

CLAIMS

What is claimed is:

1. A contact providing an electrical connection to a substrate in a substrate plating system, comprising:
 - 5 a body having an arcuate shape,
wherein the arcuate shape of the body is configured to conform to a shape of at least a portion of a substrate arranged on a lip seal and a cup of the substrate plating system;
 - a plurality of first contact fingers extending a first distance from the body; and
 - 10 a plurality of second contact fingers extending a second distance from the body,
wherein the first distance is greater than the second distance.
2. The contact of claim 1, wherein the plurality of first contact fingers are configured to contact a seed layer arranged above a substrate bonded to a carrier substrate during plating.
- 15 3. The contact of claim 2, wherein the plurality of second contact fingers are configured to contact the carrier substrate at a location outward from a radially outer edge of the substrate during plating.
4. The contact of claim 1, wherein ones of the plurality of first contact fingers alternate with ones of the plurality of second contact fingers.
- 20 5. The contact of claim 1, wherein P of the plurality of first contact fingers are arranged immediate adjacent to one another and Q of the plurality of second contact fingers are arranged immediately adjacent to one another, where P and Q are integers greater than or equal to 1.
6. The contact of claim 5, wherein P and Q are equal, greater than one and less
25 than twenty.
7. The contact of claim 5, wherein P is greater than Q.
8. The contact of claim 5, wherein Q is greater than P.

9. The contact of claim 1, further comprising a plurality of third contact fingers extending a third distance that is different than the first distance and the second distance.
10. The contact of claim 1, further comprising a plurality of "U"-shaped cutouts
5 located between the plurality of first contact fingers and the plurality of second contact fingers.
11. The contact of claim 10, wherein the plurality of first contact fingers are connected together at radially outer ends thereof.
12. The contact of claim 1, wherein radially inner ends of at least one of the plurality
10 of first contact fingers has a "V"-shaped profile.
13. The contact of claim 1, wherein the first distance is in a range from 0.6mm to 4.2mm and the second distance is in a range from 0.2mm to 1.0mm.
14. The contact of claim 1, wherein the first contact fingers have a thickness in a range from 0.001" to 0.0045" and the second contact fingers have a thickness in a
15 range from 0.0035" to 0.007".
15. The contact of claim 1, wherein the body of the contact is annular.
16. The contact of claim 1, wherein:
20 the contact includes N ones of the body,
each of the N ones spans $360^\circ/N$, and
the N ones are arranged in a contiguous manner around a periphery of the lip seal.
17. A contact providing an electrical connection to a substrate in a substrate plating
25 system, comprising:
a first body having an arcuate shape and including:
a plurality of first contact fingers extending a first distance from the first body; and

a plurality of first spaces located between selected ones of the plurality of first contact fingers; and

a second body having an arcuate shape and including:

5 a plurality of second contact fingers extending a second distance from the second body; and

a plurality of second spaces located between selected ones of the plurality of first contact fingers,

wherein the second distance is greater than the first distance, and

10 wherein the first body and the second body are configured to overlap with the plurality of first contact fingers aligned with the plurality of second spaces and with the plurality of second contact fingers aligned with the plurality of first spaces.

18. The contact of claim 17, wherein the plurality of second contact fingers are configured to contact a seed layer of a substrate bonded to a carrier substrate.

15 19. The contact of claim 18, wherein the plurality of first contact fingers are configured to contact the carrier substrate radially outwardly from the substrate.

20. The contact of claim 17, wherein the plurality of first contact fingers are configured to contact a seed layer outwardly from a radially outer edge of the substrate.