

S4E5B001B000A00 Monochrome EPD Controller Module November 2012

EPSON's EPD Controller Module is a complete, high performance, easy to use solution for E Ink EPDs (Electronic Paper Displays). The module includes all the necessary digital and analog power circuitry for driving an E Ink panel. The module consists of Epson's S1D13522 EPD controller, an on-board 26MHz crystal clock source, a 4 Mbit flash memory for command/waveform storage, and a power management IC (PMIC) with built in temperature sensor.

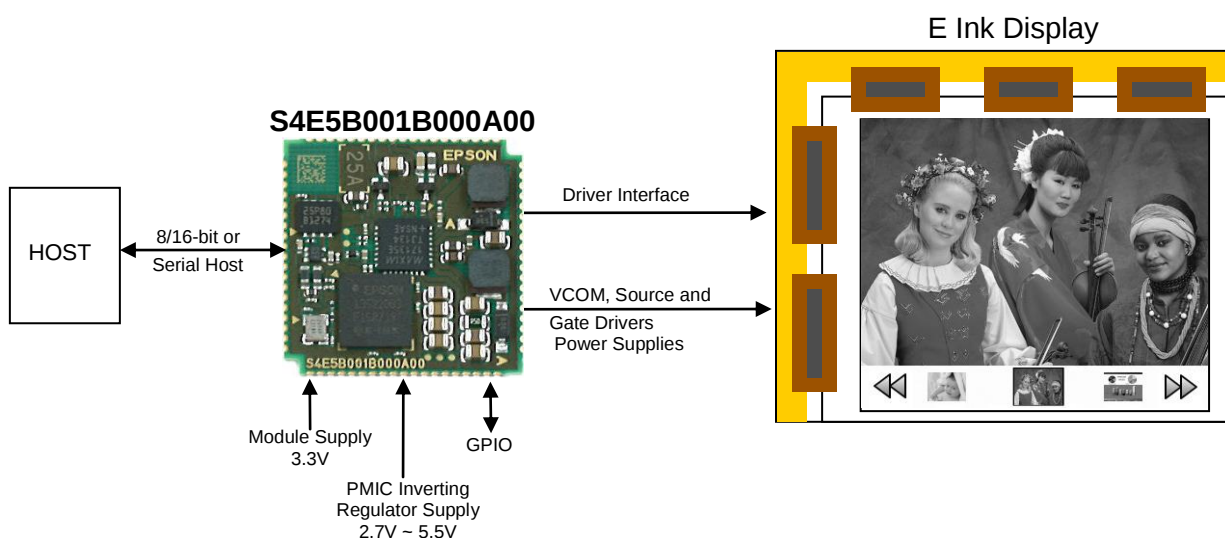
The module was developed to remove the complexities of board design from our customers thus reducing time to market and opening a variety of applications.

The S4E5B001B000A00 EPD Controller Module is the ideal choice for new EPD designs and design upgrades.

■ Features

- Epson S1D13522 EPD Controller
- Targeted for popular display resolutions from E Ink: 800x600, 1024x768 and 1200x825 (www.eink.com)
- Multi-Regional updates for smooth drawing
- Rotation support for Host Writes
- Low Host overhead
- 8/16-bit Indirect or Serial Host Support
- Automatic temperature compensation with onboard Thermal Sensor
- Optional auto boot display support and customizable boot screen
- Programmable Power Management
- Picture-in-Picture and Cursor functions with separate buffers
- No external clock source required
- Four regulated output voltages for Source and Gate Driver power supplies
- VPOS + VNEG = $\pm 50\text{mV}$ tracking accuracy
- Controlled inrush current during soft start
- Six General Purpose IO Pins available
- Package: 76-pin 23mm x 23mm x 2.4mm Castellated-via, 1mm pitch

■ System Diagram



■ Description

Display Support

- Compatible with E Ink Monochrome Active Matrix Panels
- Up to 4-bit grayscale waveforms (16 grey-shades)
- Auto Waveform Management Version 2
- Panel Border Support
- Waveform format: E Ink proprietary

