

Q&A

1. How does VARTA see the current TWS earphone market?

The current TWS and also the whole consumer electronics market is highly dynamic and still holds great potential. The devices will become even smaller and more powerful. As a technology leader, VARTA supplies this market with microbattery products. For example, we supply all well-known high-quality TWS manufacturers with our rechargeable lithium-ion cells. The VARTA CoinPower technology has made the current generation of TWS possible.

2. Which battery patents owns VARTA in the TWS earphone area?

VARTA holds various patents relating to the design and construction of the coin cells and the various production processes. This begins with the composition of the cell chemistry, continues through the many different preliminary stages of production or the semi-finished parts and continues to the finished coin cells. VARTA also holds patents for the subsequent assembly or equipping of the coin cells with special arresters, which guarantee increased safety for the end customer.

An example would be one of our patents for the coating of the electrode strips. Only a production of the highest quality, for example in terms of accuracy, uniformity, or dimensions, guarantees the optimum utilization of the stored energy with the highest level of safety and reliability for the end customer. An overview of our patents in this area can also be viewed [here](#).

3. What are the advantages of VARTA's battery patents?

VARTA was the first manufacturer to develop and market lithium coin cells of the new generation with a significantly higher packing density and volume utilization but still very high safety and reliability. Never before has it been possible to store such large capacities in the existing volume. This is exactly what is reflected in our patents. To achieve all the previously mentioned advantages, many development steps and innovations as well as considerable investments in human and material resources were necessary. We have therefore registered all of this in the many patents that now exist to protect our development, our work and our know-how.

4. Why are battery patents important to TWS earphone brands?

There is a lot going on in a dynamic market such as it is in the TWS earphone market. Many manufacturers try to position themselves with their products. Patents help to secure technologies, quality and thus, the future success of a company.

5. How does VARTA see the current coin cell patent disputes in the market?

We have been made aware of reports in China concerning IP issues involving products of our customers. The claim is that the battery used in the devices, a VARTA battery, infringes intellectual property in the form of utility models from another manufacturer. However, this is not true. Three infringement charges were the consequence. Two of the three lawsuits are already canceled and we're very confident that the third infringement

charge will also ultimately be cancelled. We also heard that there are 2 new similar cases. We are confident that the issue will once more be cleared in our customer's interest because also in these cases, the reports are not true.

6. What is VARTA's stance in terms of IP protection?

We're battery experts for more than 130 years and it is our job to protect our intellectual property. VARTA has always protected all innovations, technologies, and products. A range of patented technologies ensures VARTA has an edge in leading the industry. All battery and/or cell manufacturers are obliged to align their production processes in such a way that no VARTA patents are infringed during manufacture. VARTA reserves the right to take legal action against any IP infringement against the manufacturers and distributors – and we have taken legal actions and solve cases against companies regarding our patents.

VARTA holds over 460 patents and utility models worldwide for its diverse products. Over a quarter of these IP rights are realised in the products and approx. a further quarter can be taken over into series production at any time. In addition, VARTA currently has approx. 160 patents and utility models in the current application process.

7. Which advantages can deliver better performing and better-quality coin cells to TWS earphones?

For TWS headsets, the run and charging time as well as the power of a battery is crucial. High quality coin cells as the VARTA CoinPower show excellent figures in these areas, and we're still improving our CoinPower technology. With better performing batteries, the manufacturers will have the possibility to develop even better devices.

8. Currently, the major batteries for TWS earphones are coin cells and soft packaging ones. How does VARTA see the two types of products?

VARTA CoinPower cells have a robust stainless-steel housing to achieve the maximum of safety for end-users by prevent the leakage of chemicals.

On top of that, it protects the inside of the cell e.g., the electrodes against external influences during the whole production and handling process. This ensures that our CoinPower cells deliver the best performance with the highest safety standards even under challenging conditions.

On the contrary, soft pouch cells have much higher risk of damages as they have no protecting housing. This can cause performance loss, failures or in the worst case even injuries of the end-user.

9. What makes VARTA the leader of coin cell battery technology?

In the field of rechargeable lithium-ion coin cells we are the market leader. VARTA offers a broad portfolio of coin cells which empower a variety of devices of the consumer electronics market such as high-quality TWS.

With the introduction of the CoinPower cells, VARTA has proven that we are able to develop and mass-produce lithium-ion cells. With our new plant in Nördlingen we have the capacity to produce up to 400m cells a year.

What sets us apart at VARTA is that we have a high level of vertical integration. We build many critical machines and systems ourselves with our in-house machine and tool construction. We have the entire process of battery production in our own hands and thus achieve the highest levels of precision and quality. This enables product innovations and speed. We have excellent process technologists and process know-how. We know exactly where processes can be optimized. And we know how to implement the optimization quickly. Our processes are unique and no "off the shelf" machines can do that. Today, for example, in CoinPower production, around half of the 50 necessary production steps are carried out in just one machine. The advantages are obvious: We can produce very large quantities in a very short time.

10. What are your thoughts on the future development of TWS earphones?

We expect that the global TWS market will continue to grow as we see a dynamic market with a high rate of innovations. New features e.g. for health monitoring will be included. We see the development of an audio device becoming a multifunctional device. The continuous development of our CoinPower cells enables OEMs to design earbuds with an increased number of features and extended cycle times.