DSMBGA

To continue to improve the integration and robustness of RFFE solutions, Amkor has developed a Double Sided Molded Ball Grid Array (DSMBGA) package which allows molded assembly of components on both sides of the substrate.

DSMBGA CONSIDERATIONS

Allows molded assembly of active, passive and antenna tuner components on both sides of the substrate, along with compartmental or conformal shielding.

ADVANTAGES

- Increased integration for RFFE modules with significantly reduced package height
- Allows integration of antenna tuners and passive components
- Improves signal integrity and reduces losses
- Conformal and compartmental shielding for EMI isolation
- In-line RF testing

With the rise of 5G, cellular frequency bands have increased considerably, requiring innovative solutions for the packaging of RF front-end modules for smartphones and other 5G-enabled devices. Amkor's DSMBGA is the leading example of such solutions. Expanding on years of experience in delivering world-class advanced System in Package (SiP) technology, Amkor was the first OSAT to offer DSMBGA and continues to pave the way for further breakthroughs.

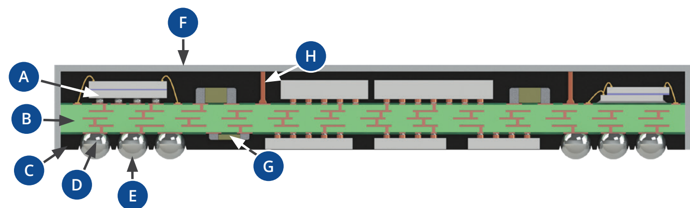
This growing number of new frequencies combined with a variety of multiplexing methods significantly increase the complexity of the RF front-end. Integration using SiP allows customers to design, tune and test RF subsystems, allowing for a reduction in design iterations and an accelerated time-to-market.

Amkor's double-sided packaging technology has vastly increased the level of integration for RF front-end modules used in smartphones and other mobile devices. Common RF front-end modules consist of a low noise amplifier (LNA), power amp, RF switch, RF filters and duplexers.

Amkor's advanced SiP design rules and innovative DSMBGA technology enable the integration of additional components – such as antenna tuners and passive components. This creates the most advanced and compact RF front-end module on the market today.

With additional power amplification and filtering circuitry, DSMBGA improves signal integrity and reduces losses, resulting in improvement of Rx/Tx amplification performance – which translates into reduced system power requirements.

Amkor also applies state-of-the-art conformal and compartmental shielding for EMI isolation and attenuation, as well as implements in-line RF testing to deliver the most robust and cost-effective assembly technology in the industry.



- A Top mold (MUF)
- B PCB (core, coreless)
- C Bottom mold (MUF)
- D Protruded BGA
- E Laser ablation & reflow (protruded ball)
- F 5 Side conformal shield
- G Land side component
- H Compartment shield (wire cage, wire fence, vertical wire)

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