Stacked Memory

- Host write rotation: 90°, 180°, or 270°
- Host writes can use packed mode for high-speed transfers
- Host writes with transparency for non-rectangular images
- New image data can be loaded to the image buffer while display updates are in progress

Host Support

- Indirect Intel 80 8/16-bit or Serial Host
- Simplified command style access

Display Features

- Picture-in-Picture (PIP) window with separate image buffer and transparency function
- Hardware Cursor support

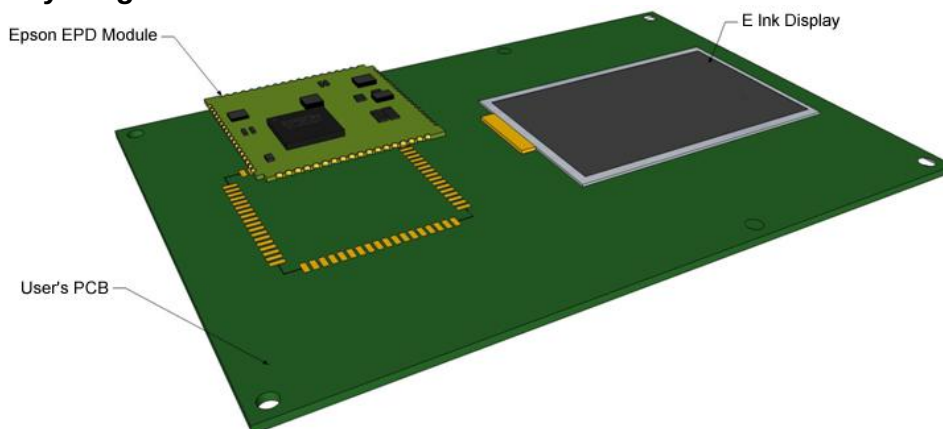
Power Management Support

- Power Management with built-in temperature sensor
- Software Power Save Modes
- Low and ultra-low power modes

Miscellaneous

- Six General Purpose Input/Output pins
- Each GPIO pin can be configured for edge detect interrupt
- Module Supply Voltage: 3.3V
- PMIC Inverting Regulator Supply Voltage: 2.7V ~ 5.5V

■ PCB Assembly Diagram



Japan

Seiko Epson Corporation
Microdevices Operations Division
IC Sales & Marketing Department
421-8, Hino, Hino-shi
Tokyo 191-8501, Japan
Tel: +81-42-587-5814
Fax: +81-42-587-5117

North America

Epson Electronics America, Inc.
214 Devcon Drive
San Jose, CA 95112, USA
Tel: +1-800-228-3964
Fax: +1-408-922-0238

China

Epson (China) Co., Ltd.
7F, Jinbao Bldg.
No. 89 Jinbao St.
Dongcheng District
Beijing 100005, China
Tel: +86-10-6410-6555
Fax: +86-10-6410-7320

Taiwan

Epson Taiwan Technology & Trading Ltd.
14F, No. 7
Song Ren Road
Taipei 110, Taiwan
Tel: +886-2-8786-6688
Fax: +886-2-8786-6660

Hong Kong

Epson Hong Kong Ltd.
20/F, Harbour Centre
25 Harbour Road
Wanchai, Hong Kong
Tel: +852-2585-4600
Fax: +852-2827-4346

Europe

Epson Europe Electronics GmbH
Riesstrasse 15
80992 Munich, Germany
Tel: +49-89-14005-0
Fax: +49-89-14005-110

Singapore

Epson Singapore Pte., Ltd.
1 HarbourFront Place
#03-02 HarbourFront Tower One
Singapore 098633
Tel: +65-6586-5500
Fax: +65-6271-3182

Korea

Seiko Epson Corp.
Korea Office
5F, LKI 63 Bldg.
60 Yoido-dong, Youngdeungpo-Ku,
Seoul, 150-763, Korea
Tel: +82-2-784-6027
Fax: +82-2-767-3677

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