S1D13T04 EPD Timing Controller

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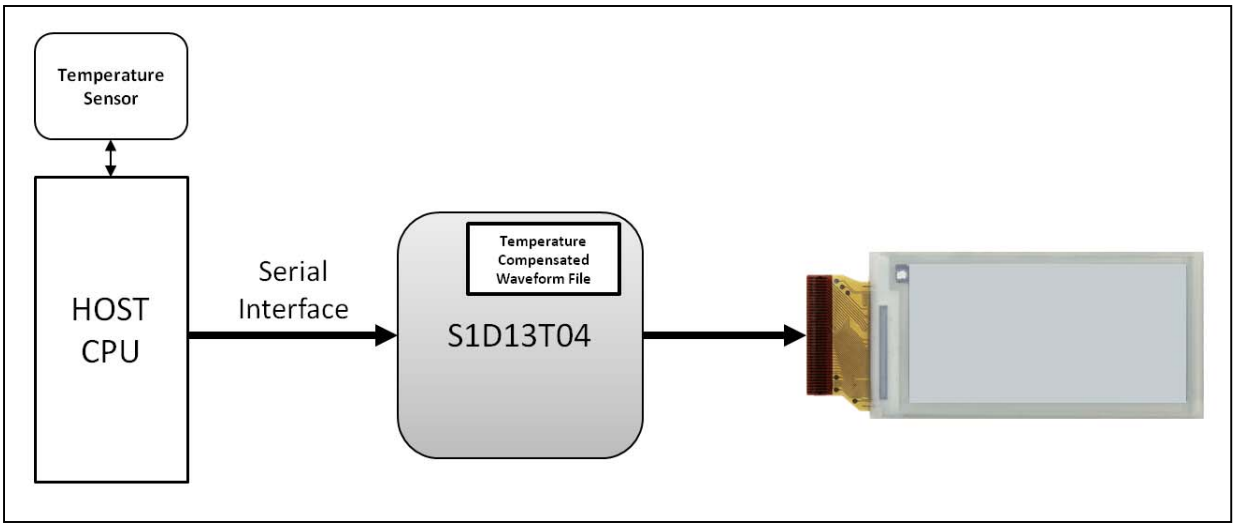
EPSON's S1D13T04 EPD timing controller provides a quick to market solution for a range of Pervasive Displays' small EPD panels. The S1D13T04 handles all heavy EPD timing related driving requirements. The S1D13T04 contains several waveform modes which allow the user to select the mode that best meets their display update speed and image quality requirements. In addition, display update flexibility is provided in the form of partial and full updates to the entire display or just a selected area. The S1D13T04 features a SPI serial host interface with a fully defined command set, making image transfer and display quick and easy. The S1D13T04 only requires a few external passive components to be fully operational. In addition to the already low power consumption during active display updates, there is an ultra-low power sleep mode for use during idle periods.

■ Features

- **Host Interface**
  - Internal Oscillator running at 14MHz
  - Serial Host interface:
    - 4-wire standard SPI interface (SCK, NCS, SDI, SDO)
    - 1-wire HRDY busy signal (Configurable for Open-drain operation)
    - Optional Sleep Mode implementation
      - 1-wire Wakeup signal wire
      - 1-wire Sleep status.
- **Power**
  - Single voltage input, Typ 3.0V
  - Built-in regulator for Core VDD
- **Power Modes**
  - Run Mode
    - Low power operation for display update operation
  - Sleep Mode
    - Ultra low power mode for temporary idle control from Host system
    - Resume is triggered by Wakeup pin
- **Package**
  - SQFN7 48-Pin (7mm x 7mm)
- **EPD Panel Support**
  - Pervasive Display 1.44", 2.0" and 2.7" panels
  - 1bpp temperature compensated waveform
  - Hardware Rotation:
    - Supports: 0° and 180° rotation for ease of panel placement on customer design
- **EPD Panel Power Modes**
  - Auto – the panel is automatically powered on and off for each display update
  - Manual – panel power is left on between updates for faster successive updates
- **Display Update Modes Supported**
  - Full Update – performs updates on the full display
  - Partial Update – performs updates on changed pixels only (full display is scanned)
  - Area Update – in addition to Full and Partial Updates, performs updates only on the window targeted by start position and window size
- **Host Image Loading**
  - Supports 1bpp full image loading
  - Supports area window image loading

■ Block Diagram



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