



MekTEC[®]
Flexible Printed Circuits



FLEX INNOVATION



MEKTEC: THE FLEX SPECIALIST

For over 30 years, the Mektec group has provided the most advanced technology and highest level of integration in the industry.

More than 30,000 employees worldwide produce flexible printed-circuit boards (FPC) for connecting electronics and mechanics. The main areas of applications are consumer electronics, industrial, automotive and medical.

To offer the best service to its customers, Mektec has 17 manufacturing facilities in Asia and Europe as well as a global sales organisation.



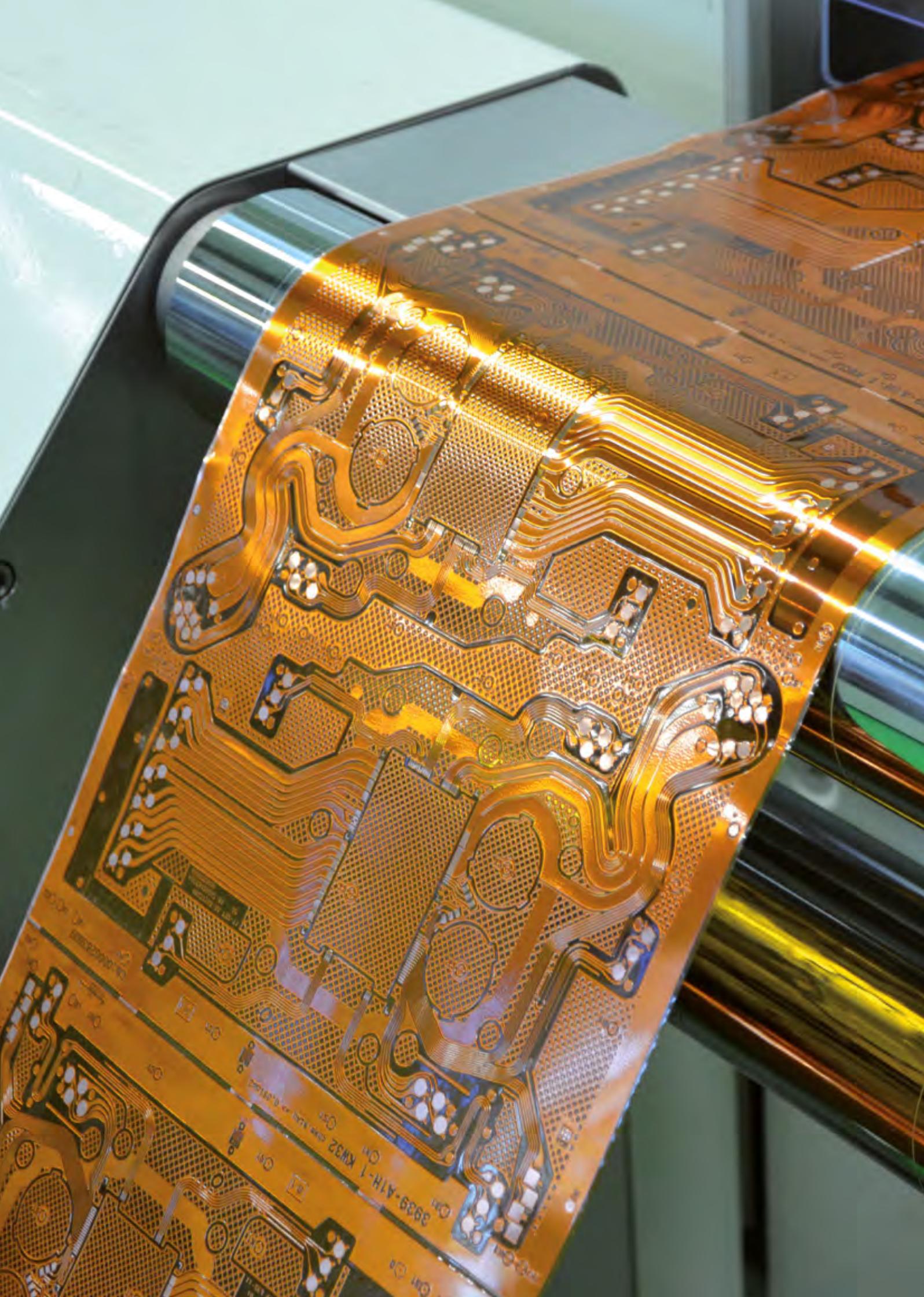
QUALITY AND COST EFFICIENCY FROM THE MARKET LEADER

As a high-tech company Mekttec covers the entire value chain, from the production of materials to complex modules. With this strategy, Mekttec has established itself as the market leader, not only in terms of sales figures, but also in terms of quality, cost and technology. Besides the automotive sector, Mekttec offers flexible circuits for the telecommunication, automotive, power electronics, industry and medical markets.

FROM ULTRA-FINE LINE CIRCUITS TO MULTILAYER CIRCUITS

Mekttec works with customers on creating the features of the future, for instance power modules or flexible circuit applications with advanced sensors.

The company offers all the necessary technologies, from single, double-sided and multilayered circuits to ultra-fine line circuits.



