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(54) **SOLDER-SHIELDED CHIP BONDING**

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ABSTRACT

A structure includes a first device having a first chip and a second chip. The second chip has a first side with a plurality of bumps and a second side with a plurality of first superconducting lines. A solder bonded layer attaches the first chip to the second chip. A second device has a first side with a plurality of pads facing the plurality of bumps in the second chip and a second side opposite the first side having a plurality of second superconducting lines. A solder shield material surrounds the plurality of bumps and the plurality of pads, and the plurality of bumps on the second chip are bonded to the plurality of pads on the second device. The solder shield material is connected to the plurality of first superconducting lines of the first device and to the plurality of second superconducting lines of the second device.

