TECH DRIVEN
Electronic Manufacturing Services

Die Bond Pad size and pitch Wire Diameter

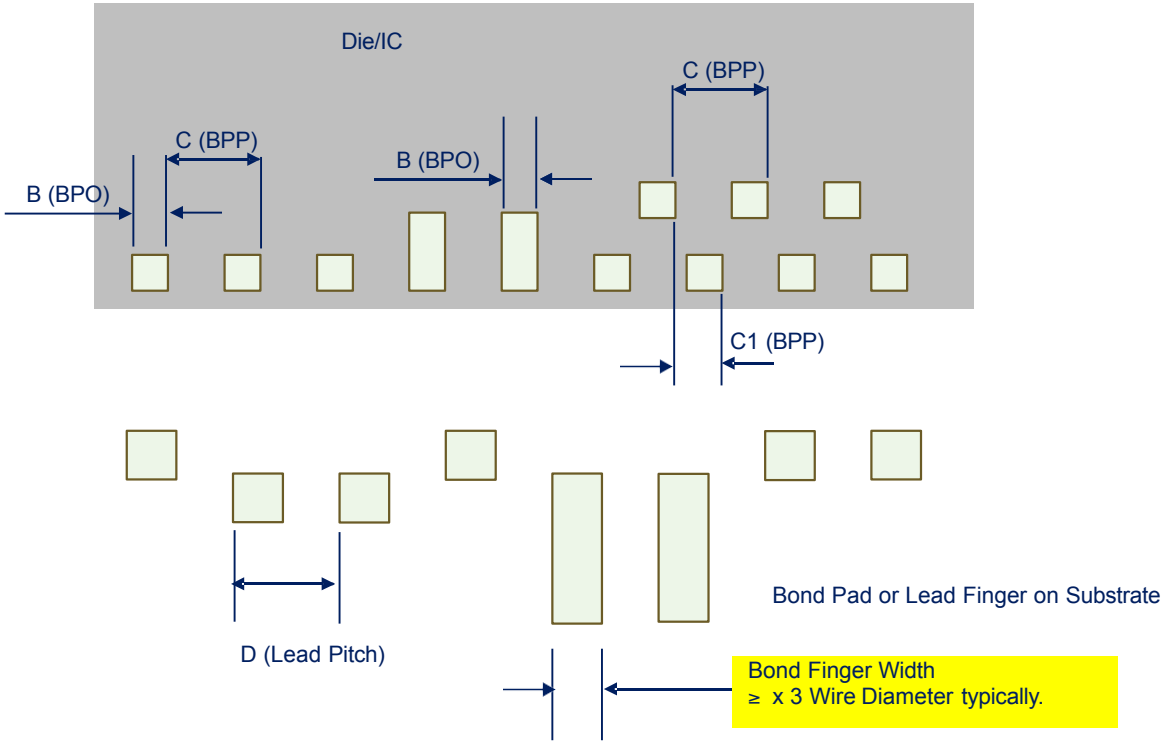
Promex
Microelectronics Assembly Technologies

1. Typically, the Bond Pad Opening (BPO) has to be ^{3}x2 the wire Diameter to place a ball bond without encroaching onto the die passivation and causing passivation cracking.
   On elongated pads, use the shorter dimension as the reference.
2. Larger diameter wire may have larger loop lengths.
3. Larger diameter wire also requires larger PCB bond pads/fingers.
4. Typical wire diameters used at Promes are 0.7, 0.8 and 1 mil.

