**Samsung Galaxy S7 Rear Camera Module**

*For the Galaxy S7, Samsung has chosen the best CMOS image sensor technology, the first with copper-copper hybrid bonding*

In the Galaxy S7, Samsung has introduced a new CMOS image sensor (CIS) from Sony. It provides full 'Dual Pixel' phase detection autofocus, deep trench isolation (DTI) and copper-copper (Cu-Cu) hybrid bonding.

The Samsung Galaxy S7 camera module integrates a 12MPixel resolution CMOS image sensor with a pixel size of 1.4µm and an aperture of f/1.7. The increase of the pixel size compared to the Samsung Galaxy S6 implies a bigger CMOS image sensor die area. The module’s infrared filter is made on a plastic plate, unlike the iPhone 6S Plus, which used the more common blue glass filter.

The camera module, with dimensions of 12 x 12 x 5.3mm, is equipped with a 6-elements lens module and a voice coil motor (VCM) auto-focus actuator. There are three components on the flex: A STMicroelectronics gyroscope, Renesas optical image stabilization (OIS) driver and Winbond serial flash memory.

The CIS is assembled with a wire bonding process and uses a 3D hybrid bonding backside illumination (BSI) architecture from Sony (Exmor-RS). This is the first time this technology has been used in a camera module. It stacks two separate chips using optimized Cu-Cu hybrid bonding processes. One chip is a pixel array circuit which uses BSI technology, the other a 45nm technology node process logic ISP circuit. This hybrid bonding technology is probably direct bond interconnect (DBI) from Tessera.

Samsung used several sources for the assembly of the Galaxy S7 camera module.

The report includes comparisons with Samsung Galaxy S6 and iPhone 6S Plus rear camera modules.

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**COMPLETE TEARDOWN WITH:**

- Detailed photos
- Precise measurements
- Material analysis
- Manufacturing process flow
- Supply-chain evaluation
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- Selling price estimate
- Comparison with Samsung Galaxy S6 camera module structure
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**ANALYSIS PERFORMED WITH OUR COSTING TOOLS IC PRICE+ AND 3D-PACKAGE COSIM+**

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### iPhone 6S Plus Rear Camera Module
Several Changes for a New Result

For the iPhone 6S Plus Apple uses a new camera module: it has changed the supply chain, integrating some design changes.

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