



A SAMSUNG DISPLAY COMPANY

# SXGA096 OLED-XLM™ Microdisplay

## SXGA096 OLED-XLM MICRODISPLAY CAPABILITIES

The SXGA096 OLED-XLM is the latest addition to eMagin's family of digital interface microdisplays. Built upon on a single crystal silicon backplane the SXGA096 microdisplay features eMagin's proprietary thin-film OLED XLM™ 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 SXGA096 OLED-XLM 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 4,015,536 dots the active array of the SXGA096 is comprised of 1292 x 1036 square pixels with a 9.6-micron pitch including and extra 12 columns and 12 rows (beyond the 1280 x 1024 main array) for optical alignment of the display, or extended image area.

The SXGA096 OLED-XLM is an excellent choice for head-mounted displays (HMDs) or other applications that require cabling from a remote drive source as it is driven by a very low-power, low-voltage-differential-signaling (LVDS) serialized video interface that minimizes the number of board interconnections and connector size, reduces electromagnetic emissions, and is compatible with standard LVDS drivers found in most commercially available FPGAs.



## SXGA096 OLED-XLM MICRODISPLAY ADVANTAGES

- Compact 9.6 micron design
- High-contrast with very low power requirement
- Low-power LVDS Input
- Instant on at low temperatures; no heaters required
- Integrated temperature sensor
- No clearing at high temperature
- High commercial/military ruggedness
- No back light or liquid materials required

## APPLICATIONS

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



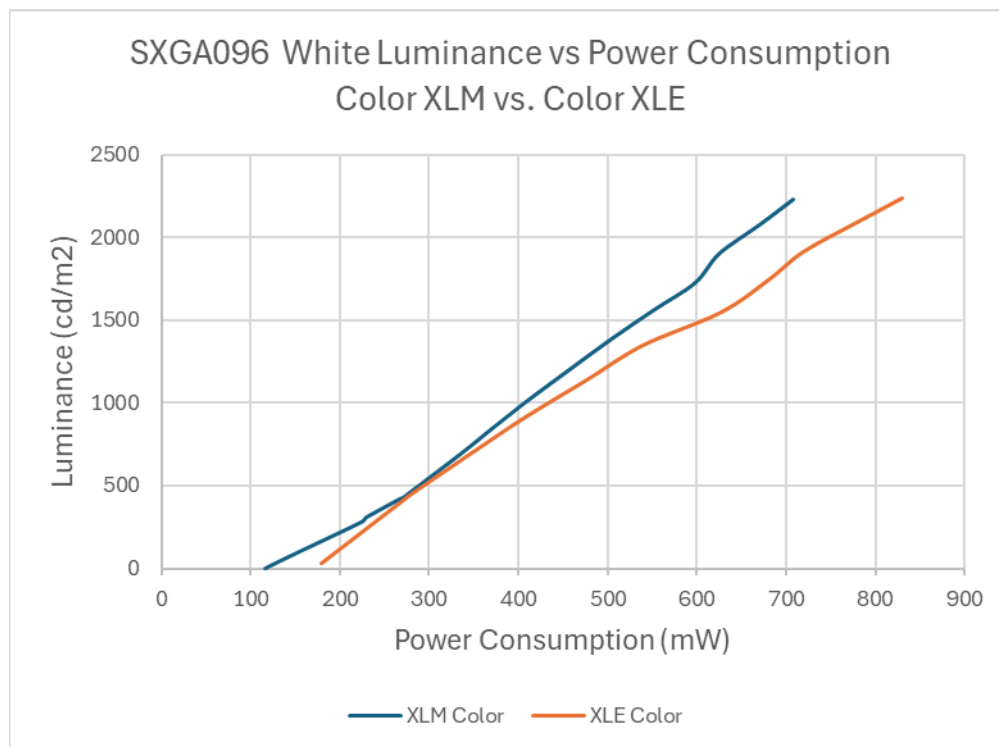
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## GENERAL OPERATING CHARACTERISTICS

### OPTICAL CHARACTERISTICS (At 2,000 nits, room temperature)

Symbol	Parameter	Min.	Typ.	Max.	Unit
LMAX	Front Luminance @ max gray level, all pixels on	2,000	2,200	>3,000	cd/m <sup>2</sup>
	Variability (display to display)	0	3	5	%
LMIN	Minimum display luminance @ max. gray level	0.1	5	-	cd/m <sup>2</sup>
CR	White to Black Contrast Ratio	1,000:1	10,000:1	> 50,000:1	
CIE White	CIE-X (1931 Standard)	0.311	0.312	0.327	
	CIE-Y (1931 Standard)	0.328	0.329	0.344	
CIE Red	CIE-X (1931 Standard)	0.615	0.630	-	
	CIE-Y (1931 Standard)	0.315	0.330	0.345	
CIE Green	CIE-X (1931 Standard)	0.215	0.230	0.245	
	CIE-Y (1931 Standard)	0.605	0.620	-	
CIE Blue	CIE-X (1931 Standard)	0.130	0.145	0.160	
	CIE-Y (1931 Standard)	0.095	0.110	0.125	
GL	Gray Levels	-	256	256	levels
F <sub>R</sub>	Refresh Rate	30	60	85	Hz
Fill Factor	Emissive Area/Total Sub-pixel Area		0.64		
U <sub>LA</sub>	End to end large-area uniformity	80	90		%
S <sub>VH</sub>	Pixel spatial noise at ½ luminance (1STD)			5	%
T <sub>ON</sub>	Time to recognizable image after application of power			0.5	sec

### POWER CONSUMPTION (all pixels on)



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