

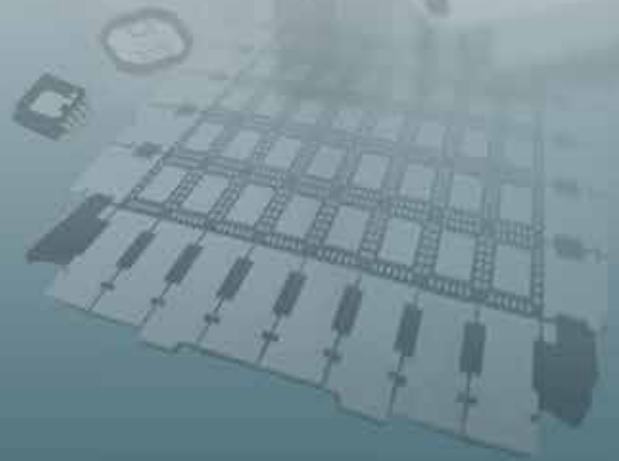
# Quik-Pak™

Microelectronic Packaging & Assembly Solutions

## Faster Time to Market for IC Designs

*Custom Process Development that Takes your Design from Prototype to Volume Production*

- A broad range of package types including Open-molded Plastic Packages (OmPP®) and Open Cavity Plastic Packages (OCP)
- Custom molded QFN's available in high volume
- Die/Wire bonding, encapsulation, and marking/branding
- Assembly services for flip chip, ceramic packages, chip-on-board, stacked die, and MEMS
- Wafer preparation services - dicing, backgrinding, and sorting
- Full turnkey packaging and assembly



# Packages

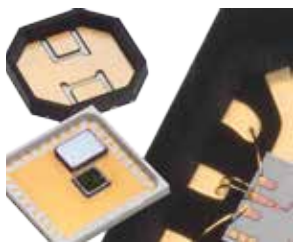
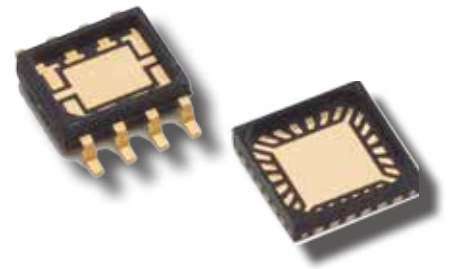
*Quik-Pak partners with you in creating a package solution that rapidly gets your design to market...*

Quik-Pak provides IC packaging solutions to meet the complex needs of the semiconductor, RF/wireless, solar, MEMS, and medical industries. We offer hundreds of packaging options including plastic open cavity, overmolded, leadframe, ceramic, and custom packages.

## ► Open-molded Plastic QFN/SOIC Packages (OmPP):

Our exclusive Open-molded Plastic Packages are pre-molded air cavity packages.

- Body sizes ranging from 3x3mm to 12x12mm
- Lead pitch sizes range from 0.80mm to 0.40mm
- Gold plated for superior bondability
- JEDEC standard outlines
- Matching ceramic, plastic, quartz, and glass lids with epoxy seals available
- Available in high volumes and off-the-shelf stock for rapid delivery
- RoHS and REACH compliant “green” molding compound



## ► Custom Air Cavity Packages:

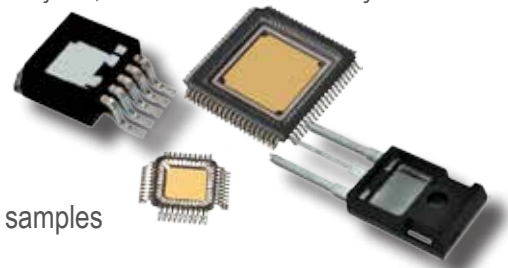
The Quik-Pak engineering team can create a custom package to meet the specific needs of your application.

- Custom body size/shape
- Custom lead count
- Custom materials
- Made to order lids

## ► Open Cavity Plastic Packages (OCP):

Our proprietary Open Cavity Plastic Packages are the ideal platform for new IC prototypes. We can convert any existing plastic package, whether dummy, electrical test reject, or excess inventory into an open cavity package ready to be assembled with your new device.

- IC prototypes in any plastic package
- Mechanically and electronically identical to production parts
- Turn-around in 24 hours or less
- Ideal for rapid prototype assembly, design verification, and customer samples
- No minimum orders



## ► High Volume Plastic Overmolded Packages:

Quik-Pak offers packaging and assembly for higher volume applications.

