

Micro SMD Daisy Chain Layout

PACKAGING

Micro SMD
Daisy Chain Layout

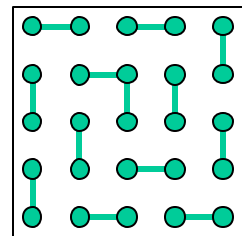
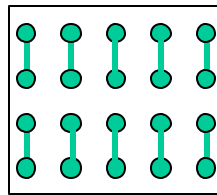
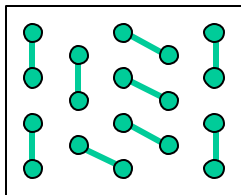
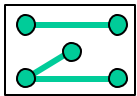
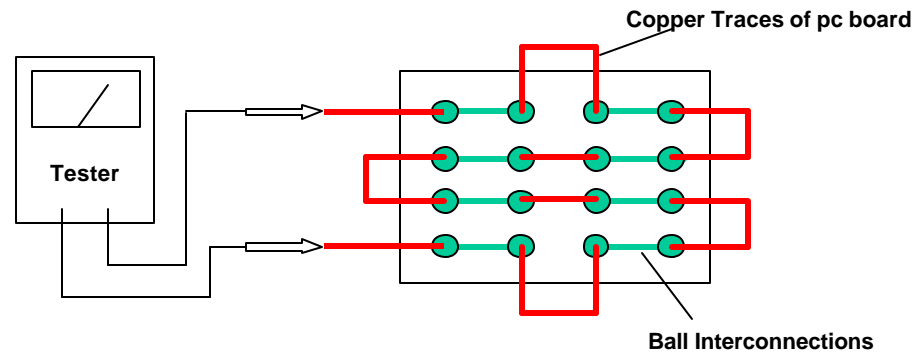


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Introduction

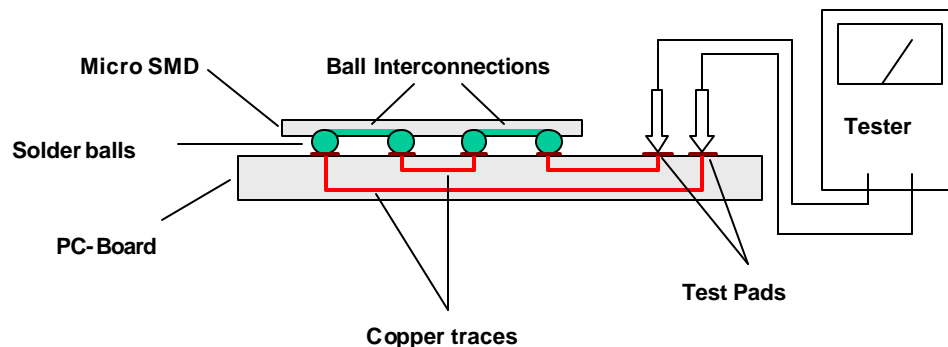
Daisy Chains are non-functional parts with a pattern of interconnected balls. These samples are typically assembled onto a printed circuit board with matching patterns. Once assembled on the matching board, all balls are connected, creating a continuous network.



Daisy Chain samples are primarily requested by customers to perform solder joint resistance testing. This test will help to characterize the assembly process and equipment prior to full production.

Daisy Chains are also used in several board level reliability tests in accordance with NATIONAL's micro SMD -specific Application Note AN-1112.

