



NEWS ANNOUNCEMENT

FOR IMMEDIATE RELEASE

SkyWater Chosen by Applied Novel Devices (AND) to Produce New High-Performance Si Power MOSFETs

Licensing agreement also makes technology available as a standard foundry process flow with industry first, near zero reverse recovery charge

BLOOMINGTON, MN, March 10, 2020 – SkyWater Technology, the innovator’s trusted foundry partner, and Applied Novel Devices Inc, a designer, developer and supplier of novel semiconductor device technologies (“AND”), today announced the companies have entered into a licensing and manufacturing agreement to offer an improved standard process flow for Si power MOSFETs (metal oxide semiconductor field-effect transistors). The partnership will enable AND to bring new power device products to market based on its proprietary and patented technologies and SkyWater’s high volume manufacturing capabilities. The licensing agreement will also enable SkyWater to offer the technology as a standard foundry process flow to improve system-level performance for low-voltage (12V – 30V) applications. At the Applied Power Electronics Conference (APEC 2020), SkyWater plans to showcase this collaboration and its manufacturing services for discrete power devices which are in high demand due to the explosion of wireless and battery powered connected devices.

AND’s high-performance Si power MOSFETs are based on novel channel and substrate engineering to improve critical figure of merits of the power MOSFET. These products offer low $R_{DS(on)}$ combined with low output capacitance/charge, low gate drive down to 2.5 V and an industry-first near zero reverse recovery charge enabling low switching losses in applications. Low $R_{DS(on)}$ and reverse recovery will enable improved efficiency and, in some cases, reduced part counts, yielding lower cost and higher efficiency switching systems in applications such as power supplies and motor controls. Combination of low $R_{DS(on)}$, low gate drive, and low output charge will also enable performance improvements in soft/resonant switching applications. Further, the thin body design makes the devices more robust against temperature variations and is anticipated to provide inherent radiation hardened characteristics.

Power MOSFETs are a class of discrete transistor devices specially designed for switching higher voltage/current signals typically used in power delivery circuits for a vast range of industrial, automotive and consumer applications. With the rise of semiconductor content across vertical markets and increase in wireless and battery powered IoT type devices, efficient power management solutions are in higher demand than ever.

“We were attracted to SkyWater as a partner due to the flexibility and strength of their process development organization which enables us to rapidly bring our unique products to market,” said Leo Mathew, Co-Founder & CEO, Applied Novel Devices. “After working for several years on this novel device technology, we are very excited to bring it to realization in an IP secure manufacturing environment.”

“As we build our portfolio of power management solutions, this partnership with AND is making highly relevant U.S. manufactured technology available to our foundry customers,” said Dr. Brad Ferguson, Chief Technology Officer. “This engagement is the exact type in which the Technology Foundry model excels – we’re taking a new technology, creating a standard process flow, and delivering it to the market on a commercial scale.”

In addition to MOSFETs, SkyWater also supports power management applications with IGBT and TVS diode manufacturing services as well as high-voltage (HV) CMOS for PMICs (power management integrated circuits). Near the end of 2020 the company will be releasing a 130 nm BCD (Bipolar-CMOS-DMOS) with NVM (non-volatile memory) process flow to enable power management SoCs critical for enabling smart devices across multiple categories.

For more information on SkyWater’s power management process offerings, please contact:
swfoundry@skywatertechnology.com.

About Applied Novel Devices

Applied Novel Devices (AND) was founded in 2008 and is based in Austin, Texas. AND develops new semiconductor device architectures that address the next generation of applications using its novel process technologies for discrete and integrated power products. AND has developed the tools and technologies for thin-crystalline semiconductor devices and has targeted power MOSFETs and flexible electronics as early applications for this technology. In addition, AND has innovations to improve the device architecture for discrete and CMOS logic devices. AND is introducing power discrete devices to market with these technologies to be followed with products addressing RF and digital CMOS.

About SkyWater Technology

SkyWater is a solely U.S.-based and U.S.-owned, DMEA-accredited Category 1A Trusted Foundry. Through its Technology Foundry model, SkyWater provides custom design and development services, design IP, and volume manufacturing for integrated circuits and micro devices. The Company’s world-class operations and unique processing capabilities enable mixed-signal CMOS, rad-hard and ROIC solutions. SkyWater’s Innovation Engineering Services

empower development of superconducting and 3D ICs, along with carbon nanotube, photonic and MEMS devices. SkyWater serves customers in growing markets such as aerospace & defense, automotive, cloud & computing, consumer, industrial, IoT and medical. For more information, please visit: www.skywatertechnology.com/.

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