical relays, the ability to integrate into traditional semiconductor packages (like System-in-Package or Multi-Chip-Modules) allows it to provide other intelligent features to making it more useful to the system designer, as well as more efficient.
- Semiconductor cost structure. Menlo's DMS technology is manufactured using a wafer-level manufacturing process. This allows DMS products to benefit from the scale and cost structure typical for semiconductor products.

Menlo's DMS Smart Power Relays are ideally suited to home and building automation, industrial automation and controls, robotics, electric vehicle and battery management, and avionics.

This week at APEC's Industrial Applications session, Dr. Yan-Fei Liu, IEEE Fellow, and Menlo Micro will present a paper titled, "Design of a High Power MEMS Relay with Zero Voltage Switching and Isolated Power and Signal Transfer." The presentation is taking place at 5:10

p.m. on Thursday, March 8 in Room 217D and describes the new smart power relay architecture proposed by Menlo.

Menlo is currently making its DMS Power Relay technology available for evaluation to key industry partners. For more information, please visit www.menlomicro.com.

About Menlo Micro

Headquartered in Irvine, California, Menlo Micro is reimagining one of the most fundamental building blocks of electronic systems – the electronic switch. The company's Digital-Micro-Switch platform is a game changer for those who design electronic systems, serving multiple industries including next generation 5G mobile networks, industrial IoT markets, battery management, home-automation, electronic vehicles and medical instrumentation. Menlo Micro is backed by GE Ventures, with investments from Corning Incorporated, Microsemi Corporation, and Paladin Capital Group. For more information visit www.menlomicro.com and @menlomicro on Twitter.

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