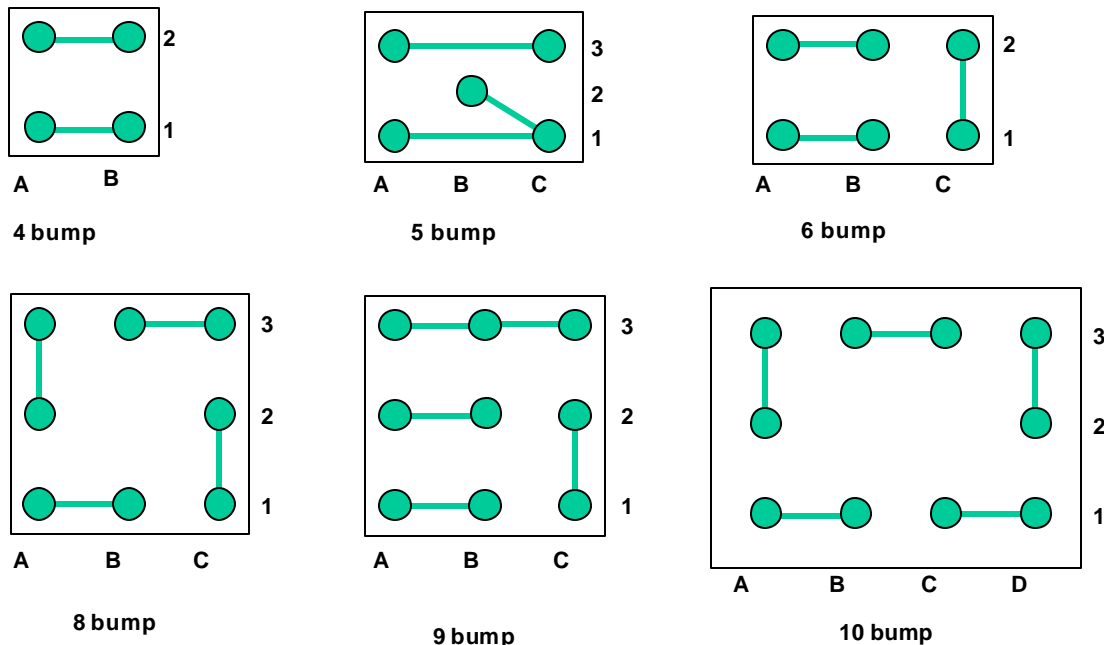
The Daisy Chains are assembled onto the matching circuit board and subjected to e.g., temperature cycling (TMCL) in an oven, and mechanical stressing.



For board layout recommendations, please refer to our AN-1112 and our package drawings [www.national.com/packaging].

Micro SMD Daisy Chain (0.17 mm Bump, *regular* and *thin* Die)

(The pin assignment for the device is shown with bumps facing down)



Dimensions of *regular* Micro SMD Daisy Chains

0.17 mm Bump Diameter						
Bump Count	4	5	6	8	9	10
Part Name	BP4BP	BP5BP	BP6BP	BP8BP	BP9BP	BP10BP
MKT Outline	BPA04AFB	BPA05GAB	BPA06HBP	BPA08AAB	BPA09AAA	BPA10VWB
X1 ± 30 (µm)	777	930	955	1285	1361	1996
X2 ± 30 (µm)	904	1107	1615	1285	1361	2504
X3 ± 100 (µm) including bumps	850	850	850	850	850	850

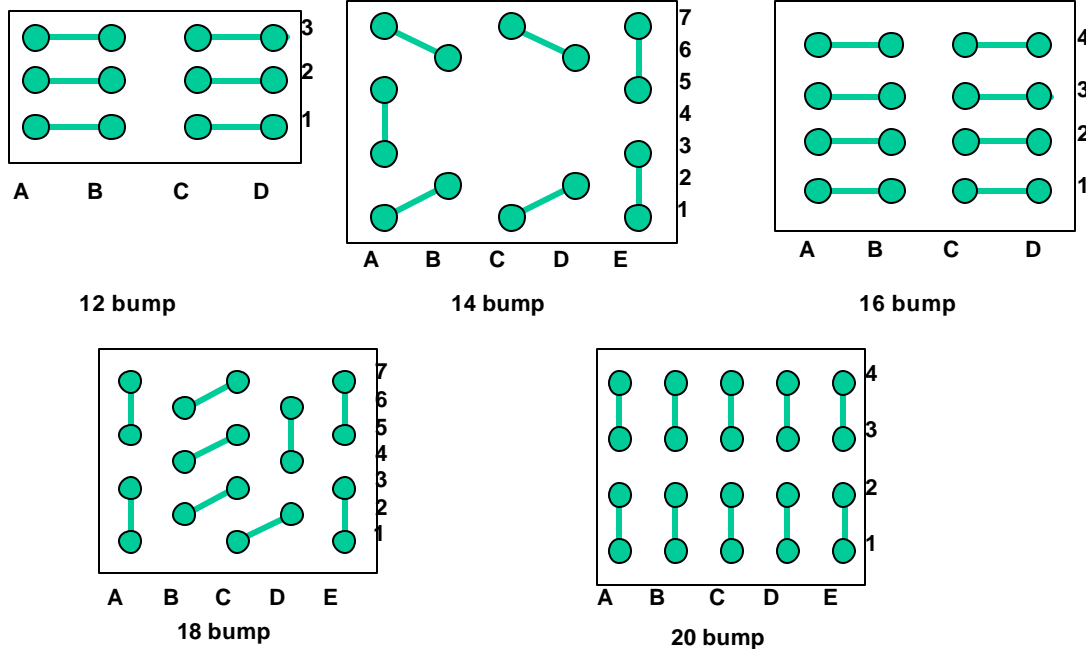
Dimensions of *thin* Micro SMD Daisy Chains

