



# Fine Pitch Cu Pillar with Bond on Lead (BOL) Assembly Challenges for Low Cost and High Performance Flip Chip Package

N I a , a a a , \*K O K  
V I  
\* I K a .  
a . a a a .

## Abstract

( ) a a  
w f a a w- f a a .  
H / (I/O) a f  
a a a f a a  
a w a - - a ( O )  
, w f a f a  
a a . a a  
a a a f w ( ) a a a  
f a a a a a . a  
a ( ) -  
a a a a a a a  
f a a a . O a ,  
a

| package<br>type | body size<br>(mm) | die size<br>(mm) | Si node | bump<br>pitch<br>(um) | # traces<br>between<br>the<br>bumps | bump |
|-----------------|-------------------|------------------|---------|-----------------------|-------------------------------------|------|
|-----------------|-------------------|------------------|---------|-----------------------|-------------------------------------|------|

a , a , , wa f f  
a . 3 w a a f w  
f a a a f a a . a  
a a a f w f a a a ,  
f a a f .

a l a f DO

( I ) -  
a a , / a a ( U ), a  
a a w a a a f  
a a f a a w f a  
a a f I/O w w  
a a a. l w f  
a a a w O a a  
f a . O a a a  
a w a a  
a - ff f f f w f a a  
f f ( U ) a .

2 w w/ a ( f ), a  
w w/ a ( )

l a , a  
a w/ O a

### Assembly Process

a a a  
f a U f w a  
f f a ff a U  
f a . a f a a K  
a . I a a w a a  
(55 a w 30 a ) wa w a  
a f a a a . H a a a  
a a a ; K a (w  
) a a . f a K  
a a wa w a a a  
a a U . 2  
w w w w a a w  
a a .  
a a a a a  
f f / a a . a , a w  
a a a 30 a w f  
f ( ) wa w a a a a  
a w .

a a , f a a ,  
f a , f , a a a a ,



“U” a wa a f ,  
a a . I a a f wa  
f f a a . a f “I” a  
f f .  
a a a a w  
a f wa a  
a w 6 w. a  
a w a f a f a  
a a ( I ) wa DO . a a  
wa f w I a a a  
a . w f f f f  
( O ) f a a w a a  
a a a a a a .  
I a a a a w  
a a a a a a w  
w w a a a , -  
 , w a a ,  
a f a wa  
a a a  
a w  
w a 4.

fa a w  
a a a

$\frac{1}{2} \frac{1}{2} \frac{1}{2}$ , f w  
 $\frac{1}{2} \frac{1}{2} \frac{1}{2}$  a a  
a a  $\frac{1}{2} \frac{1}{2} \frac{1}{2}$ ,  $\frac{1}{2} \frac{1}{2} \frac{1}{2}$  a  
a f a  $\frac{1}{2} \frac{1}{2} \frac{1}{2}$  a .

## Acknowledgments

a  $\frac{1}{2} \frac{1}{2} \frac{1}{2}$  w a &D a f  $\frac{1}{2} \frac{1}{2} \frac{1}{2}$   
 $\frac{1}{2} \frac{1}{2} \frac{1}{2}$  K  $\frac{1}{2} \frac{1}{2} \frac{1}{2}$  a f  $\frac{1}{2} \frac{1}{2} \frac{1}{2}$  a  
a  $\frac{1}{2} \frac{1}{2} \frac{1}{2}$  wa  $\frac{1}{2} \frac{1}{2} \frac{1}{2}$   $\frac{1}{2} \frac{1}{2} \frac{1}{2}$  a a a  $\frac{1}{2} \frac{1}{2} \frac{1}{2}$   
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