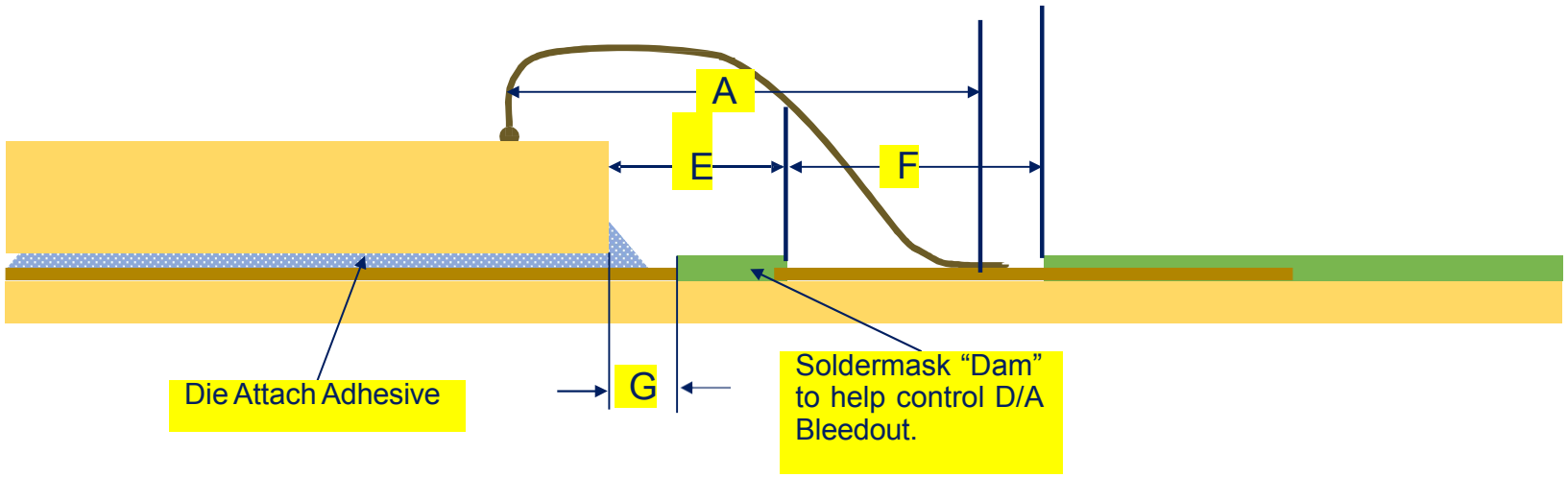
Table 1

Wire Diameter (in mils)	A - Wire length (mm)	B - Die Bond Pad Opening (um)	C - Die Pad Pitch (um)	C1 - Die Pad Staggered Pitch (um)	D - Substrate Min. Lead Pitch (um)
0.6	> 0.2 < 3.2	>30	35	18 /35	>75
0.7	> 0.2 < 3.7	>35	>40	20 /40	>75
0.8	> 0.2 < 5.0	>40	>50	25 /50	>75
1	> 0.2 < 6.5	>50	>60	30 /60	>80
1.2	> 0.5 < 6.8	>65	>80	40 /80	>100
1.5	> 0.5 < 6.8	>75	>100	60 / 120	>120
2	> 0.5 < 6.8	>100	>120	70 / 140	>150

Die Bond Pad size and pitch Wire Diameter



Die to Bond Finger Clearances.



Key	Feature	Value, µm
A	Wire Length, Normal Forward Bonding	See Table 1
E	Edge of Die to Bond Pad/Finger, (Die Attach Paste)	500 Typ, 350 Min

F	Solder Mask opening, Single wire	250 Typ.
G	Die to Soldermask	250 Min.

Table 2

PCB Bond Finger

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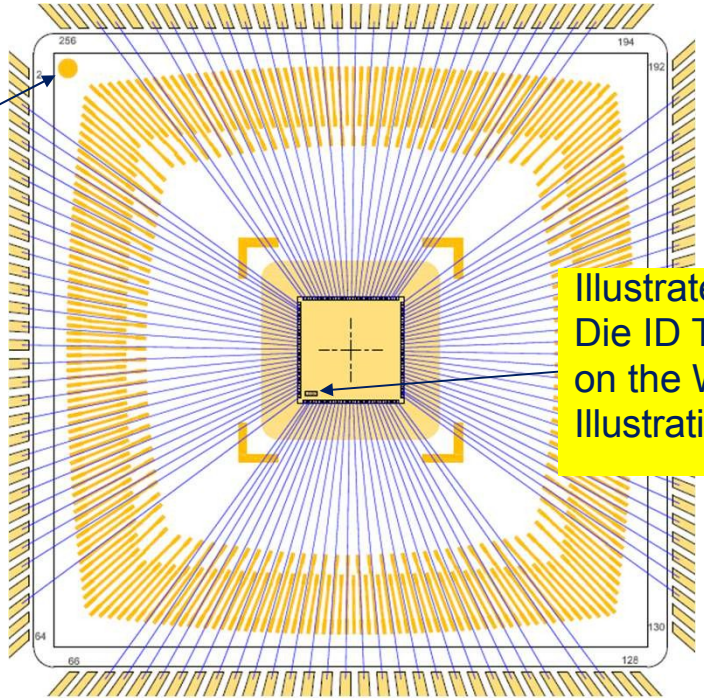
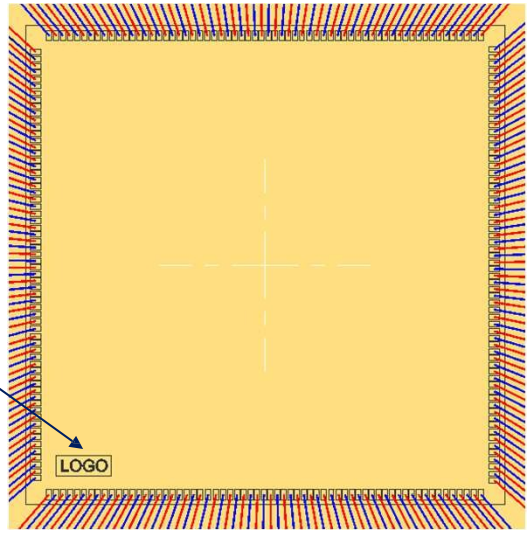
Where possible try “fan out” the wires as illustrated below.

