

Enabling Acoustic Filtering Technologies for RF Modules

TDK at a glance

TDK Corporation is a leading electronics company. Our portfolio includes electronic components, modules and systems, power supplies, magnetic application products as well as energy devices, flash memory application devices, and others. TDK focuses on demanding markets in the areas of information and communication technology and consumer, automotive and industrial electronics. The company has a network of design and manufacturing locations and sales offices in Asia, Europe, North and South America.

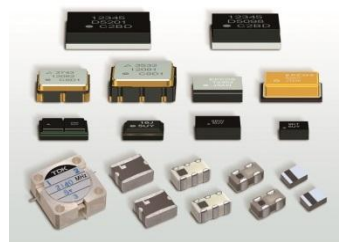
Key info (Fiscal 2015, ending March 31)		Evolution	
Business	<ul style="list-style-type: none"> • Passive components • Magnetic application products • Film application products • Others 	1935	TDK (Tokyo Denki Kagaku Kogyo = Tokyo Electric & Chemical Industries) established in Japan to manufacture and commercialize ferrites
Headquarters	Tokyo, Japan	1986	SAE Magnetics acquired
Sales	JPY 1,083 billion	2005	Amperex Technology Limited (ATL) acquired
Sites	More than 110 factories, R&D and sales offices in more than 30 countries	2005	TDK-Lambda Corporation established
		2007	Recording Media Business sold
Employees	88,000	2008	EPCOS AG acquired

