

FOR IMMEDIATE RELEASE

HD Microsystems™ and American Semiconductor Announce Innovative Joint Development Agreement Primed to Redefine Electronics

Joint Development Agreement Will Produce the World's First High Reliability Ultra-Thin Packaged ICs Enabling a New Evolution in Electronics

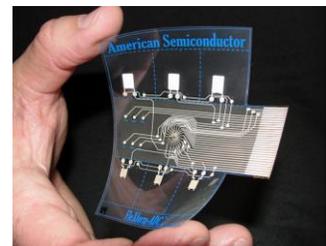
American Semiconductor to install new on-shore 300mm Chip Scale Packaging Capacity for Ultra-Thin Semiconductor Devices

Semiconductor-on-Polymer (SoP) technology is Set to Rise to Prominence for Thin Electronics by 2020 as Consumers Seek Revolutionary Experiences. Seamless Migration to These New, Ultra-Thin ICs is Projected to Change the Face of Electronics by Creating Ubiquitous Smart Environments

BOISE, IDAHO, February 15, 2019. HD Microsystems™ (HDM) and American Semiconductor, Inc. (ASI) today announced the establishment of a joint development agreement to drive the adoption of ultra-thin chip packaging technology for both traditional rigid and emerging flexible electronics markets. The joint development will leverage American Semiconductor's patented Wafer-level Chip Scale Packaging technologies that are encapsulated with advanced polyimide materials provided by HD Microsystems™.



"We are honored to collaborate with HDM to establish production capacity for our new technology implemented with HDM's unparalleled polyimide materials expertise combining large-scale processing, leading-edge



technology and early consumer market insight," said Doug Hackler, President and CEO of ASI. "Together, we are elevating and redefining the electronic world to be more seamless and personalized for all of us – whether at work or play."

Shigenori Kobayashi, Vice-President/COO, HDM said, "By forming this partnership, we are pairing our polyimide materials expertise with ASI's novel wafer-level CSP process to drive a new age of electronics that will be embedded throughout our physical world in places never-before possible."

Drawing on resources from both ASI and HDM, the joint development will enable the rapid scaling of ultra-thin IC packages for high-end multilayer electronic designs (HDI), flexible hybrid electronics (FHE), and "smart structures" for the Internet of Things (IoT). The successful partnership will redefine the electronics experience for all businesses and consumers globally over the next 5 years.

About HD MicroSystems™

Founded in 1997, HDM is a 50-50 owned joint venture company of Hitachi Chemical and DowDuPont. HDM is the world's largest supplier of polyimide and PBO precursor chemistries specifically engineered for microelectronic applications. HDM's product line is broad, consisting of photosensitive coatings, standard non-photosensitive coatings, high temperature adhesives, and a full line of complementary ancillary products. The mission of HDM is to serve the needs of the microelectronics industry by developing innovative materials, producing them to high quality standards and reliably supplying them to our customers enabling them to realize new technologies, lower process costs and more reliable end products.

About American Semiconductor

American Semiconductor is your complete ultra-thin IC packaging and services provider for physically flexible and conformal Flex-ICs, thin device ICs, and Flexible Hybrid Electronics components and systems from concept to fabrication. American Semiconductor offers a complete suite of engineering and manufacturing services that enable you to realize your product. Whether you have just sketched your concept on the back of a napkin or have a product to make ultra-thin and flexible, American Semiconductor goes beyond typical manufacturers to ensure your product needs are met.

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