0.17 mm Bump Diameter						
Bump Count	4	5	6	8	9	10
Part Name	BP4TP	BP5TP	BP6TP	BP8TP	BP9TP	BP10TP
MKT Outline	TPA04AFA	TPA05GAA	TPA06HPA	TPA08AAA	TPA09DDA	TPA10VWA
X1 ± 30 (µm)	777	930	955	1285	1361	1996
X2 ± 30 (µm)	540	1107	1615	1285	1361	2504
X3 ± 100 (µm) including bumps	500	500	500	500	500	500

Micro SMD Daisy Chain (0.3 mm Bump, *regular* and *thin* Die)

Please note:

- The pin assignment for the device is shown with bumps facing down
- For pictures of 5/6/8/9/10 bump refer to page 4



Dimensions of *regular* Micro SMD Daisy Chains

- For pictures of 5/6/8/9/10 bump please refer to page 4

0.30 mm Bump Diameter									
Bump Count	5	8	9	10	12	14	16	18	20
Part Name	BP5BL	BP08AABL	BP9BL	BP10BL	BP12BL	BP14BL	BP16BL	BP18BL	BP20BL
MKT Outline	BLA05BCB	BLA08CCC	BLA09AAB	BLP10VWB	BLA12BAB	BLP14EHB	BLA16AAC	BLA18AAB	BLA20AAB
X1 ± 30 (µm)	1031	1565	1514	1996	1539	2098	1996	1996	1996
X2 ± 30 (µm)	1412	1565	1514	2504	1996	2403	1996	2225	2492
X3 ± 100 (µm) including bumps	940	990	940	850	945	940	990	940	940

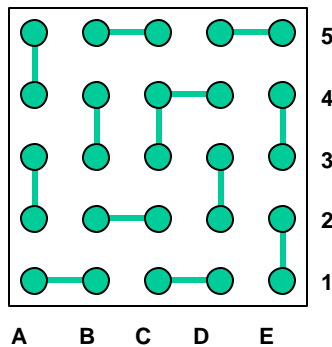
Dimensions of *thin* Micro SMD Daisy Chains

- For pictures of 5/6/8/9/10 bump please refer to page 4

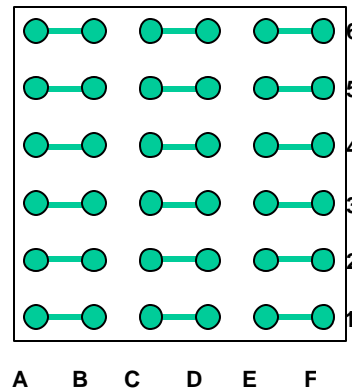
0.30 mm Bump Diameter										
Bump Count	5	6	8	9	10	12	14	16	18	20
Part Name	BP5TL	BP6TL	BP8TL	BP9TL	BP10TL	BP12TL	BP14TL	BP16TL	BP18TL	BP20TL
MKT Outline	TLA05BCA	TLA06AAA	TLA08CCA	TLA09AAA	TLP10VWA	TLA12BAA	TLP14EHA	TLA16AAA	TLA18AAA	TLA20AAA
X1 ± 30 (µm)	1031	1006	1565	1554	1996	1539	2098	1996	1996	1996
X2 ± 30 (µm)	1412	1514	1565	1554	2504	1996	2403	1996	2225	2492
X3 ± 100 (µm) including bumps	600	600	600	600	600	600	600	600	600	600

Micro SMD Daisy Chain Layout (0.3 mm Bump, *thin* Die only)

(The pin assignment for the device is shown with bumps facing down)



25 bump (*thin* die only)



36 bump (*thin* die only)

Dimensions *Thin* Micro SMD Daisy Chain Packages

0.3 mm Bump Diameter		
Bump Count	25	36
Part Name	BP25TL	BP36TL
MKT Outline	TLA25AAA	TLA36AAA
X1 ± 30 (µm)	2504	3000
X2 ± 30 (µm)	2504	3000
X3 ± 75 (µm) including bumps	600	600

Note: Shipping quantity for Daisy Chains is generally 250 units per 7-inch reel.