

For Immediate Release

TAIYO YUDEN and FLEXCEED Jointly Develop Commercial Wirebondless Next-Generation Packaging Solutions

TOKYO, June 6, 2018 - TAIYO YUDEN CO., LTD. ("TAIYO YUDEN") and FLEXCEED Co., Ltd. ("FLEXCEED") concluded a joint development contract in May 2017 for accelerating the commercialization of Power Overlay ("POL") technology based on patent licenses provided by GE Ventures, and have pursued technology development aiming at the realization of mass production using a joint development line constructed in FLEXCEED's Naka Plant (Naka-shi, Ibaraki Prefecture, Japan). The companies announced today that they started prototyping POL product samples in May 2018 as a result of this joint development.

Background

POL technology is a wirebondless packaging solution for next-generation power electronics, in which semiconductor ICs and electronic parts are bonded to a polyimide film substrate on which copper plating is used to form conductor traces. In comparison to conventional semiconductor modules, this technology features significant reduction of parasitic inductance and electrical resistance, which enables us design smaller, thinner products, and improve electric conversion efficiency of power modules. TAIYO YUDEN and FLEXCEED individually acquired a license for patents from GE Ventures at the end of 2014 and in February 2017, respectively, which will be applied toward the commercialization of POL technology..

TAIYO YUDEN has been introducing POL technology, making full use of its parts-embedding technology nurtured through embedded-parts multilayer wiring substrates EOMIN™, as well as thermal and circuit design and evaluation techniques for circuit modules. As a result of the above efforts, we have achieved (acquired) POL module design and process technologies, and it is convinced that POL technology can be applied to power modules for improving their characteristics., TAIYO YUDEN has prepared a joint development line with FLEXCEED aiming at mass production. In sample prototyping, TAIYO YUDEN will provide technical support and continue to sophisticate POL technology.

FLEXCEED has introduced innovative packaging technology based on this POL technology and has been working on the development of a mass production technique toward the commercialization of semiconductor parts embedded-type next-generation packaging solutions, making full use of actual results in the development and mass production of polyimide film substrate-based packages over the years. FLEXCEED has built a prototyping line for POL development at the Naka Plant in which state-of-the-art technology has been introduced, and will construct a sample prototyping framework starting in May 2018, with mass production of POL products planned for January 2020.

This joint development is expected to promote the commercialization of POL products, producing a synergy effect on POL packaging solutions that capitalizes on both companies' areas of expertise (TAIYO YUDEN's parts-embedding technology and FLEXCEED's polyimide film substrates). We will continue to develop POL products that can be used in data center power control, as well as low- to medium-breakdown voltage (up to 1,250 V) power modules for industrial equipment, new energy (solar and wind), and automotive devices.

About TAIYO YUDEN CO., LTD.

Since its founding in 1950, TAIYO YUDEN has been working on the research and development, production, and sales of various types of electronic components—from capacitors to inductors, mobile communications devices (FBARs and SAWs), circuit modules, and energy devices. We develop component materials at the start of commercialization, with end products ranging widely from automotive to industrial equipment, medical and health care, environment and energy applications.

About FLEXCEED Co., Ltd.

FLEXCEED is a pioneer in the production of polyimide film substrates such as TAB and COF (Chip On Film). As the one and only development and manufacturing company in Japan, we are aiming at becoming a leading company in the production of more advanced, flexible devices.

* “EOMIN” is a registered trademark or trademark of TAIYO YUDEN CO., LTD. used both in Japan and other countries.