Atmel Launches Industry’s Smallest Low-frequency RF IDIC Package for Direct Coil Mounting

Atmel Corporation today announced the availability of an ultra-small XDFN (Extremely Thin Dual Flat No Leads) package including a 363-bit read/write transponder IDIC. The transponder IDIC ATA5577M1 is a high-volume low-frequency (LF, 100-150kHz) RFID (radio frequency identification) device designed for small tag applications including animal ID ear and bolus tags, standard key fobs or clamshell cards for access control solutions. Measuring at 2mm x 1.5mm x 0.37mm, the XDFN package is the world's smallest RFID package available in the market today.

The two coil wires can directly be soldered onto the two pads of the package and mounted or glued onto the antenna coil. The direct mounting and small packaging allows for extremely small end products since the resulting RFID tag size is determined by the size of the coil.

The package can also be soldered on a standard printed circuit board (PCB), for example, in combination with a PCB-mounted antenna. Since the chip has a 330pF on-chip capacitor trimmed to +/- 3%, the antenna coil is the only external component required to form a trimmed LF-RFID tag.

XDFN Package Key Benefits

• Handling the chip is no longer necessary. As a result, the requirements for the environmental conditions during production are less stringent.

• Packing of the chip using PCB boards or micromodules is no longer necessary,

thus reducing production steps.

• The package can be mounted or glued directly on the coil for smaller end products.

• The soldering of the coil wires to the two pads of the device package is more robust and reliable compared to the direct bonding procedure. This makes the tag well suited for use in harsh environments such as animal livestock tagging.

The incorporated ATA5577 chip provides a manufacturer-programmed and locked unique ID which enables the traceability of the product to prevent cloning or counterfeiting of the tag IC. The unique ID and the extended read/write distances have been optimized for next-generation access control applications including hotel rooms, engineering departments, offices, time recording systems, parking lots, customer loyalty and membership cards. In addition, the device operates according to ISO 11784 and ISO 11785 (FDX-B) standards, making it well-suited for animal identification and waste management applications.

Since the ATA5577 is a low frequency device, it can be used worldwide. The device is not sensitive to rugged environments and can also be used under conditions that normally complicate the application of RFID devices, such as water, metal, dirt, or being applied to the body.

The new device architecture enables outstanding read/write performance with differing types of coils, readers, and parameters which is especially important for animal and waste management applications. A special on-chip digital register allows the maximum overall read and write distance for each application environment. Based on the dedicated write procedure (downlink, reader-to-tag), the write distance has been increased to industry-leading distances. This increased write distance is especially beneficial for applications in difficult environments.

Availability and Pricing

Samples are available now. Pricing for the ATA5577M1 starts at USD $0.38 in 20,000-piece quantities. To accelerate the development time, Atmel provides the ATA2270-EK1 evaluation kit, which is based on the Atmel LF-RFID reader chip U2270B and the AVR microcontroller ATmega128. The kit includes all C-routines and PCB layout data in Gerber format. In addition, several tag samples are supplied with the kit for easy system implementation. A PC-based graphical user interface is also provided. The ATA2270-EK1 evaluation kit is available at USD $399.

www.atmel.com [1]

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