
Talon™ Integrated RTLS Tag

Feature Summary

- The chip is the tag: 2 mm X 2 mm
- Antenna on silicon integral to the tag
- Separate power-up and transmit channels
 - UWB data frequency centered at 6.7 GHz
 - 5.8 GHz power frequency
 - Complies with worldwide standards
- Data read range up to 10 meters
- Power-up range up to 1 meter
- Read rate 5,000 tags/second
- Tag Talks First protocol
- 128 bit In Factory Programmable (IFP), read only memory
- Real time localization with up to 250mm accuracy
- FEC, CRC and Scramble enhance transmission recovery

Brief Description

Tagent's 2 mm X 2 mm RTLS tag uses a revolutionary patented technology to produce a miniature No Battery Active™ radio communication tag with meters of range. The tag harvests operating power from transmitted radio signals without using external components: antenna, antenna connections, or packaging. This technology provides a tiny footprint, over two orders of magnitude smaller area than the best-of-class in the market today, with better durability, bandwidth, reliability, and range. The Talon™ chip ultra wideband band transmitter allows

Real Time Location System (RTLS) capability in this tiny robust form factor with localization accuracy of up to $\frac{1}{4}$ m³. The tiny size and durability allow Talon tags to be embedded in a variety of materials, such as: plastic, paper, or cloth. Talon tags enable solutions for a broad range of applications not served by existing RTLS technology.



2 mm X 2 mm tags include antenna

Application Examples

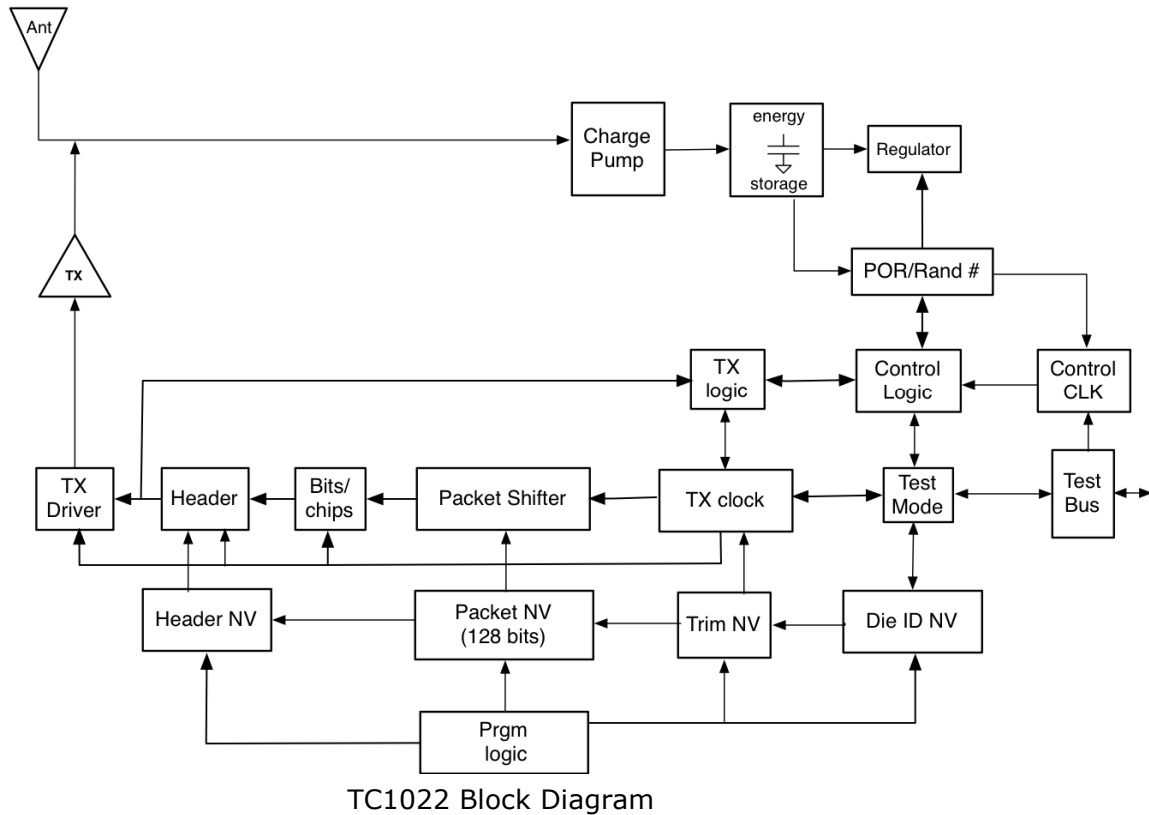
- Pathology sample location & tracking e.g. embedded in labels or the plastic vials, for tracking individual medical laboratory samples
- Tracking early in manufacturing e.g. embedded in semiconductor package for sorting & binning
- Pharma item/unit level tracking e.g. embedded in blister packs & tablets to track individual doses

Availability

Talon™ tags, readers, and power nodes will be available Q3 2010.

Product Description

The Tagent TC1022 No Battery Active™ Real Time Location System (RTLS) tag is a fully integrated transmitter that actively transmits without requiring a battery for operation. This tag may be used for tracking, location, authentication and a variety of custom applications. Talon™ is a complete stand-alone solution, with power collector (receiver), storage capacitor, transmitter, memory and antenna all on a single CMOS RF integrated circuit. The TC1022 is the smallest, most durable, extended range, battery-less RTLS tag available.



Separate Power-up and Transmit

Operating power is obtained by collecting RF energy from a Tagent portable or stationary RF power module. The power is transmitted to the tag using a 5.8 GHz ISM band compliant radio signal. The received energy is then stored in an on-chip capacitor. Once charged, this capacitor powers the tag's UWB transmitter that broadcasts the tag's unique 128 bit ID back to a conveniently located RTLS reader. The RF power modules can be placed up to one meter away from the tags to be read. The reader can be placed up to ten meters from the tags. This unique architecture, separating tag power-up from the reader function, allows the system to have much greater flexibility than traditional RTLS systems as illustrated by the following diagram.

