

**TECH OFFER**

## 3D Coil Winding Technology for Electronic Devices



### KEY INFORMATION

TECHNOLOGY CATEGORY:  
**Electronics - Interconnects**

TECHNOLOGY READINESS LEVEL (TRL): **TRL8**

COUNTRY: **SINGAPORE**

ID NUMBER: **TO174871**

### OVERVIEW

Three-dimensional (3D) coil winding technology is a significant development in the field of coil manufacturing, enabling the creation of smaller, more efficient, and more complex coil structures. The need for 3D coil winding arises from the increasing demand for compact, high-performance electronic devices in various applications such as medical devices, automotive, aerospace, and communication equipment. These devices require coils that can fit into tighter spaces and operate at higher frequencies. Additionally, there is a growing need for coils with more complex shapes and designs to improve their performance and reduce manufacturing costs.

This technology offer is a 3D coil winding method to produce complex coil structures. The method allows for precise control of the winding process, which enables the creation of coils with a wide range of shapes, sizes, and configurations. The technology can also incorporate multiple wires, producing multi-layered and multi-phase coils within the same structure.

The technology owner is keen to do R&D collaboration and license the 3D coil winding technology to application developers

from various industries.

## TECHNOLOGY FEATURES & SPECIFICATIONS

This technology offer consists of a coil winding method that has the following features:

- **Stable magnetic field distribution:** The coil winding produced by this technology provides a stable magnetic field distribution, ensuring optimal performance of the electronic device.
- **Space-saving:** This technology allows for the production of smaller and more compact coils, which is critical in modern electronic devices where space is at a premium.
- **Customization:** 3D winding technology allows for the production of coils with a wide range of shapes, sizes, and configurations, making them ideal for various applications.
- **Greater Flexibility:** The ability to produce complex coil structures with 3D winding technology opens up new possibilities for the design of electronic devices, leading to new innovations and advances in technology.

## POTENTIAL APPLICATIONS

This technology offer can be customised for various applications, such as:

- **Medical Devices:** 3D coil winding technology can be used to manufacture coils for medical devices such as MRI machines and pacemakers, where performance and compact design are critical.
- **Automotive:** Coils produced using 3D winding technology can be used in various automotive applications such as sensors, actuators, and motors.
- **Aerospace:** 3D coil winding technology can be used in aerospace applications such as satellite systems, radar, and avionics.
- **Communication Equipment:** The technology can be used to manufacture coils for communication equipment such as antennas, receivers, and transmitters.
- **Industrial Automation:** Coils produced using 3D winding technology can be used in industrial automation applications such as robotics, servo motors, and machine tools.
- **Power delivery:** 3D coil winding technology can be used in high-power delivery, such as wireless charging for higher power density, improved thermal management, efficient and reliable designs.

## UNIQUE VALUE PROPOSITION

The unique value proposition of 3D coil winding technology is its ability to produce compact and efficient coils with complex shapes, sizes, and configurations, leading to improved performance, space-saving, and cost-effectiveness.

This technology offer is a more advanced and precise method of coil winding, resulting in stable magnetic field distribution, thinner overall coil structure, and the ability to combine multiple structures into the same plane. These features make it an attractive option for a wide range of applications, including medical devices, automotive, aerospace, communication equipment, industrial automation, and renewable energy systems.

The technology owner is keen to do R&D collaboration and licensing the 3D coil winding technology to application developers from various industries.