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GM

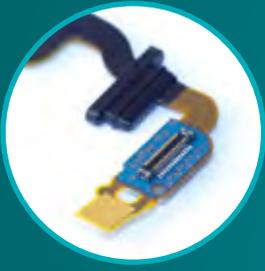
GM



FLEX: MINIMUM SPACE FOR MAXIMUM TECH

Industry demands are challenging – flexible circuits must withstand wide temperature fluctuations, severe vibrations and oscillations while remaining highly reliable, everything ensured at the best cost level. Flex circuits by Mektec offer the following advantages:

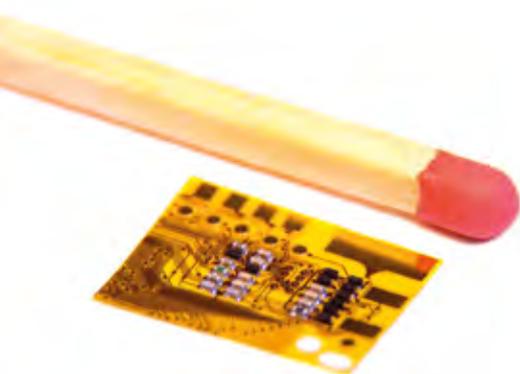
- **Maximum Flexibility:**
Folds and adapts to small spaces, including 3D installations.
- **Maximum Resiliency:**
More than 100 million bending cycles without loss of signal.
- **Maximum Reliability:**
For more than five years the error and response rate has been single digit ppm (with more than 10 million parts in large-scale production).
- **Maximum Reduction of Mechanical Stress:**
Due to their structure, flex circuits balance tolerances and compensate for oscillations and vibrations.
- **Maximum Resistance to Chemical Agents:**
Even under severe temperature fluctuations and high continuous temperatures.

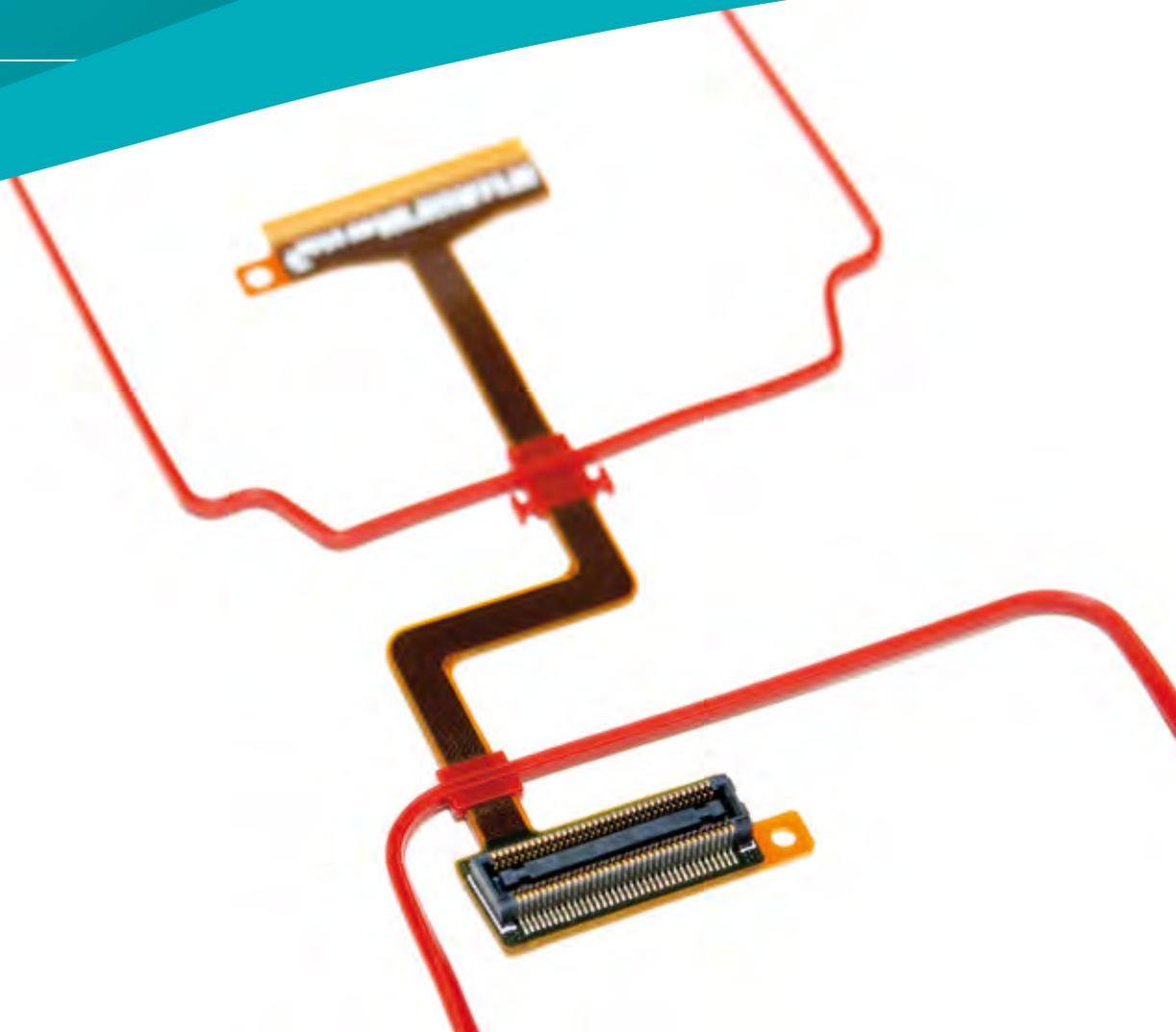
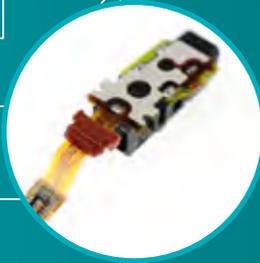
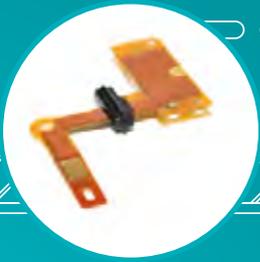


