

# IST3042CA1-B

## 160x2 Single Chip TN/STN-LCD Driver

### GENERAL DESCRIPTION

The IST3042 is a peripheral device which interfaces to most any segmented TN Liquid Crystal Display (LCD) with either a static or duplex multiplex rate. It generates the drive signals for any static or multiplexed LCD containing up to two backplanes, up to 160 segments per backplane, and can easily be cascaded for larger LCD applications. The IST3042 is compatible with most microprocessors/microcontrollers and supports multiple communication formats and/or protocols. Communication overheads can be minimized by utilizing the internal display RAM with auto-incremental addressing. A maximum of 160 segments of LCD can be driven in static display mode and a maximum of 320 segments can be driven directly in the 1/2 duty display mode.

### FEATURES

- Operation Logic power supply : 2.7 to 5.5V
- Operating LCD Driving voltage : 3.0 to 5.5V
- Maximum number of segments that can be driven:
  - Static display mode: 160 segments
  - 1/2 duty display mode: 320 segments
- The communication format to the host microprocessor/microcontroller is H/W selectable and support the following communication formats;
  - 3-wire Direct Serial Interface
  - 2-wire bidirectional I<sup>2</sup>C interface
  - 4-wire standard SPI interface
- The direct serial interface consists of the three signals DATA IN, CLOCK IN, and LOAD IN.
- The I2C interface consists of two signals SDA and SCL.
- The standard SPI interface consists of three signals, SCLK, SDI, and SS
- Direct Serial Interface & SPI data transfer clock: 1 MHz max.
- 400kHz I<sup>2</sup>C bus interface
- 160 x 2-bit RAM for display data storage
- Built-in internal RC oscillator circuit
- Built-in common signal generator circuit.
- Input for turning all segments ON is available (SEG-TEST IN).
- Input for turning all segments OFF is available (BLANK IN).
- May be cascaded (up to 2 devices) for large LCD applications (up to 640 segments possible)
- No external components required.