- Overmolded metal leadframe arrays
- Saw singulated chip scale packages including QFN and DFN
- Wire bonded devices
- Flip chip devices



# Assembly Services

*Easily ramp from prototype design validation to full production at Quik-Pak's US based facility...*

Offering quick-turn assembly services including wafer preparation, die bonding, wire bonding, encapsulation, and flattening/remolding.

## ► High Volume Precision Die Attach:

Fully automated die attach and die placement services for prototype and volume assembly.

- Accuracy within  $\pm 10\mu\text{m}$
- Die bond or flip chip attach



## ► Wire Bond Capabilities:

Our advanced equipment enables us to control wire bond lengths with a high degree of precision, which means consistent electrical performance for your device.

- Gold wire bonding with 0.6 to 3.0 mils diameters
- Gold, aluminum, or copper wire capability
- Heavy aluminum wire bond 5 - 20 mils



## ► Encapsulation:

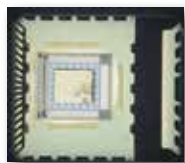
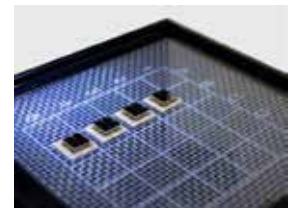
We offer several options for encapsulation of your devices, providing the level of protection and/or accessibility that you need.

- Flattened/remolded
- Open cavity with frame or lid
- Custom molded
- Clear encapsulant
- Partial open cavity
- Glob top

## ► Flip Chip Assembly:

The unique requirements for flip chip assembly are addressed by Quik-Pak's flexible process and advanced equipment.

- Thermosonic, thermo-compression, and solder reflow bonding
- Expert with low temperature solders
- Devices can be attached to within  $\pm 5\mu\text{m}$  placement accuracy
- Assembly for  $\mu\text{BGA}$ , standard flip chip, and VCSEL/photodiode/sensor bonding



## ► Custom Assembly:

When your assembly is a complex mix of packaging technologies and your quantities don't catch the attention of the other OSAT's, we can provide you with a solution.

- Stacked die
- System in Package (SiP), Multi-chip Module (MCM)
- Packages with embedded thermal sensors
- Chip on Board (COB), Chip on Flex (COF)
- Micro-Electro Mechanical Systems (MEMS)
- Laminate array

# Wafer Preparation Services

## Minimize yield loss with precision wafer processing...

Quik-Pak's newly expanded ISO Class 7 wafer preparation facility can accommodate everything from small production runs to volume wafer handling. The company's fully automated equipment provides high throughput and maximum yield to get your device to market faster.

### ► Wafer Dicing:

High precision, quick-turn dicing services for a variety of substrates are available. Our experienced operators and advanced equipment enable us to provide superior service on a variety of projects.



- Silicon, Silicon Carbide (SiC), Gallium Nitride (GaN)
- Ceramic, laminates, glass, quartz, and sapphire
- Wafers up to 12" (300mm)
- Multi-project wafers (MPW), reticles, partial wafers, and bumped wafers

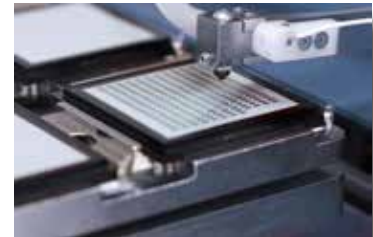
### ► Wafer Backgrinding:

To meet the requirements of the latest ultra-thin packages, Quik-Pak can grind wafers down to as thin as 50µm. The company's wafer backgrinding process reduces surface roughness, improves die strength, and reduces wafer warpage – which means higher yields for customers.

- Backgrinding down to 50µm
- Singulated die thinning
- Bumped wafer backgrinding
- Laser marking

### ► Pick and Place:

Quik-Pak's automated pick and place equipment can select specific die and place into the media of your choice.



- High mix die sorting for multi-project wafers
- Die sorting into Gel-Pak<sup>®</sup>, waffle pack, or on tape

## Quik-Pak provides full turnkey packaging and assembly services for prototype and production volume applications:

- Broad range of package types
- Custom molded packages
- Advanced assembly services
- Wafer preparation services

A Division of

**DELPHON**

ITAR and ISO 9001:2008 CERTIFIED

**Quik-Pak**<sup>™</sup>

Microelectronic Packaging & Assembly Solutions

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