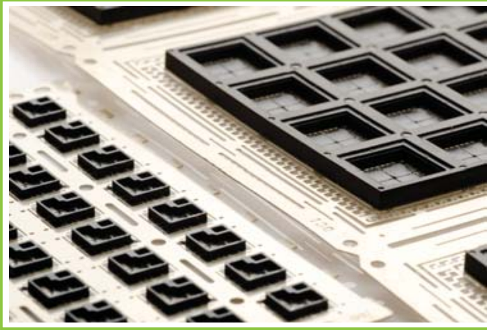
MOLDED LEAD FRAMES

Low cost solutions for MEMS packages

As MEMS packaging becomes more sophisticated with the advancing semiconductor technology, customers can rely on Unisteel in providing MEMS packaging solutions to meet these complex requirements.

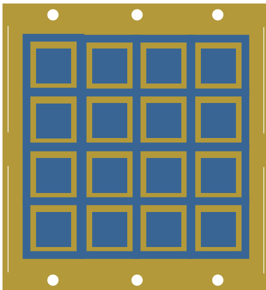
Unisteel is capable of offering custom lead frame molding using specially formulated liquid crystal polymer (LCP) and other thermoplastic materials. Utilizing only substrate-based etched lead frames that have been plated with nickel-palladium-gold (NiPdAu) technology, we are able to mold a variety of thermoplastics onto lead frames to form customized cavity substrates for electronic packaging. Our pre-molded packages include QFN, PDIP, SOIC and SSOP.

Pre-Molded QFN (Quad Flat No-Leads)

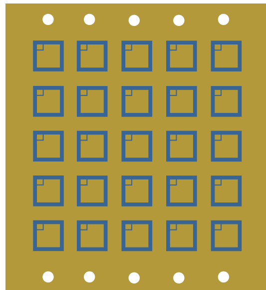


Features & Benefits

- Available in molded array packaging (MAP) and punch singulated (PS) configurations
- Protects against moisture and other contaminants for near-hermetic applications
- 65% to 85% reduction in footprint compared to SOIC packages
- Superior thermal performance due to exposed lead frame
- Thin and lightweight
- Economical



Molded Array Package (MAP)



Punch Singulated (PS)

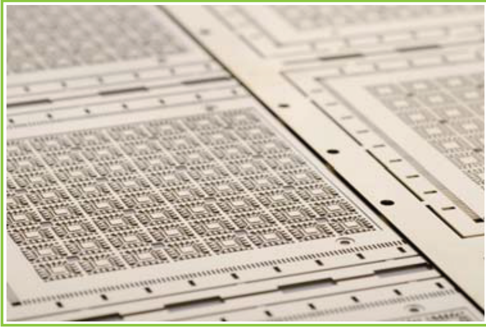
Design Guidelines

- Minimum QFN molded lead frame height: 0.20mm
- Dam wall thickness: 0.5mm (depends on sawing blade thickness)
- Maximum lead frame length: 250mm
- Maximum length of internal lead: 1.5mm
- Minimum width between the internal lead: 0.2mm

Applications

- MEMS device packages for smartphones and automotives
- CMOS image sensor packages
- Encoders
- Other consumer device packages

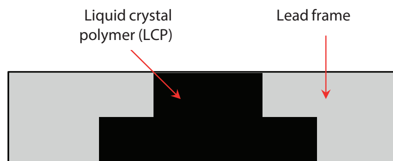
Pre-Molded No-Wall QFN (Quad Flat No-Leads)



Features and Benefits

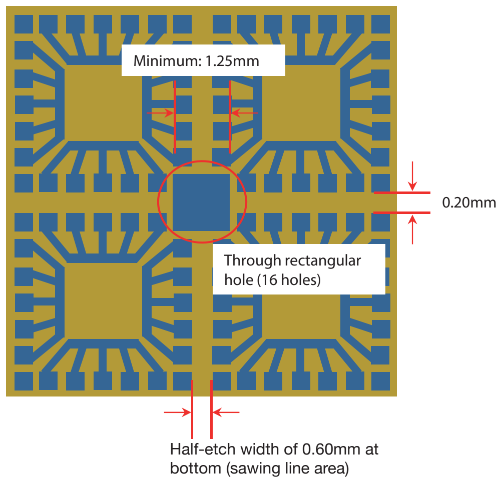
- Pre-molded lead frame with no side wall, using the injection molding method
- Small form factor with its thickness identical to the original lead frame
- High-density die stacking solutions
- Excellent dimensional stability using high-performance LCP materials
- Mechanical robustness based on half-etched lead-frame design
- Cost effective solution to die-level packaging

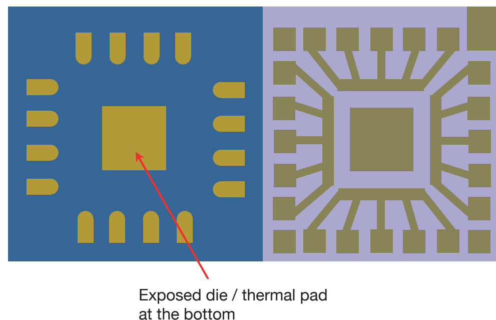
Cross Sectional View of a No-Wall QFN



Typical Example of a No-Wall QFN Design

- Based on a 4 x 4 No-wall QFN (16L)
- Lead frame thickness at 0.25mm (10 mils)





PRECISION PLASTIC & OPTICAL COMPONENTS

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