AVR Functional Safety

ATAVRFEB-SAFETY

The Functional Safety Field Engagement Board is based on the ATtiny3217 microcontroller demonstrating the various features of an AVR® microcontroller, such as Watchdog Timer (WDT), Cyclic Redundancy Check (CRC), Brown-out Detection (BOD), Voltage Level Monitoring (VLM), Power-on Reset (POR), and Timer/Counter type D (TCD) fault detection. In addition, Class B self tests are designed to detect various faults on start-up or during program execution, and shut down the application safely in case of fault.

Features

- Core independent operation using Configurable Custom Logic (CCL) and 16-Bit Timer/Counter Type A to create heartbeat signal
- Core independent Cyclic Redundancy Check Memory Scan (CRCSCAN)
- Core independent operation using 12-Bit Timer/Counter Type D (TCD) to drive a fan motor
- Core independent TCD fault handling using Event System (EVSYS), Analog Comparator (AC) and Digital-to-Analog Converter (DAC)
- Using Charlieplexing technique to drive a large number of LEDs with a low number of pins, using 16-Bit Timer/Counter Type B (TCB) and priority interrupt
- Demonstrating core independent Watchdog Timer (WDT) in window mode
- Demonstrating Real Time Counter Periodic Interrupt (RTC) (PIT)
- Board controller with (PTC) touch slider to adjust voltage to ATtiny3217, demonstrating Voltage Level Monitor (VLM) interrupt, Brown-out Detector (BOD) and Power-on Reset (POR)
- On-board Mini Embedded Debugger (mEDBG) for programming and debugging

Package Contents

The package contains the ATAVRFEB-SAFETY board.