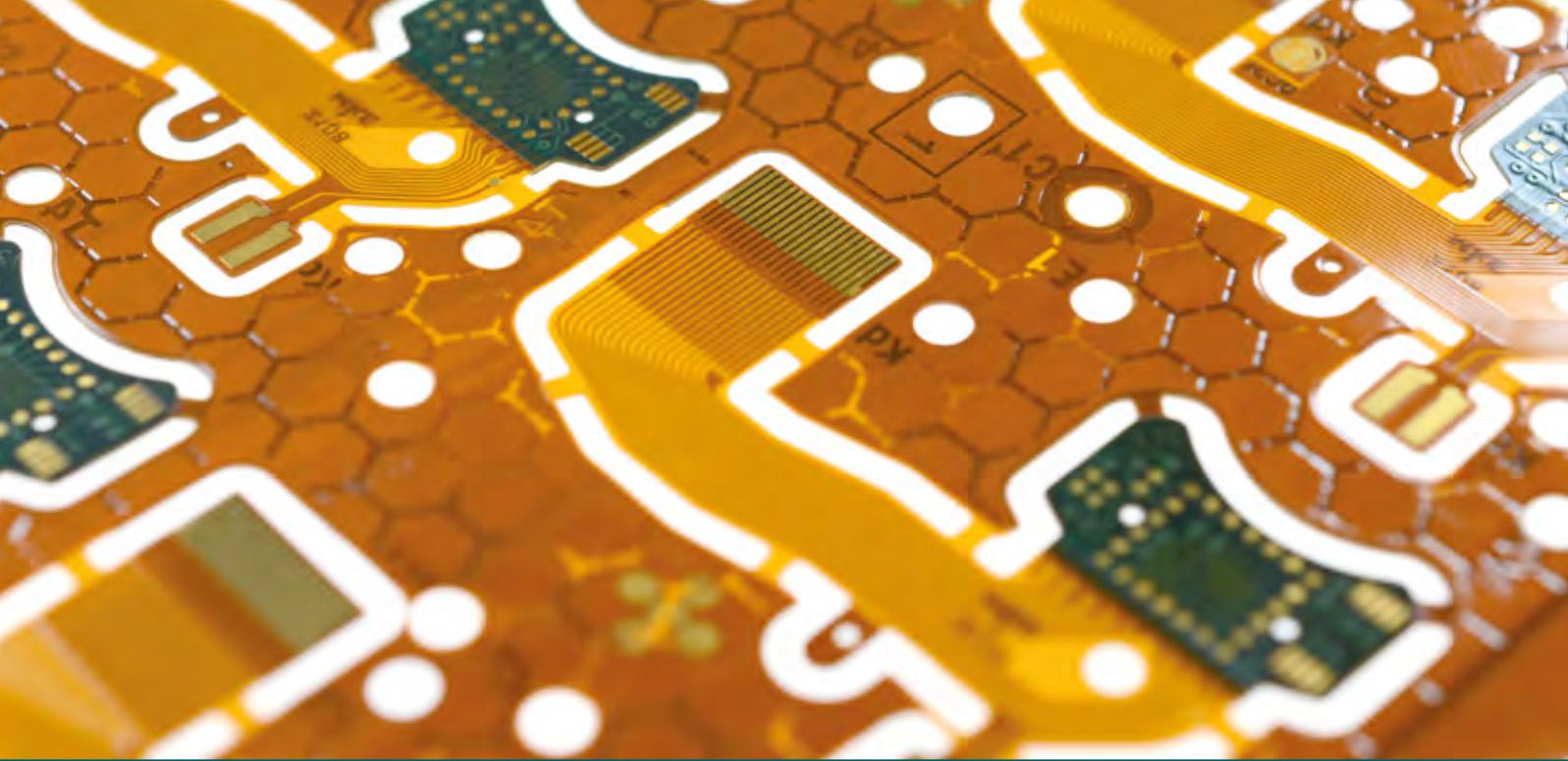
FPC MODULES FROM A SINGLE SOURCE: MINIMAL RISK, MAXIMUM BENEFITS

FPC modules are the basis of many new developments, including seals, plastic elements and integrated electronic components. Any form of connection and mounting technique with and on flexible circuit boards is possible, from chip carrier for CSP (Chip Scale Package) to LCD driver chips in CoF (Chip on Flex) to flexible μ -substrates for MCM (Multi Chip-Module). Mektec provides everything from a single source, minimizing interfaces to components of other manufacturers and the resultant risks such as connection errors.

To meet the demand for higher functional integration, Mektec has introduced flexible circuit boards with sealing functions. This patented solution enables the sealing of electrical connections. The technology was first used in diesel injection pumps, and is used today in high-volume production of mobile phones. The precision plastic parts and seals are developed and manufactured by Mektec Precision Components in Asia.





