STE2102

240x320RGB single-chip true 262K colors ramless LCD controller/driver

Data Brief

Features

- 240 x 320RGB display matrix
- 8 colors & 262K colors modes
- Programmable number of lines
- Programmable frame & N-line polarity inversion
- System interfaces (read and write)
  - I2C
  - 3-lines SPI
  - 3-lines 9 bits Serial Interface
  - 4-lines SPI
- Graphics interfaces:
  - 16/18Bit RGB Interface
  - 8Bit YCrCb 4:2:2 Interface
- Programmable Gamma look-up tables for optimum colour configuration.
- Fully integrated Bias system and voltage generator
- Designed for chip-on-glass (COG) and chip-on-foil (COF) applications
- Logic supply voltage range from 1.5 to 1.95V
- Interface and control signals supply voltage range from 1.5 to 3.6V
- High voltage generator supply voltage range from 2.2 to 3.6V
- Selectable scan direction
- Common electrode and gate-off switching
- Cap-on-common and cap-on-gate (patented) TFT structures
- Gate, common and source waveform timing generation digitally tunable
- Gate drivers voltage range from -15 to 16.5V
- Source drivers voltage range from 0 to 5.5V
- Common driver voltage range from -2.5 to 4.5V
- On chip calibration (with OTP Cells) of Key configuration parameters

Description

The STE2102 is a low power CMOS single-chip TFT controller/driver featuring an extremely low current consumption thanks to an innovative charge pump architecture. Designed to drive a 240 rows by 320RGB columns 262k colors graphic display, with amplitude modulation method, the STE2102 provides all the necessary functions in a single chip, including on-chip gate drivers supply, source drivers supply and source reference voltages generators, resulting in a minimum of externals components.

STE2102 features an high-speed RGB interface to transfer flicker-free video data, an 8-bit YCrCb digital video interface and several bi-directional serial interfaces to configure the display.

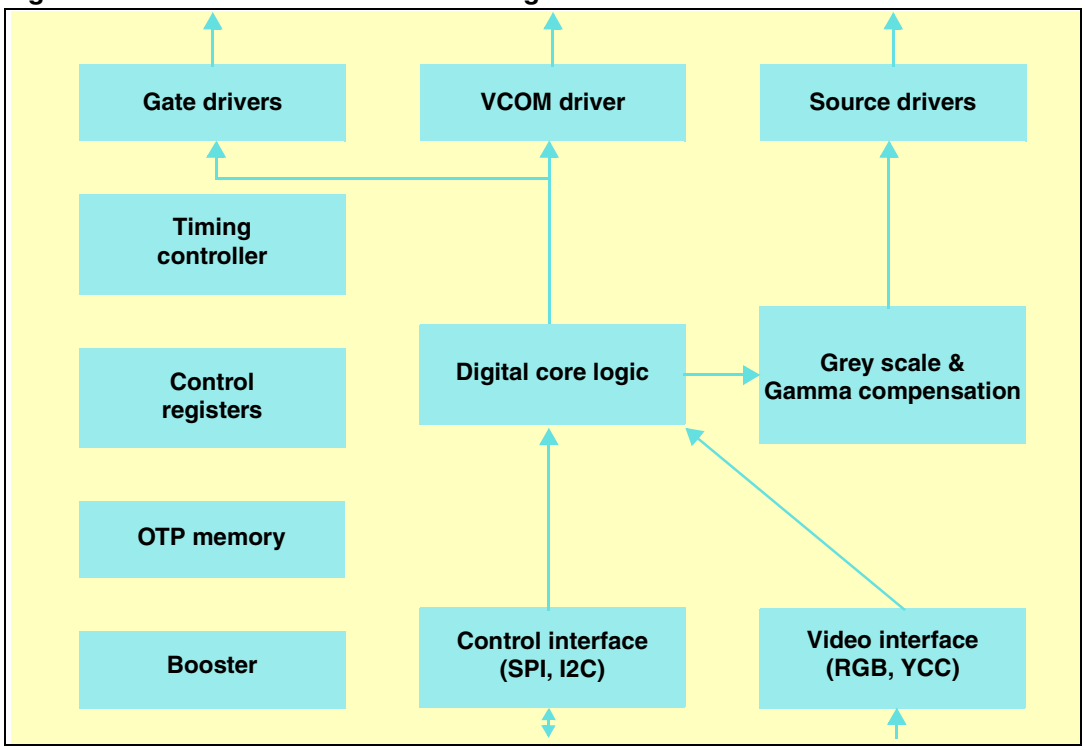
The IC is designed to operate with both traditional Cap-on-CE and with Cap-On-Gate panels.

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Table 1. Key features and benefits

Features	Benefits
High driving capability	Can drive panel sizes up to 4”
320RGBx240, landscape type	Suitable for several application – portable multimedia – digital still camera – printers – handheld instrumentation
Video interface – parallel RGB – YCC	Suitable for video streaming
Low power circuitry	Only ~6mA when driving 3.5” panel with natural pictures
Requires few external components On Chip DC/DC converter	Reduced number of system components
Integrated OTP (SmarT OTP)	– Allows parameters setting for calibration and tuning at module maker side – No need of external EEPROM – SmarT OTP ensuring high programming yield
Specific features for production – Bump misalignment – Bump detachment – Glass break	Allows module maker to control easily assembly quality on production chain

Figure 1. STE2102 functional block diagram



Ordering information

Table 2. Order codes

Part number	Description
STE2102D3	Bumped Dice on Waffle Pack

Revision history

Table 3. Document revision history

Date	Revision	Changes
20-Dec-2006	1	Initial release.

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