The Revolution for Dual Interface Card Production

The innovative ‘Coil on Module’ package technology from Infineon uses a radio frequency link rather than the common mechanical-electrical connection between the card antenna and the module. It improves the robustness of dual interface (DIF) payment cards and simplifies card design and manufacturing, making it more efficient and up to five times faster than with conventional technologies.

‘Coil on Module’ underlines our technology leadership and is based on our extensive semiconductor and module expertise as well as profound understanding of card manufacturer’s systems and requirements.

Advantages of the Innovative Package Technology

The CoM package is based on the flip chip technology proven by millions delivered contact-based (CB) modules and comprises an integrated antenna enabling the superior reliable inductive coupling.

Inductive coupling technology for DIF applications employs two antennas, one on the module and one on the inlay in the card. These antennas connect electromagnetically similar to the air interface of contactless cards.

The most important benefit is the elimination of the mechanical electrical connection between card antenna and module.

Major Benefits

- Higher yield at card production
- Improved long term reliability
- Simplified card manufacturing process and logistics
- Immediate start of high speed volume production of dual interface cards due to full compatibility to standard contact-based card production equipment
- Reduction of total cost of ownership of dual interface cards without additional invest
- 20% reduced module thickness enabling better back side visual appearance of cards in area of module implanting
- Improved corrosion resistance in comparison to state-of-the-art products

www.infineon.com/coilonmodule
Coil on Module (CoM) – Infineon’s Innovative Chip Package Technology

Technical Details
The antenna on the module communicates via inductive coupling with the card antenna.
The system of a dual interface CoM card consists of the following major components:

- Module with antenna including the micro controller chip and the contact pads according to ISO 7816
- Card inlay with antenna tuned to meet the CoM requirements according to ISO 14443 and EMVCo 2.0.1 or PayPass v1.1
- Card body (typically PVC material) consisting of decorative and protection layers

Infineon offers a coil design guide defining parameters for the optimized layout of the card antenna. Furthermore Infineon evaluates and qualifies different antenna technologies (e.g. AL etched, wired, etc...) so that customers can easily start their dual interface card production by using antennas compatible with Infineon’s CoM.

A major advantage of the Infineon CoM design is the independence of Chip/Module combinations and card antennas. The target is that customers can use different Chip/Module combinations from Infineon with a single card antenna layout. This results in reduced complexity and smaller inventory, faster development cycles and faster time to market.

Product Features S-COM8.6

<table>
<thead>
<tr>
<th>Module Technology</th>
<th>Flip Chip</th>
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<tbody>
<tr>
<td>Punching Size [mm]:</td>
<td>11.8 x 13</td>
</tr>
<tr>
<td>Package Thickness [mm]:</td>
<td>max. 0.47</td>
</tr>
<tr>
<td>Pitch [mm]:</td>
<td>14.25</td>
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<tr>
<td>Max. Chip Size [mm]:</td>
<td>2.2 x 2.2</td>
</tr>
<tr>
<td>Module to Antenna Connection</td>
<td>Inductive coupling without mechanical connection from module to antenna in card</td>
</tr>
<tr>
<td>Application</td>
<td>Payment</td>
</tr>
<tr>
<td>Yield at Card Production</td>
<td>up to 99%</td>
</tr>
<tr>
<td>Processability</td>
<td>Standard contact based (CB) card manufacturing equipment can be used without additional invest in new equipment</td>
</tr>
<tr>
<td>Package Qualification</td>
<td>Payment requirements passed (details available in package qualification report)</td>
</tr>
<tr>
<td>Qualified Chip Types</td>
<td>SLE 77CLFX240AP(M); SLE 78CLFX400AP(M) and derivates</td>
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