



Soitec SOI wafers at the heart of new Renesas SOTB™ Energy Harvesting Chipset

Soitec innovative substrates open up a self-powered future for IoT devices

Bernin (Grenoble), November 14, 2018 – Soitec (Euronext Paris), a world leader in designing and manufacturing innovative semiconductor materials, announced today that a special version of its fully depleted silicon-on-insulator (FD-SOI) wafer product line has been selected by Renesas Electronics Corporation (“Renesas”, TSE: 6723) for 65nm ultra low power SOTB™ (Silicon-On-Thin-Buried-Oxide) processes. As a result, Renesas’ new SOTB-based chipset overcomes the energy constraints of IoT devices and reduces the power consumption to approximately one-tenth that of the existing products in the market today, making the chipset perfectly suited for extreme low-power and energy harvesting applications.

Renesas has developed its energy harvesting chip using its unique SOTB process technology that achieves both low active current of 20 $\mu\text{A}/\text{MHz}$ and deep standby current of 150 nA. This extreme low power performance makes it possible to realize maintenance-free connected IoT sensing devices at the endpoint. For consumer electronics developers mounting chips, achieving maintenance-free devices by energy harvesting capabilities within these sensor nodes is becoming increasingly critical, especially in wearable devices, smart home applications, watches, portable appliances and infrastructure monitoring systems.

Renesas chose Soitec substrates for its ultrathin and uniform active layers, the thinnest ever buried oxide (BOX) under the thin crystal silicon (SOI) produced today within high volume manufacturing. As a result, Renesas’ SOTB chipsets offer enhanced control of the transistor electrostatics and reductions in both the standby and active currents to levels never before achieved. Additionally, Renesas has successfully delivered the dopant-less channel to suppress V_{th} variability for the ultra-low voltage operation, and the ultra-low power back bias control to reduce the standby current at the same time.

“Soitec’s close collaboration with Renesas’ teams on the development of SOTB technology is further proof that fully depleted devices will revolutionize our daily life.” said Christophe Maleville, Soitec’s Executive Vice President, Digital Electronics Business Unit. “We are excited to be part of this new Renesas SOTB product family and look forward to supporting the growing ecosystem innovating ultra-low power devices.”

“To spur innovations in IoT and consumer applications, we have integrated our exclusive energy-harvesting SOTB technologies into our Energy Harvest Controller,” said Mr. Toru Moriya, Vice President of Renesas’ Home Business Division, Industrial Solutions Business Unit. “We are

confident that our SOTB technology built on Soitec's ultrathin substrates can deliver unmatched capabilities for developing maintenance-free IoT devices that never require power supply or replacement, giving rise to a new IoT global market based on endpoint intelligence.”

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About Soitec

Soitec (Euronext, Tech 40 Paris) is a world leader in designing and manufacturing innovative semiconductor materials. The company uses its unique technologies and semiconductor expertise to serve the electronics markets. With more than 3,000 patents worldwide, Soitec's strategy is based on disruptive innovation to answer its customers' needs for high performance, energy efficiency and cost competitiveness. Soitec has manufacturing facilities, R&D centers and offices in Europe, the U.S. and Asia. Soitec and Smart Cut are registered trademarks of Soitec. For more information, please visit www.soitec.com and follow us on Twitter: @Soitec_EN

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