We offer a broad product portfolio

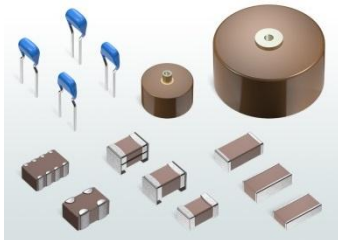
Passive Components



Inductive Devices



High-Frequency Devices



Ceramic Capacitors



Aluminum Electrolytic and Film Capacitors



Piezo and Protection Devices



Sensors

Magnetic Application Products



Magnets



Recording Devices



Power Supplies

Film Application Products



Applied Films



Energy Devices

Others



Flash Memory Applied Devices



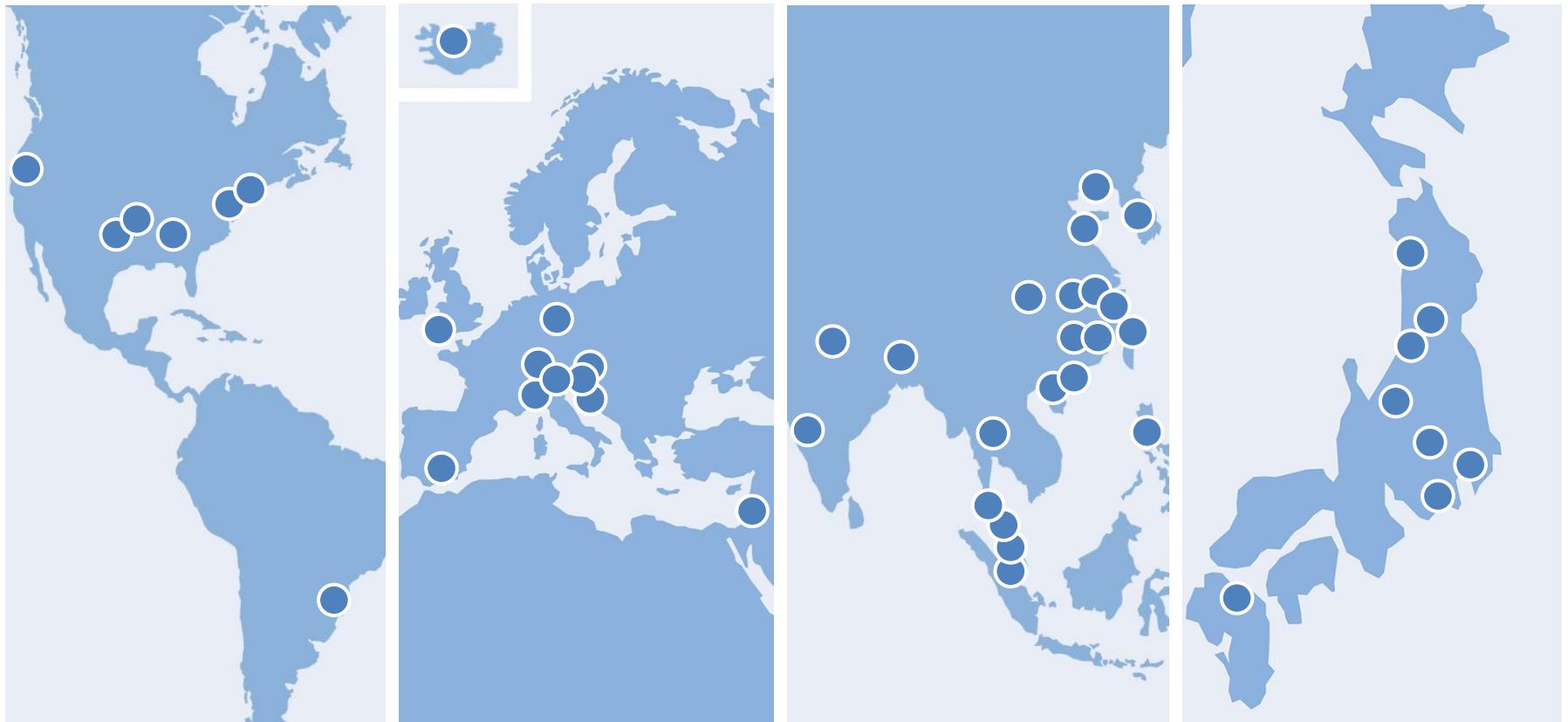
Radio Wave Anechoic Chambers



Manufacturing Equipment

Worldwide manufacturing and R&D presence – We are near to the customer

● TDK manufacturing and R&D sites



We provide advanced solutions for Information & Communication Technology

» You are experiencing TDK.



Lithium-ion polymer batteries



Base station isolators & circulators for all systems



Magnetic heads



PTC/NTC thermistors



SMD multilayer varistors without temperature derating



Surge arresters for all systems



Lens actuators for camera modules



ITO transparent conductive films



Thin-film & multilayer RF chip components



Wireless Charging solutions



Neodymium magnets for voice coil motors



Enhanced MLCCs for all systems



Power inductors for power management units



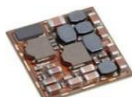
Application-specific EMI/ESD filter modules