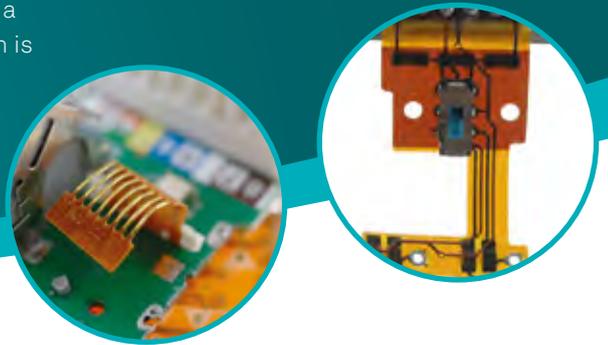


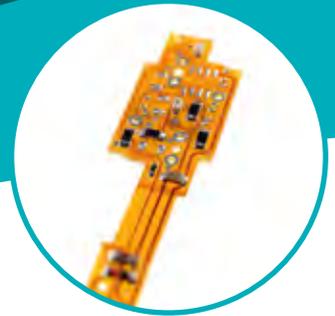
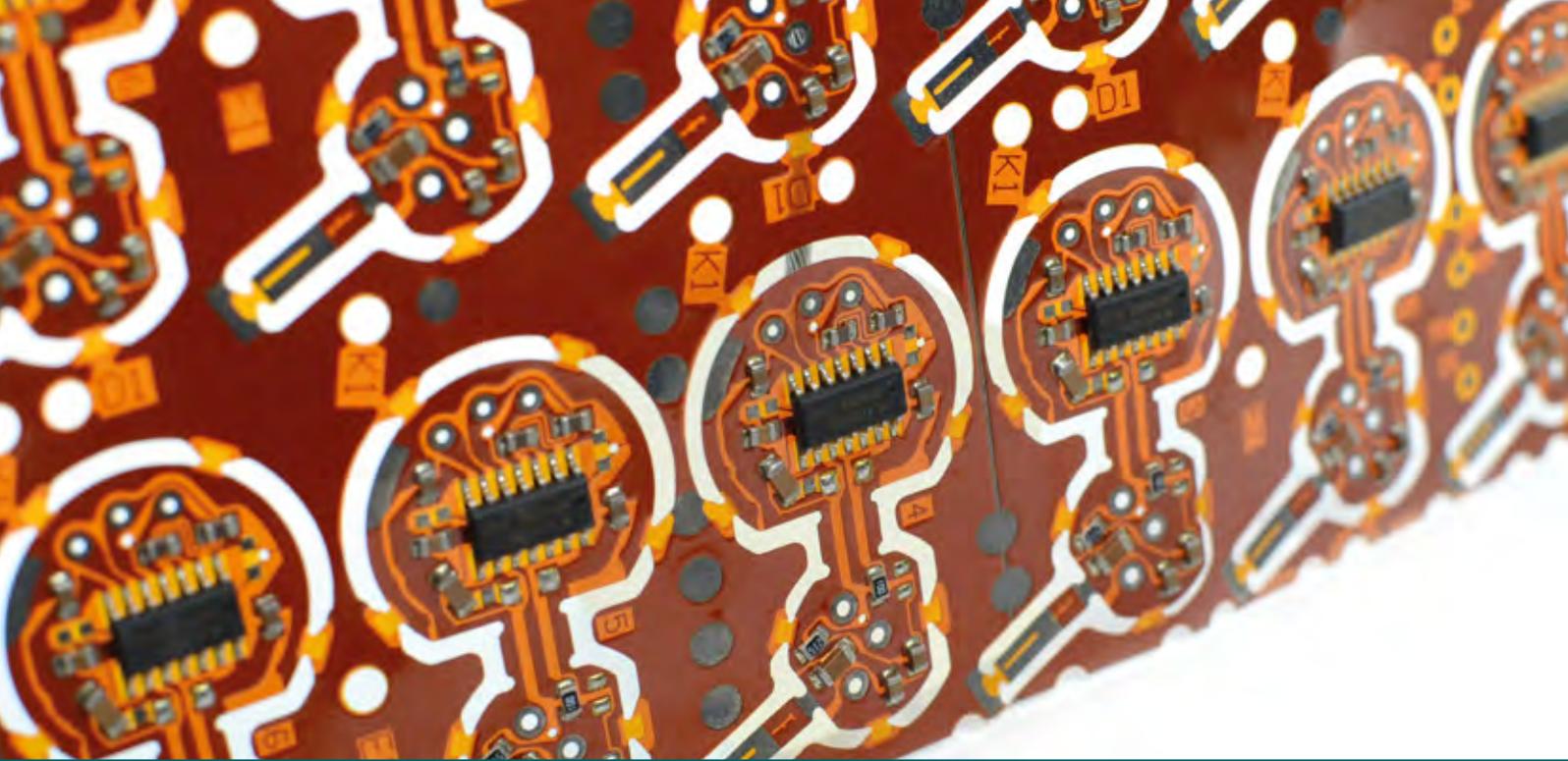
INDUSTRY GENERAL

The latest innovations in industry are strongly supported with the usage of FPCs. New sensor modules are smaller, lighter, have simplified mounting requirements and provide the necessary pressure, temperature and capacitive features.

Usage of FPC's can give a benefit to length measurement systems. More compact and cost-efficient products are possible with modules built to measure parameters such as position, angle and speed in machines for drilling, polishing and milling.

FPCs are also used in electrical products where currents do not get over 10 A. A good example for such an application is an FPC wiring solution inside a relay. Moreover, in case LED components are needed, heat dissipation is facilitated with metal stiffeners.

