

# FPD95220

## 320-Channel LTPS Dot Inversion Driver with Programmable Partial Display

### General Description

The FPD95220 is a 320-channel LTPS dot inversion driver with Partial Display Memory, and an 18-bit RGB video interface. It provides 320 output source drivers with a 1:3 glass multiplex ratio. It includes a 77,112-bit memory for partial display modes, a timing controller with glass interface level-shifters, a DC  $V_{COM}$  driver and glass power supply circuits. The output format can be configured to drive arbitrary display resolutions up to 320 RGB columns.

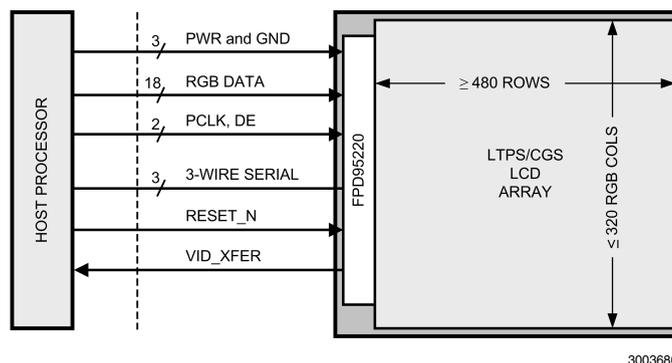
The on-chip Partial Display Memory is configurable in window size, location and color depth. This memory can be used to self-refresh a region of the display in a reduced power state. The FPD95220 device also includes independent RGB gamma curve adjustments as well as user-definable color palettes for 1-bit and 3-bit Partial Display modes.

A low-speed serial interface controls display operating modes and provides access to the Partial Display Memory. This interface can support both 8-bit and 9-bit protocols. A standard command set is supported to set display modes and operating parameters. Customized register profiles associated with commands are loaded from an on-chip EEPROM. Registers can also be directly accessed by using the Register Access Mode.

### Features

- **Dot Inversion**
  - Reduced audible and electrical noise for touch panel applications
  - Improved image quality
  - Supports pixel and sub-pixel inversion modes
- **Power Savings**
  - Self-refreshed Partial Display Mode
  - Charge-sharing power saving functions
  - Backlight brightness PWM circuit
- **Standard Command Set**
  - Registers initialized from on-chip EEPROM
  - Command-triggered profiles can change register settings for modes/gamma settings
  - Eliminates frequent host SW changes to update register settings
  - 8 user-defined display configurations
- **Programmable Settings**
  - Display resolution and glass signal timing
  - Video interface timing auto-learning circuit
  - VID\_XFR output reduces tearing in partial mode
  - Gamma curves and  $V_{COM}$  adjustment
- **Partial Display**
  - Adjustable memory window size and location
  - 1, 3, 12 or 18-bit color depth
  - Partial window 2x upscale with border color
  - Alpha blending, including transparent mode
- **Interfaces**
  - Low-speed serial interface for commands, register access and partial memory access
  - 18-bit RGB Video interface

### System Diagrams



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## Notes

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