Transformers & chokes for network infrastructure



Multilayer varistors & CeraDiodes® for all systems



Power management modules using SESUB embedding



SAW & BAW filters & duplexers for cellular & connectivity systems



Pressure sensors for mobile & wearable devices



Cellular RF modules & connectivity SiP & RF modules



High Q RF inductors

Systems, Acoustics, Waves Business Group at a glance

Key data

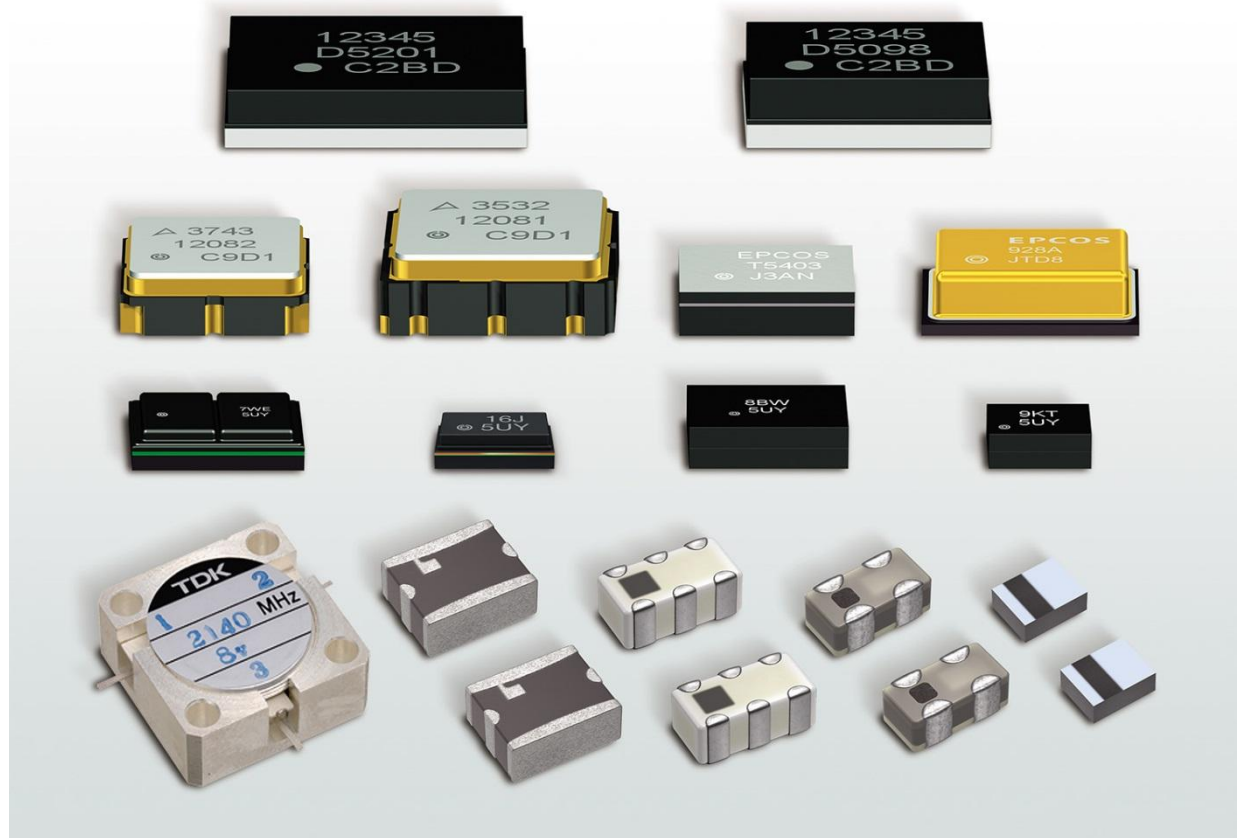
Headquarters	Munich, Germany
Number of plants	7
Employees total	5500
Management	<p>Christian Block CEO & CTO</p> <p>Otto Graf COO & Deputy General Manager</p> <p>Kohei Wada Deputy General Manager</p> <p>Stefan Eichhorn CFO</p>

Portfolio

- SAW and BAW filter products for
 - Mobile communication devices
 - Telecommunication infrastructure
 - Automotive electronics
 - Industrial electronics
 - Multimedia products
- Modules for cellular and connectivity
- Power management modules
- Multilayer HF components
- Isolators and circulators

Comprehensive product portfolio

- SAW and BAW filter products for
 - Mobile communication devices
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 - Multimedia applications
- Modules for cellular and connectivity
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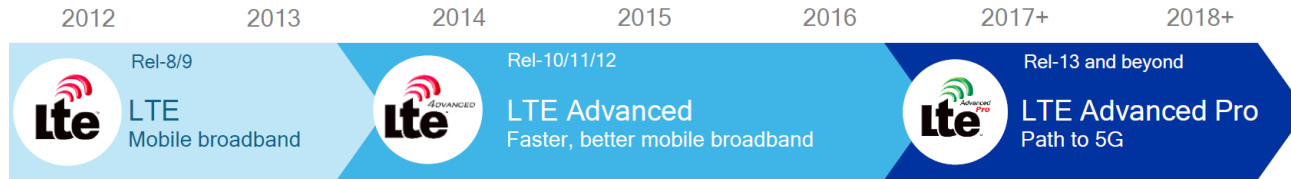
SAW CEL Global Presence

- HQ (Management, QM, BA, Marketing, R&D)
- Component Design
- Module Design
- Manufacturing
- DSSP Foundry



Design
Japan: Components for AE (non CEL)

How to support data traffic increase



Achieving Gigabit Class LTE

- Carrier Aggregation (CA)
- FDD/TDD CA
- LTE-U / LAA
- 256-QAM
- Advanced MIMO

Providing enhanced HetNets

- Interference management
- Best use of all spectrum
- Dual connectivity
- Coordinated multipoint
- SON+

Bringing new ways to connect

- LTE Broadcast
- LTE Direct (D2D)

- Continuous increase of number of bands
- Carrier aggregation
- MIMO