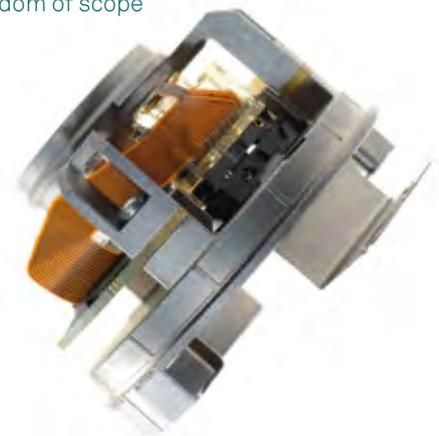


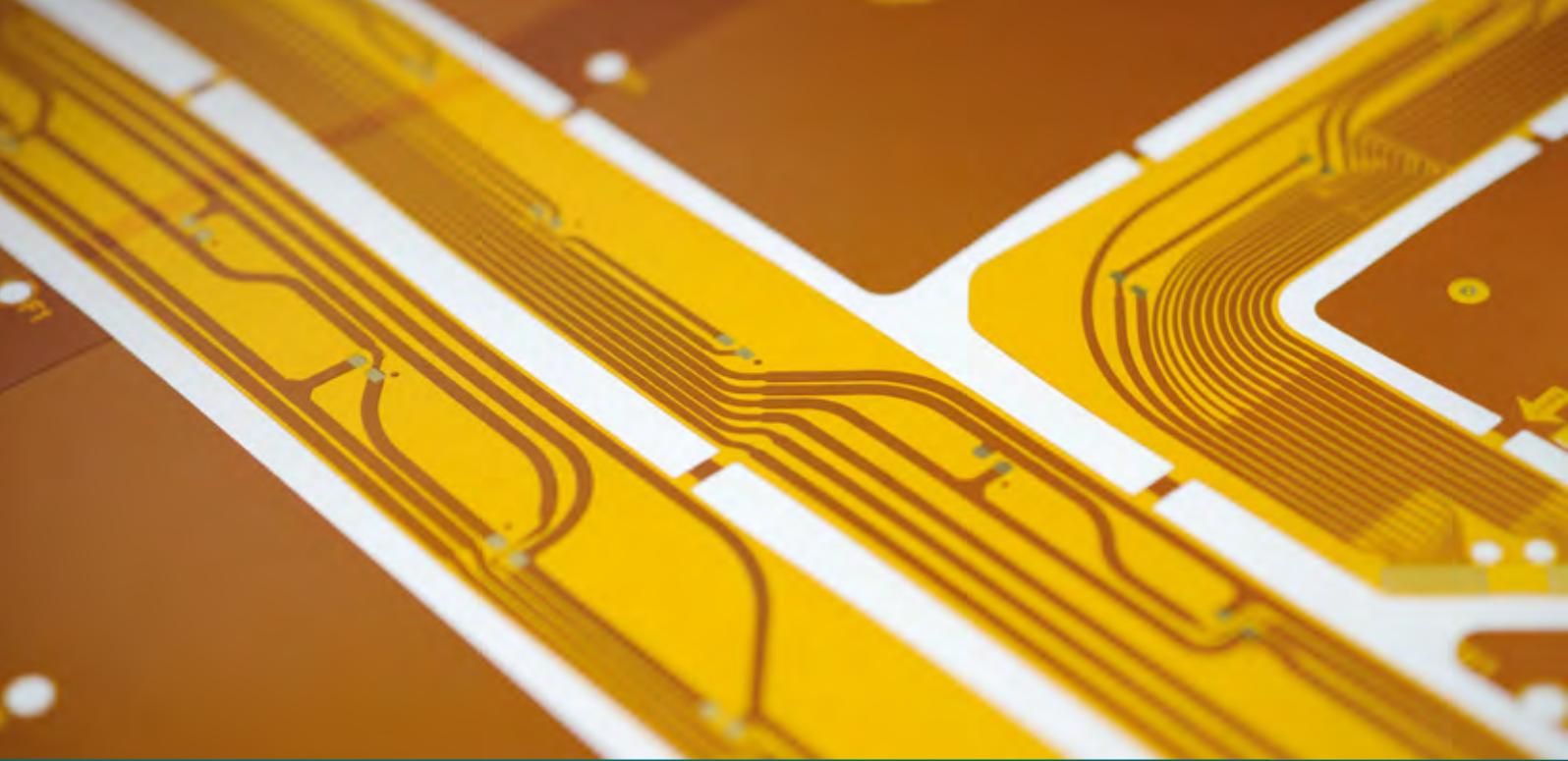


+ MEKTEC:
HIGHLIGHT INDUSTRY

Growing requirements for miniaturization in electronic components lead to a higher packing density and to more compact dimensions. Flexible printed circuits allow complex and individual special conductor path layout. This results in following major advantages for industrial engineering:

- minimization of weight and volume
- dynamically and mechanically loadable
- reduced assembly costs
- wiring as an intelligence carrier
- shielding against electromagnetic interference integrable
- 3-dimensional freedom of scope





MEDICAL GENERAL

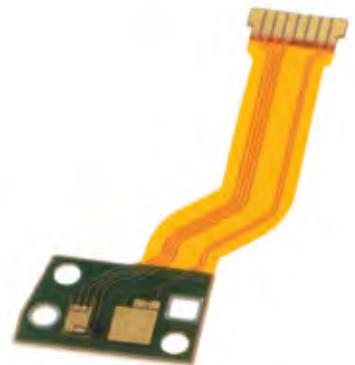
FPCs contribute to trusted medical products that are used worldwide to improve patient health and facilitate therapy solutions. FPCs enable medical products to be safer, smaller, lighter, more durable and cost-efficient and also to realize higher quality and new functions. These advantages have already been implemented in hospital products, such as pumps for anaesthesia, non-invasive respirators, CT scans and surgery navigation. Patients at home are also benefiting from FPCs in blood glucose meters, inhalators and novel wearables providing health and fitness monitoring functions.

