Connecting your product

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Whilst most of the effort in microelectronics, or MEMS, often goes into the development of highly intelligent silicon based devices, some of the biggest challenges arise when these IC's are ready to be integrated into devices. Particularly during prototyping of devices the challenges include placing a die in an environment compatible with the intended application or testing, and making electrical connections to the die and to the instrumentation that it must communicate with.

MiniFAB offers a range of electronic packaging services to allow connection between a carrier substrate and your sensor, MEMS device or Integrated Circuit. Starting with the carrier itself we can advice, design and source suitable platforms to interface to your components. Over the last few years we have been routinely placing 200μm square dies onto flex circuits with 5μm positional accuracy using die attach equipment. Not bad for semi-manual process.

The bond can then be made using an epoxy or solder. Electrical connections are made between the die and the carrier by wire bonding, where wires (gold or aluminium) as small as 18μm in diameter are used to create wedge or ball type connections. As few as 1 wire per die may be needed or, like some of the more challenging projects we are undertaking at minute, several hundred bonds per device. And if the number of bonds itself isn't challenging enough, these connects are made onto pads no larger than 100μm x 100μm.

The composition of the metal bonding pads on both the device and carrier is crucial to wire bonding success and contacting us for advice as early in the development process as possible is recommended. Once a device has its electrical connections to the outside world the final part of the packaging solution is to ensure that the relevant components are either protected from or exposed to the necessary environmental factors.

The dies and wire bonds can be partly or fully encapsulated, and the whole device can be housed in a package compatible with applications such as microwave, optical, vacuum, structural monitoring, medical, and other sensing devices. We are also able to offer a suite of supporting processes including stenciled epoxy attachment, epoxy encapsulation, bond pull testing and QA metrology. Protection of components by parylene coating is also available on-site.

We specialise in prototypes, small production runs and one-off manufacturing of devices with unusual or challenging design constraints. With MiniFAB as your service provider you gain access to highly trained staff with a strong, international background in the electronics-packaging field.

For More Information

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