



DSVGA OLED-XL™ Microdisplay

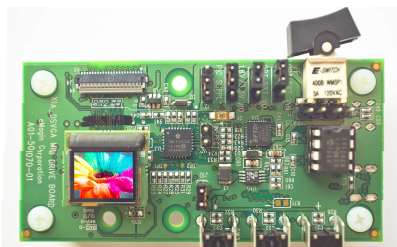
DSVGA OLED-XL MICRODISPLAY CAPABILITIES

The DSVGA OLED-XL is a medium format digital input microdisplay. Built upon on a single crystal silicon backplane the SVGA150 microdisplay features eMagin's proprietary thin-film OLED XL™ technology, offering extended luminance performance and life.

Designed specifically for near-to-eye applications demanding high image quality, compact size, and very low power, the DSVGA OLED-XL active matrix microdisplay delivers crisp, high-contrast imagery via eMagin's True Black™ pixel technology. This voltage drive pixel technology provides contrast of 10,000:1 across the full operating temperature range of the microdisplay (-45°C to +65°C). eMagin's pulse-width-modulation (PWM) function can be combined with the standard analog control to provide an extended dimming range. The PWM function also enables an impulse drive mode of operation that significantly reduces motion artifacts in high-speed scene changes.

Combining a total of 1,542,528 dots the active array of the DSVGA is comprised of 824 x 634 square pixels with a 15-micron pitch including and extra 24 columns and 24 rows (beyond the 800 x 600 main array) for optical alignment of the display, or extended image area.

With a typical power requirement of ~70mW monochrome and < 120mW full color, the DSVGA OLED-XL is twice as efficient as eMagin's long successful SVGA+ OLED-XL, and is an excellent replacement choice for near-to-eye, battery operated devices.



DSVGA shown with Interface & Development Kit (IRDK) mini-board.



DSVGA OLED-XL MICRODISPLAY ADVANTAGES

- Compact 15-micron pixel design
- High-contrast with very low power requirement (~70mW monochrome)
- All digital data & control interface
- Full 24-bit color
- Instant on at low temperatures
- Integrated temperature sensor
- High commercial/military ruggedness

APPLICATIONS

- Augmented vision/Data Glasses
- Situational awareness
- Mobile computing systems
- Personal display systems
- Night vision/thermal imaging
- Targeting devices
- Command and control
- Field maintenance and repair
- Instrumentation and test equipment

eMagin Corporation

700 South Drive Suite #201
Hopewell Junction, NY 12533
tel 845.838.7900
fax 845.838.7901
sales@emagin.com
www.emagin.com

GENERAL OPERATING CHARACTERISTICS

FORMAT

- 800 (x 3) x 600
- Total pixel array 824 (x 3) x 624

PIXEL ASPECT RATIO & PITCH

- 15 μ m square

COLOR PIXEL ARRANGEMENT

- R,G,B vertical stripe

VIEWING AREA

- 12 x 9 mm (0.59" diagonal)
- Electronic image centering (1 to 12 pixels H and V)

DISPLAY ASPECT RATIO

- 4:3

MECHANICAL ENVELOPE

- 18.0 x 16.0 x 5.01 mm (w x l x h)

COLOR GAMUT

- >75% of NTSC gamut
- Up to 256 gray levels

UNIFORMITY

- >90% End to end
- >95% Pixel to pixel uniformity

CONTRAST RATIO

- >10,000:1 (Across full temperature range)
- Dimming ratio (combinable multiplier up to 50,000:1)
 - Analog mode >500:1
 - PWM mode >200:1

LUMINANCE MAXIMUM

- Color XL 400 cd/m²
- Monochrome White 1,800 cd/m²
- Monochrome Green 20,000 cd/m²

TEMPERATURE

- Operating: -46°C to >+70°C
- Storage: -55°C to +90°C

HUMIDITY

- 85% RH non-condensing

VIDEO INPUTS

R, G, B INPUTS

- 24 bit digital RGB 1.8V
- BT-656

VIDEO FORMATS

- SVGA (or any window up to full array)
- Stereovision compatible

VIDEO SIGNAL BANDWIDTH

- 65 MHz maximum

CONTROL & SERIAL INTERFACE

- I²C Serial Interface

FRAME RATE

- 30Hz to 120 Hz

POWER INTERFACE

POWER SUPPLY (V_{DD})

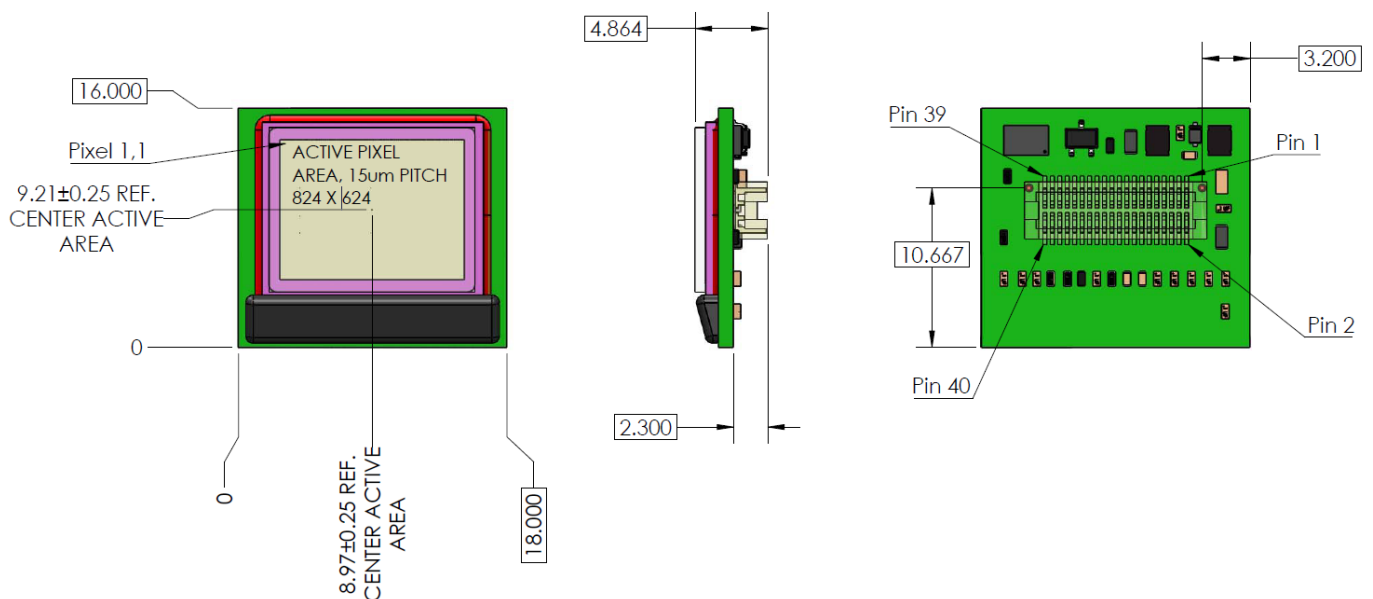
- 1.8 Vdc (logic), 5Vdc analog/display

TOTAL POWER DISSIPATION

- <120 mW typical (full color display)
- ~70 mW typical (monochrome display)

* Data represent performance at 20°C for standard commercial and industrial pricing. Characteristics will vary with temperature requirements. Low-cost commercial or consumer operating specifications may vary.

ASSEMBLY DIAGRAM



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