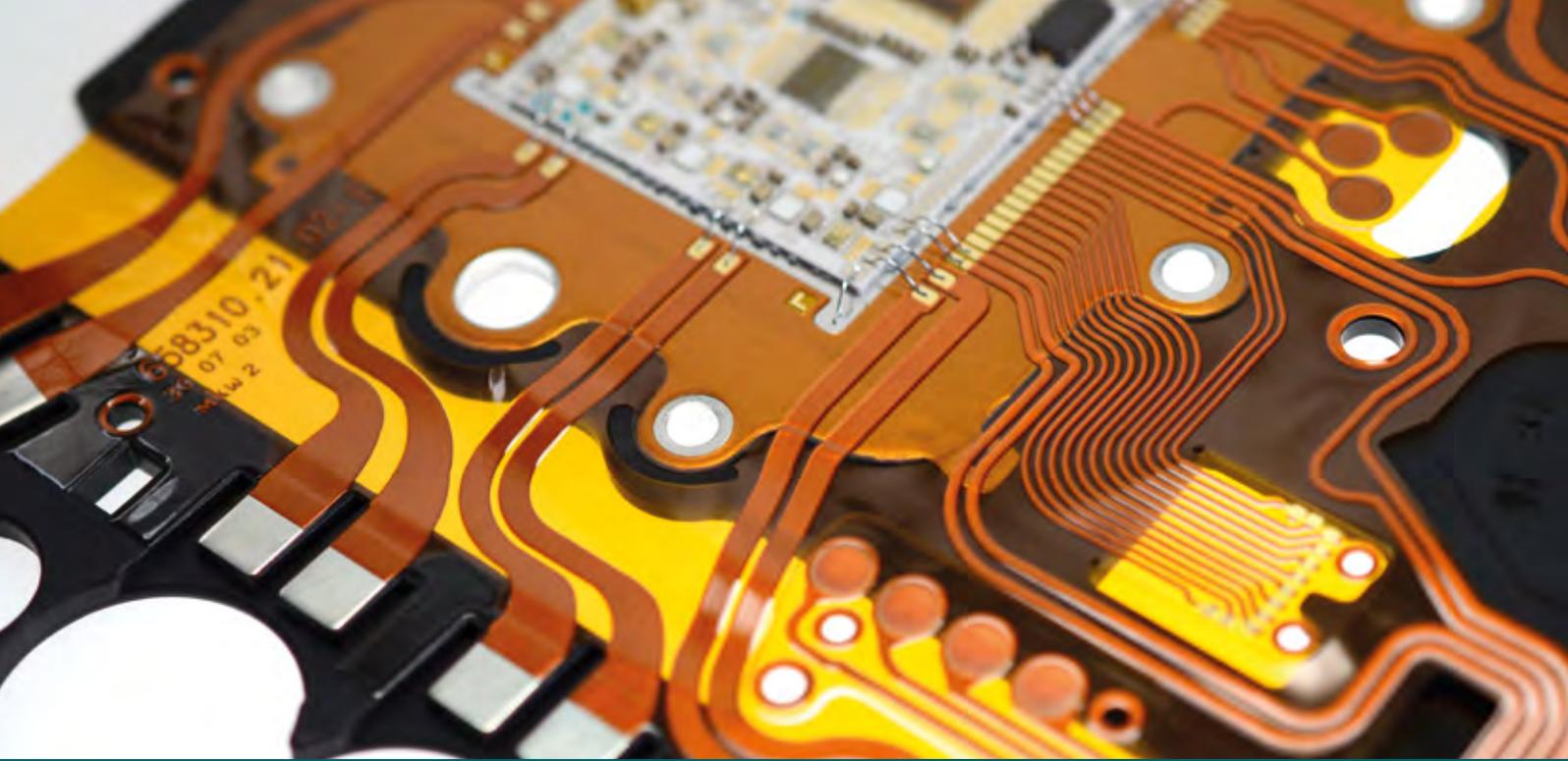




+ MEKTEC:
HIGHLIGHT MEDICAL

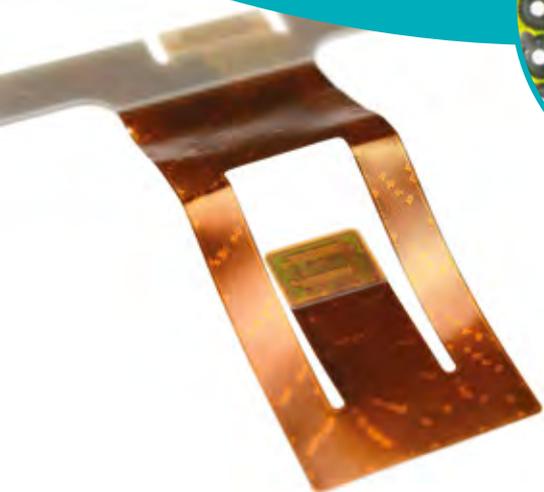
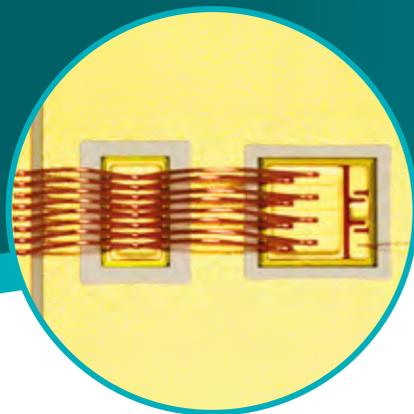
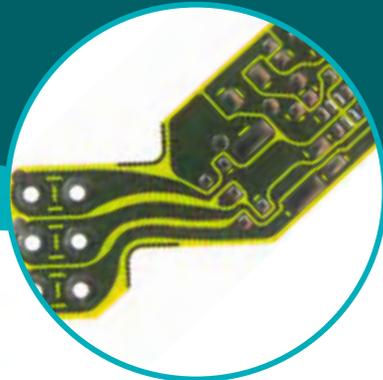
Society is aging increasingly; patients are becoming older and at the same time they wish to keep an active lifestyle. Decentralisation and cost requirements in the health market are more challenging year by year. More and more patients are being monitored remotely with telemedical devices and smartphones with healthcare apps. FPCs are already being used in such portable applications because they reduce volume and weight.

