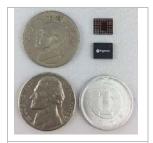


# Trigence to Launch the First Audio IC Module Based on TDK SESUB Process at the Grand Hyatt Hotel During Computex Taipei 2017

**COMPUTEX**, **Taipei**, **Tawian May 26<sup>th</sup>**, **2017–** Trigence Semiconductor, a pioneering audio IC design and solution provider, today launched the world's first Audio IC Module (ICM) based on TDK's advanced SESUB (Semiconductor Embedded SUBstrate) packaging technology at the Grand Hyatt Hotel (Taipei, Taiwan). By employing TDK's SESUB process, Trigence has been able to deliver a fully integrated, all-in-one audio output solution for incorporation into Digital Speaker Modules. The ICM significantly reduces footprint requirements for and audio output stage, allowing it to be combined directly onto the electro-mechanics of consumer micro-speakers turning the speaker into an independent digital component, or Digital Speaker. The

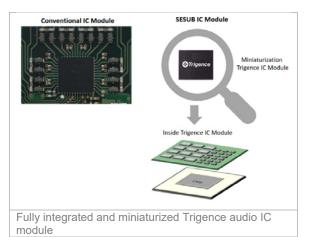


Trigence first audio IC module based on TDK SESUB process

benefits of Digital Speakers include improved audio quality, simplified system design, and reductions in active

power consumption.

Trigence's Audio ICM is a highly-integrated system. It combines volume control, 11-band audio equalizer, audio DSP, Dnote® speaker driver, EMI filter, all passive components and the latest SoundWire® interface for computer portable audio applications. The Trigence Audio ICM also embeds several unique and proprietary signal processing algorithms to enhance sound quality and loudness without the need for any hardware or acoustic design changes.



Digital Thiele-Small Parameter Correction (DTSC®)

technology offers firmware control over the Theile-Small characteristics of the loudspeaker, giving the ability to mimic changes in parameters such as diaphragm size or mass, driving force imparted by the magnet on the voice-coil, and acoustic cavity size. These changes can be used to improve acoustic quality of the speaker, earphone or headphone through real-time digital signal processing. Alternatively, DTSC can be used to match the acoustic characteristics of similar sized speakers from different manufacturing lines.

Our Digital Assist (D-Assist®) algorithm is designed to protect the speaker from damage when driven beyond its typical rated limits. D-Assist works to maintain a preset maximum internal temperature within the speaker cavity, and to prevent over-excursion of the speaker diaphragm. Unlike similar Smart-Amp algorithms, D-Assist does not employ the use of low-frequency probe-tones which degrade the power efficiency of the driving circuitry. Rather D-Assist employs a unique all-digital sensing and control methodology that maintains efficiency while still offering maximum loudness and protection from the loudspeaker in real-time.

The SESUB packaging technology from TDK utilizes ultrafine processing techniques and materials technologies. TDK's SESUB solution provides numerous advantages, such as high-density mounting, package miniaturization, better thermal dissipation, low noise emission and greater design flexibility and inter-chip connection.



"This is a significant milestone for Trigence to launch our first Audio IC Module based on TDK's SESUB process," said Pete Birch, Chief Executive Officer of Trigence Semiconductor, Inc.. "Through our partnership and cooperation with TDK, we have been able to deliver a market leading solution for the latest portable and handheld consumer devices. SESUB allowed us to create the smallest possible Audio ICM, allowing us to develop DSMs not only for desktop size systems but also micro-speaker sizes as small as the 16mm x 9mm solutions found in today's handheld products The availability of our SESUB Audio ICM has enables us to deliver the enhanced benefits of Digital Speakers and DSMs to today's consumers.

"TDK is extremely pleased with the result of our cooperation with Trigence." said Mr. Masahiko Hayashi, SESUB BU Leader of TDK. "TDK's SESUB technology has now been proven by many customers and IC vendors to deliver the best cost v size trade-off in today's high-density packaging technologies. With the growing demand for weight-reduction and miniaturization in portable devices in the future, we believe SESUB has huge potential."

## Request a Private Demonstration:

Trigence DSMs and 'Pure Digital' audio solutions, along with our IC–Dnote® DU1213, DN30x2 ICs will be on display during Computex 2017 at the Grand Hyatt Hotel (2, SongShou Road, Taipei, Taiwan) May 31<sup>st</sup> to Jun. 2<sup>nd</sup>. To request a private meeting and demonstration, please contact contact@trigence.com.

### **About Trigence**

Trigence Semiconductor, Inc. is a pioneering audio IC design and solution provider, offering revolutionary 'pure digital' audio products for the consumer and IT markets. Founded in 2006 as a spin-off from Hosei University and headquartered in Tokyo, Japan, Trigence received its first investment in 2012 from Intel Capital based on the potential for its unique Dnote® audio technology to transform the PC audio market. Other subsequent investors include INCJ (Innovation Network Corporation of Japan), NEG (Nittoku Engineering Group) and TDK Corporation. \*Dnote® is a trademark of Trigence Semiconductor in the United States and other countries.

Website: www.trigence.com

#### **About TDK**

TDK Corporation is a leading electronics company based in Tokyo, Japan. It was established in 1935 to commercialize ferrite, a key material in electronic and magnetic products. TDK's portfolio includes passive components, such as ceramic, aluminum electrolytic and film capacitors, ferrites and inductors, high-frequency products, and piezo and protection components, as well as sensors and sensor systems and power supplies. These products are marketed under the product brands TDK, EPCOS, InvenSense, Micronas, Tronics and TDK-Lambda. TDK's further main product groups include magnetic application products, energy devices, and flash memory application devices. TDK focuses on demanding markets in the areas of information and communication technology and automotive, industrial and consumer electronics. The company has a network of design and manufacturing locations and sales offices in Asia, Europe, and in North and South America. In fiscal 2017, TDK posted total sales of USD 10.5 billion and employed about 100,000 people worldwide.



\*Dnote, D-Assist and DTSC are trademarks of Trigence Semiconductor Inc. in the United States, Japan, Taiwan and other countries. All other trademarks and copyrights mentioned herein are the property of their respective owners.

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