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
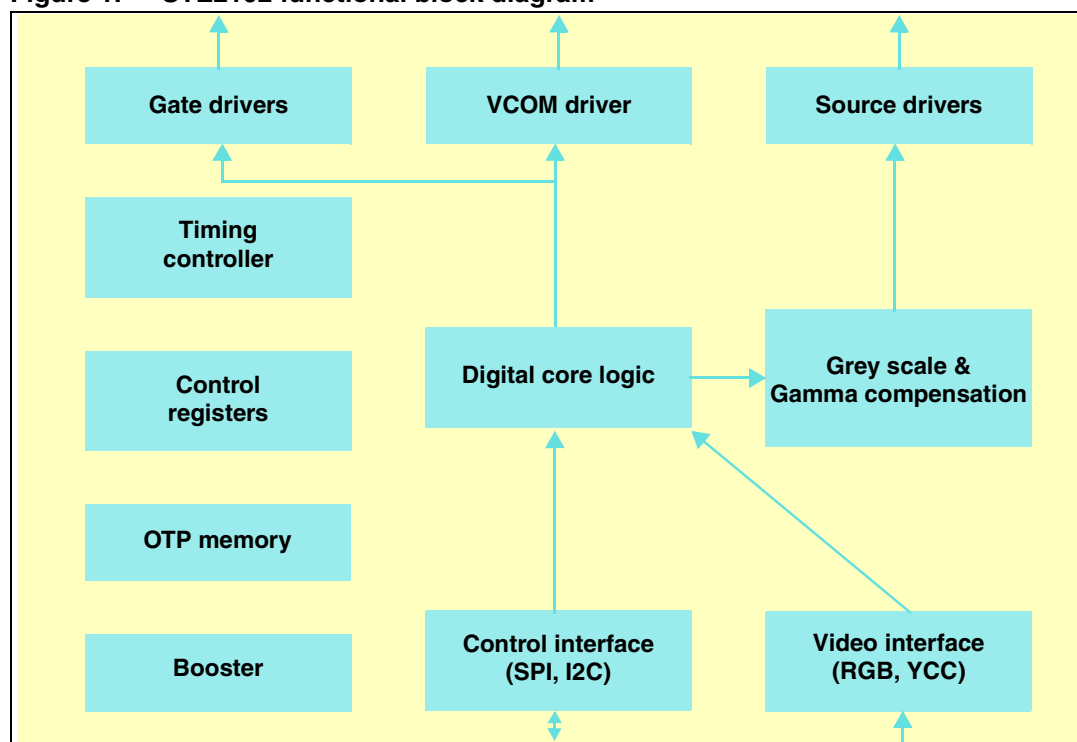
Description

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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