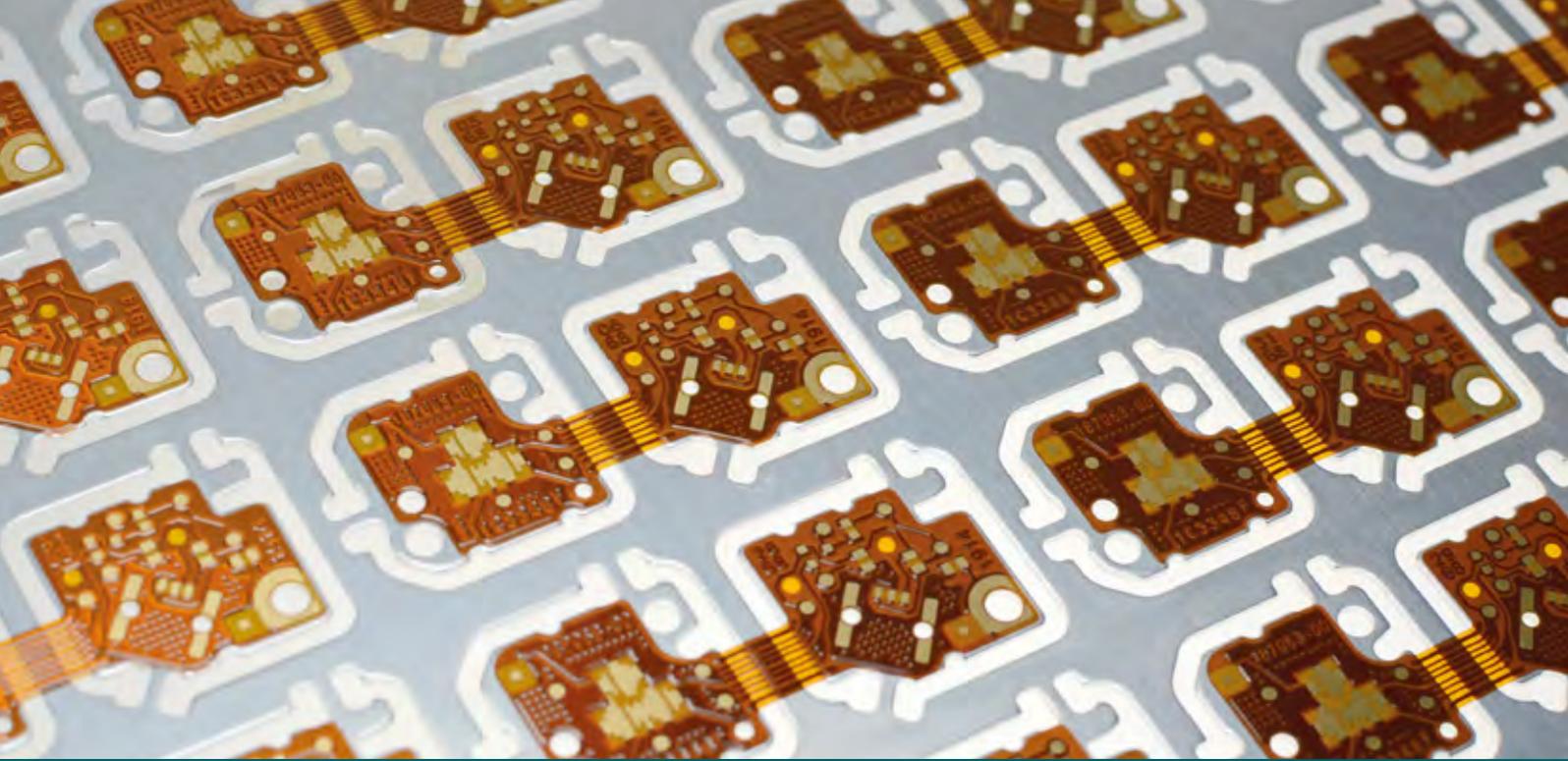




POWER GENERAL

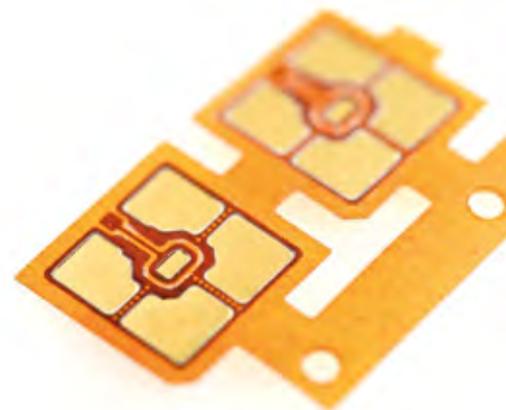
In the field of power electronics, Mektec aims at improving transport, energy, e-cars, medical and power management applications with power modules. Mektec is supporting a wide range of solutions targeting at thermal management, safer wiring, integration of sensor functions and reduction in weight and packaging space. The connection solutions made with FPCs simplify assembly and reduce wiring errors. In power modules, the integration of new functions with sensor and control elements is also enabled with FPCs.

