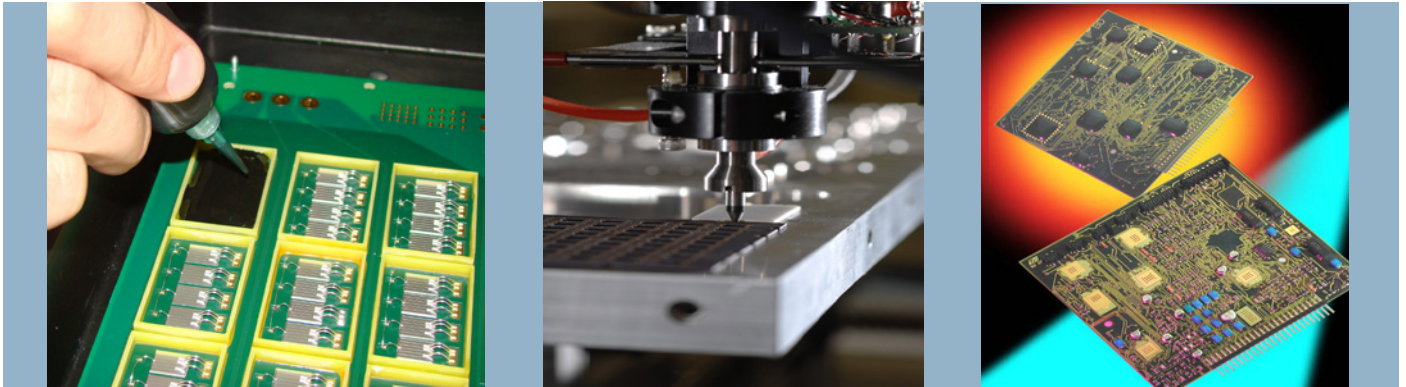


Chip on Board (COB)

High Density Electronics & Microelectronics



Key Features

- Suited to wire bonded bare semiconductor die with aluminium or gold bond wires
- Suited to many die attach techniques
- Silicone or epoxy localised glob top protection
- Conformal coatings - spray, dip or brush
- Large board area assemblies
- High packing density
- Enhanced thermal characteristics
- Reduced signal path length for improved performance
- Mix and match with conventionally packaged components
- Applicable to many substrate technologies
- Extensive data on technologies to +125°C with extension to +150°C

API Technologies designs, develops and manufactures electronic assemblies for Defence, Oil & Gas, Space and Hi-Rel harsh environment applications. COB high-density solutions allow additional functionality to be introduced within the footprint constraints of existing off-the-shelf packaged components.

WHAT IS CHIP ON BOARD?

COB is a high-density electronic assembly technology that integrates bare semiconductor chips directly onto printed circuit boards. It is a technology solution that provides high packing density with enhanced thermal and electrical performance.

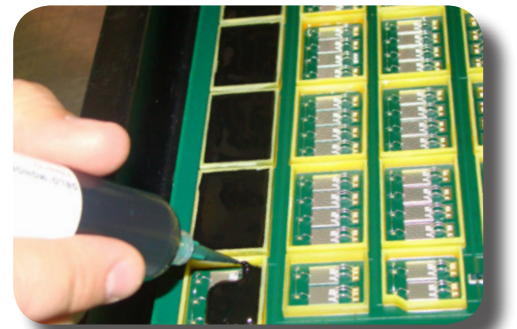
Substrate materials include FR4, flexible PCBs and thick film on ceramic supporting surface mount packaged components intermixed with wire bonded bare semiconductor die. Localised die protection is provided by a silicone or epoxy glob top and an overall conformal coating provides robust environmental protection.

Encapsulation can take the form of a single shot dispense of epoxy (glob top) or a dam and fill technique incorporating different viscosity materials or an epoxy constraining ring frame. Silicone encapsulant is usually flooded over a wider area of board and constrained by the outer package or by a ring frame. Silicone with its characteristics and greater compliance provides a higher degree of moisture protection and has a greater ability to survive under rapid temperature changes.

ENGINEERING DEVELOPMENT

Design and services include material analysis, circuit and mechanical simulation and comprehensive electrical and environmental testing

- Electrical and mechanical design and development
- Mechanical design and analysis
- Electrical simulation - Analogue, digital and 3D electromagnetic
- Thermal analysis - verified with thermal imaging camera
- Failure Mode Effects Analysis (FMEA)
- Reliability analysis and prediction
- Technology selection and optimisation

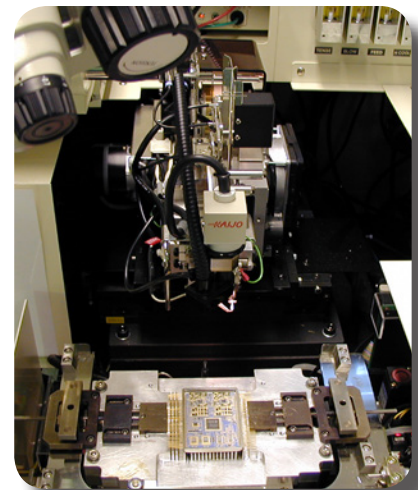


TEST HOUSE QUALIFICATION

Mechanical/Environmental Stress Testing

- Life test 1000+ hours at elevated temperatures
- Temperature cycling 100+ cycles between temperature extremes
- Thermal shock 500+ cycles, between temperature extremes
- Mechanical shock
- Vibration
- Constant Acceleration

Full details of these capabilities can be found on our website.



Whilst every effort is made to ensure the accuracy of the information contained in this document is correct, no responsibility can be accepted for any errors and/or omissions.

Descriptions and specifications of products are subject to change without notice. January 2015