



NXP®
UCODE® 8

Omnichannel Retail Data at unmatched Speed and Accuracy

Creates Global Tags for Global Retailers.
Protects Brands and Delights Consumers.

KEY FEATURES

- ▶ Read sensitivity -23dBm
- ▶ Write sensitivity -18dBm
- ▶ Encoding speed: 32 bits in 1.2 millisecond
- ▶ **Innovative Features:**
 - SELF ADJUST
 - MEMORY SAFEGUARD
 - BRAND IDENTIFIER
 - UNTRACEABLE
 - EPC PRE-SERIALIZATION
 - PRODUCT STATUS FLAG
 - LARGE AREA GOLD PADS

TARGET APPLICATIONS

- ▶ Inventory Management
- ▶ Loss prevention
- ▶ Smart Fitting Room
- ▶ Fast Customer Checkout
- ▶ Consumer Privacy Management
- ▶ Returns and Warranty management
- ▶ Brand Protection

KEY BENEFITS

- ▶ Creates Global Tags for Global Retailers
- ▶ Protects Brands and delights consumers



SELF ADJUST

Varying environment conditions, new categories and the target of unified label form factors require highest performance from a Rain RFID IC. UCODE 8 has implemented an automatic adjustment feature which supports label manufacturer to meet these challenging market requirements. The SELF ADJUST feature optimizes the chip sensitivity to gain maximum performance in the present environment. This optimization is performed at startup and can also be deactivated if required.

MEMORY SAFEGUARD

All Rain RFID applications are based on the handling of product identifiers whether it is EPC, TID or customer data. From Rain RFID Tag IC point of view it is therefore of highest importance to ensure correctness of these data. To protect business data UCODE 8 has implemented a Memory Safeguard system which is based on two different protection mechanisms, the ECC and the Parity check:

- **ECC (ERROR CORRECTION CODE):**
The implemented ECC ensures the automatic detection and correction of a potential single bit error of the data stored in the EPC or User Memory. Further to that this algorithm can also detect potential multi-bit errors and identify them as incorrect data.
- **PARITY CHECK**
TID memory content holds the unique identifier of a Rain RFID Tag IC and is programmed by the IC supplier during manufacturing process under defined conditions. Some applications are relying not only on the EPC number but also on the TID, which also requires a protection of this part of the memory. UCODE 8 therefore has implemented a parity check on the TID which offers the possibility to identify a possible change in the TID number.

BRAND IDENTIFIER

Highly sought after and well established brands are facing the problem of counterfeited products which are brought on the market. NXP's portfolio offers dedicated RFID Tag IC's to prove product authenticity. UCODE 8 is the first UHF Rain RFID IC which has integrated a Brand Identifier feature which allows brand owners to implement a simple product originality check option for their products. The Brand Identifier is a customer dedicated 16-bit code which is programmed during chip manufacturing process into the memory and therefore unalterable.

UNTRACEABLE

Privacy is a topic that re-occurs regularly and will continue to gain importance in applications where the Rain RFID Tag is intended to stay as part of the product after the item is sold. Also, for efficient return handling and other use cases after the point of sale, the Rain RFID Tag must remain on the product and be active.

To offer customers their privacy whilst maintaining the ability to offer retailers return handling capabilities, UCODE8 has an implemented privacy function. The UNTRACEABLE command is GS1 standard compliant and allows for the EPC, TID and/or User Memory to be partially or completely hidden. In addition, the read range can be completely or temporarily reduced.

LARGE AREA GOLD PADS

Key for a Rain RFID system are reliable components with consistent performance. The new large area gold pad design, supports printed and thin antenna material. This enables innovative concepts for "green" antenna materials.

With the introduction of large area gold pads the UCODE 8 also supports a more robust and reliable tag assembly. Consisting of 100% noble gold ensures a highly reliable, low-ohmic, corrosion free connection between IC and antenna.

The field proven spacer layer was further improved to provide an even more stable product.

ORDERING INFORMATION

Product	Delivery Form	Type	12NC
UCODE 8	Bumped die on sawn 8", 120 μ thickness wafer with 10 μ PI layer, large pads	SL3S1205FUD/HA	935308696003
UCODE 8m	Bumped die on sawn 8", 120 μ thickness wafer with 10 μ PI layer, large pads	SL3S1215FUD/HA	935308698003

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