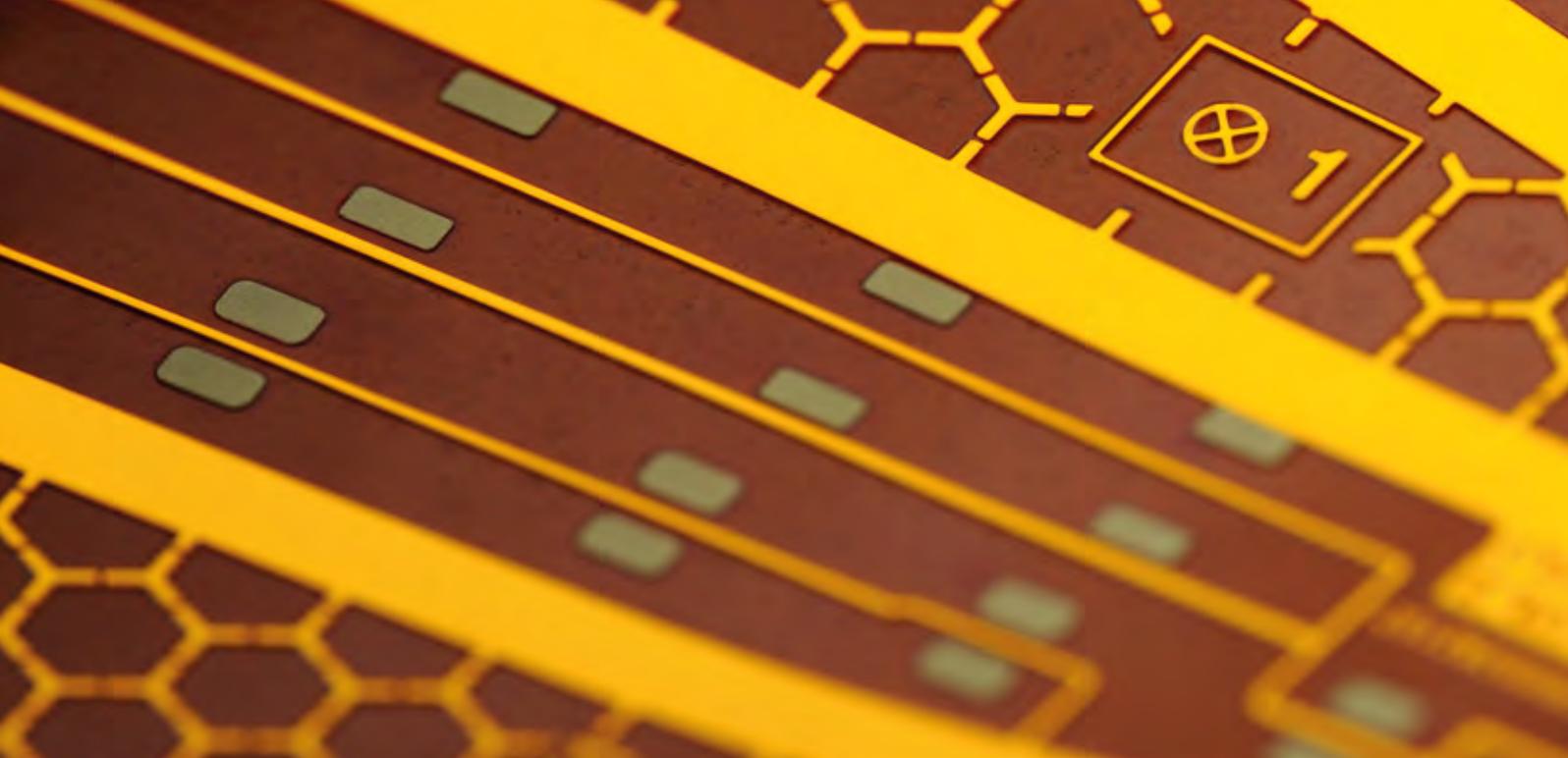




+ MEKTEC:
HIGHLIGHT POWER

Flex technology can be used in a transistor module, for instance in an Insulated-Gate-Bipolar-Transistor (IGBT), to set up a safer wiring and combine sensor functions in order to support remote control. When thermal management is an important feature, then metal stiffeners may be added for heat dissipation inside the module. A flex inside a power module helps to reduce connection failures and risks. It also has a more efficient space usage and enables to integrate more power and signal functions by using the third dimension in the housing.





SERVICES

The Mektec Group specializes in the manufacture of flexible printed-circuit boards, including assembly and precision plastic parts. It assists customers in the development of the latest features and applications. Technologically ahead of the state of the art, the company provides solutions for cost optimization in design and production.

Mektec is capable of processing following file formats:

- DXF
- Gerber, Extended Gerber
- STEP, IDF





EXAMPLES FOR THE MULTIPLE
USAGE OF OUR
FLEXIBLE PRINTED CIRCUITS

MekTEC®

Flexible Printed Circuits

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