Illustrate a “Pin 1” location on the W/B Diagram



Illustrate a Logo or Die ID Text Location on the Wire Bonding Illustration.



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PCB Alignment

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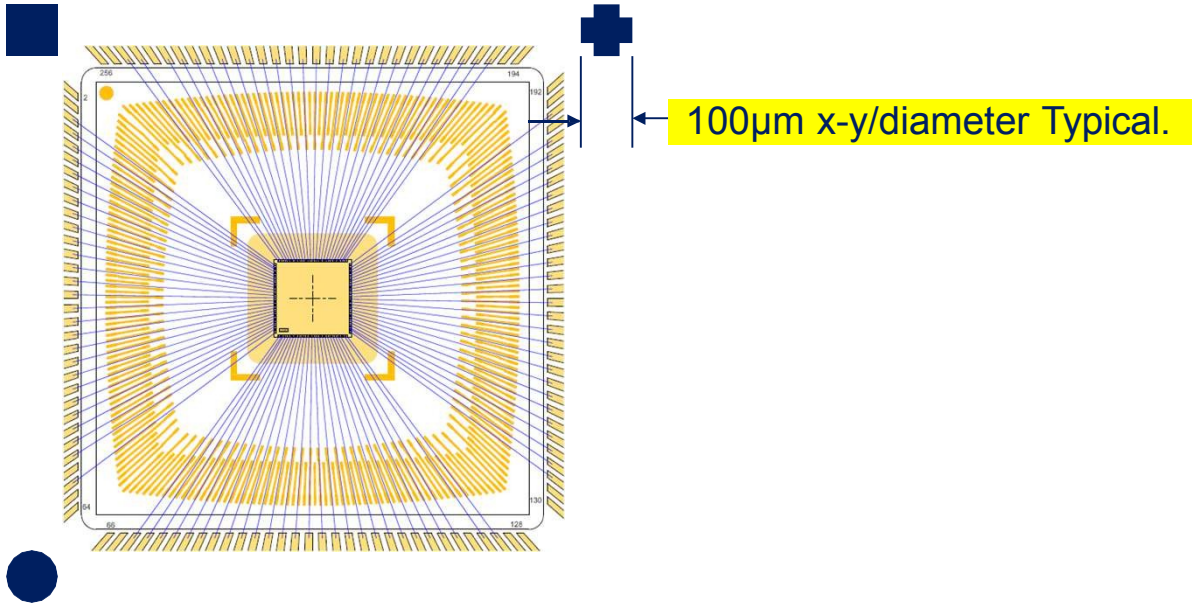
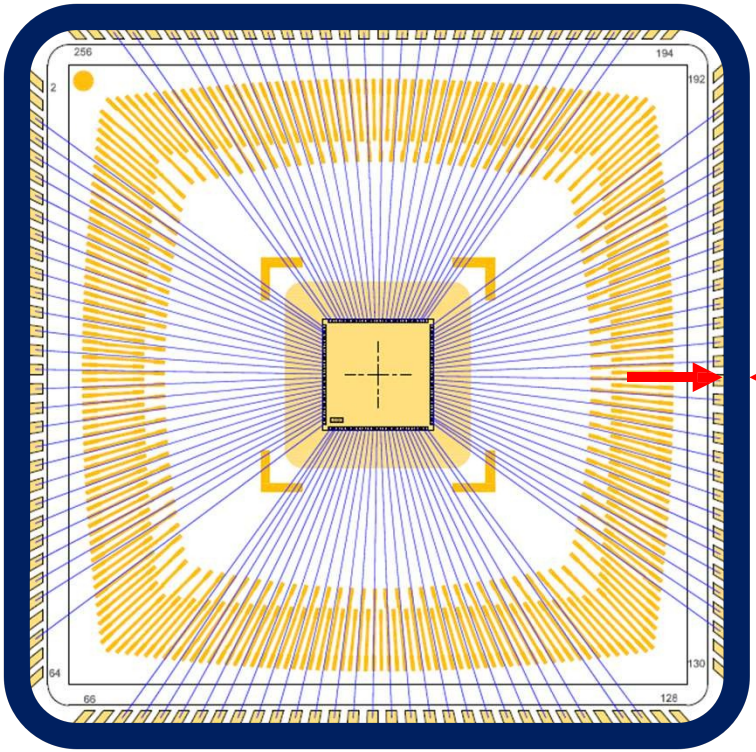
If Possible, add Non-Symmetrical Machine Vision alignment features around the bond area.

Squares, Circles and Crosses are typical features.



Dam and

Place the inner edge of the “Dam” at, but outside, the end of the Tail Bond.



Dam Width increases with height requirement.
Typical width 2~4mm

Dam and

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Dam and

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