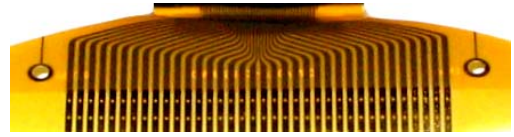


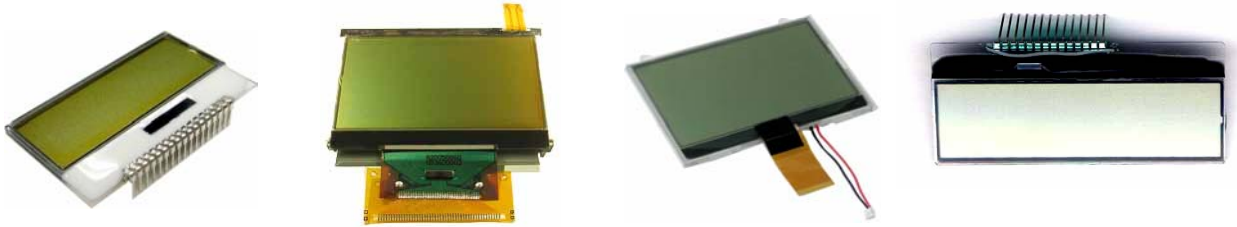
## TECHNICAL BRIEF

BY: AZD ENGINEERING



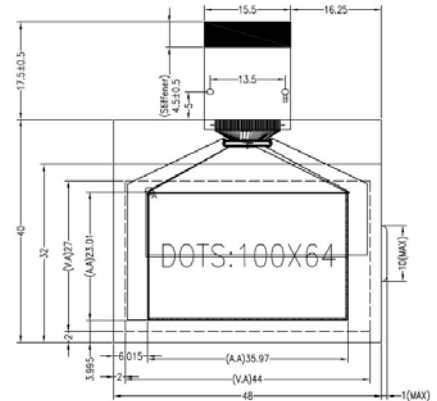
### COG And Its Interface

Many engineers implementing graphic monochrome displays in their design have specific requirements either for serial or parallel modes of data transfer from their main MPU. It often remains a secret for many designers in the industry that besides being cost and space savvy, COG displays offer great flexibility with their electrical interface.



### Parallel VS. Serial

Chip-on-glass modules carry low voltage operation and two types distinguishable interfaces, parallel and/or serial programming modes. The different advantages for both modes is that a serial interface requires less pinouts, however parallel operation provide a much faster means of transferring data when writing onto the display. In addition to part of the electrical interface, COG displays operate at low voltages due to the fact of an internal voltage booster circuit embedded in the IC. These circuit boosters have a wide range for increasing the voltage (usually for contrast), from 2X-5X boost depending on the IC.



### Parallel and Serial In One

While normally COG displays are designed with only one type of interface (serial or parallel), some COG LCDs can accept both types of interface. With such standard COG models as AGM1064A-FN-FBS (pictured to the right), AGM 1264K-FN-FBS, and AGM1264M-FL-FBW, engineers can simply choose a mode by making a selection on a "P/S" pin (parallel or serial data input).

