

Varitronix Display Technology Advancements

- **Twisted Nematic (TN)** – offers maximum contrast, widest viewing, and extended temperature range for segmented LCD applications
- **Hyper TN (HTN)** – reduces ghosting and crosstalk for high multiplex segmented LCD applications
- **Super TN (STN)** – provides high content information for dot matrix and graphic display module applications
- **Film STN (FSTN)** – provides compensation to the birefringence effect of STN that adds sharpness and contrast
- **Intelligent STN (ISTN)** – this technology uses a Twistar© film with a specialized Temperature-dependent Elliptical Polarizer (TEP) which provides outstanding performance in contrast and viewing over a wide temperature range
- **Double STN (DSTN)** – provides the best optical performance over the widest temperature range
- **Improved Black Nematic (IBN)** – provides extremely high contrast ratios, wide viewing angles, and extended temperature ranges. The advanced optical compensation results in the display looking sharp even from oblique viewing angles
- **Bistable Cholesteric Displays (BCD)** – this technology enables displays to maintain an image without consuming any power by using a highly reflective bistable cholesteric liquid crystal fluid
- **Free Shape** – long gone are the days of adhering to rectangular or square display shapes. We can cut various shapes including circular type
- **Color TN (CTN)** – provides color for segmented type displays by using sequential RGB LED's
- **Color STN (CSTN)** – provides an economical color solution by applying a color-filter within a passive matrix display type to achieve the desired effects
- **Advanced Fringe Field Switching (AFFS+)** – provides outstanding viewing and high luminosity while consuming less power than a typical active-matrix TFT display
- **Multi-domain Vertical Alignment (MVA)** – provides quick response times, wide viewing, and high contrast for active-matrix TFT displays
- **In-Plane Switching (IPS)** – provides wide viewing angles and accurate color reproduction with almost no off-angle color shifts for active matrix TFT displays
- **Monochrome TFT** – color filter is removed which results in superior performance in terms of viewing angles, response times, and contrast
- **Projected Capacitive Touch Panel (PCTP)** – touch panel technology which permits more accurate and flexible operation compared to 4/5 wire resistive touch panels
- **3D Technology** – provide both Stereoscopic (Shutter type) and Autostereoscopic (Parallax Barrier and Lenticular Lens) solutions for 3D display systems



www.varitronix.us.com



Varitronix Displays - We make Values Visible.

Since its inception by a team of enterprising academics at the University of Hong Kong in 1978, Varitronix has become one of the leading manufacturers of Liquid Crystal Displays through innovation in design, flexibility in production, and advancing technologies. More importantly, we constantly pride ourselves on the ability to respond and service customers' needs on a global scale. Our team is fully backed by dedicated and skilled engineers who are able to offer strong product development capabilities to take your concept to production.

More than 30 years have passed and Varitronix continues its tradition in providing the one stop shop for the latest display technologies, backed up by solid research and commitment to quality, customized to the individual needs, and delivered economically and efficiently. Varitronix make Values Visible.

This short form catalog presents the listing of some of our standard LCDs and LCD modules currently available from Varitronix. For additional details, please visit our website at www.varitronix.us.com and consult with the local sales office contacts.

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Products and Services

- Standard & Custom LCD's
- Standard & Custom Dot Matrix LCD Modules
- Standard & Custom Graphic LCD Modules
- Extended Temperature Displays & Modules
- OEM Product Design & Production
- Turnkey Product Development & Manufacturing
- Custom Chip-On-Board (COB) Assembly
- Custom Chip-On-Glass (COG) Assembly
- Custom Tape-Automated Bonding (TAB) Assembly
- Custom Touch Panel Design & Integration
- Custom Color STN Design, Development, & Production
- Custom TFT Design, Development, & Production
- Enhancement Film design to increase optical performance
- Heater design to maximize display performance over the widest temperature range

Varitronix offers the following products, services, and technologies:

Monochrome Character Modules

Part Number	Character Format	Technology	Module Size (W x H x D) (mm)	Viewing Area (W x H) (mm)	Character Size (W x H) (mm)	Backlight Type/Color	Viewing Angle	Operating Temp (°C)	Storage Temp (°C)	Driving Scheme
MDLS-81809D-105	8 characters x 1 line	STN Chip-On-Board	84.0 x 44.0 x 15.0	61.0 x 15.8	6.45 x 10.75	LED/Yellow-Green	6 o'clock	-30° to 80°	-40° to 80°	1/8 Duty; 1/4 Bias
MDLS-81809D-115	8 characters x 1 line	STN Chip-On-Board	84.0 x 44.0 x 15.0	61.0 x 15.8	6.45 x 10.75	LED/Yellow-Green	6 o'clock	0° to 50°	-10° to 60°	1/8 Duty; 1/4 Bias
MDLS-82603-01	8 characters x 2 lines	STN Chip-On-Board	33.7 x 44.4 x 10.0	26.5 x 12.2	2.10 x 3.39	N/A	6 o'clock	0° to 50°	-10° to 60°	1/16 Duty; 1/5 Bias
MDLS-16166D-11	16 characters x 1 line	STN Chip-On-Board	80.0 x 36.0 x 14.0	64.5 x 13.8	3.15 x 6.30	LED/Yellow-Green	6 o'clock	-20° to 70°	-30° to 80°	1/16 Duty; 1/4 Bias
MDLS-16166D-158	16 characters x 1 line	STN Chip-On-Board	80.0 x 36.0 x 14.0	64.5 x 13.8	3.15 x 6.30	LED/Yellow-Green	6 o'clock	0° to 50°	-10° to 60°	1/16 Duty; 1/5 Bias
MDLS-16188D-109	16 characters x 1 line	STN Chip-On-Board	122.0 x 33.0 x 15.0	99.0 x 13.0	4.84 x 9.22	LED/Yellow-Green	6 o'clock	-20° to 70°	-30° to 80°	1/8 Duty; 1/4 Bias
MDLS-16263-03	16 characters x 2 lines	STN Chip-On-Board	53.0 x 20.0 x 8.0	36.0 x 10.0	1.85 x 3.15	LED/Yellow-Green	6 o'clock	0° to 50°	-10° to 60°	1/16 Duty; 1/5 Bias
MDLS-16263-147	16 characters x 2 lines	STN Chip-On-Board	53.0 x 20.0 x 8.0	36.0 x 10.0	1.85 x 3.15	LED/Yellow-Green	6 o'clock	-30° to 80°	-40° to 80°	1/16 Duty; 1/5 Bias
MDLS-16265BD-46	16 characters x 2 lines	STN Chip-On-Board	80.0 x 36.0 x 13.0	61.0 x 16.0	2.95 x 5.55	LED/Yellow-Green	6 o'clock	0° to 50°	-10° to 60°	1/16 Duty; 1/5 Bias
MDLS-16265D-220	16 characters x 2 lines	STN Chip-On-Board	84.0 x 44.0 x 14.0	61.0 x 15.8	2.95 x 5.55	LED/Yellow-Green	6 o'clock	-30° to 80°	-40° to 80°	1/16 Duty; 1/4 Bias
MDLS-16268CD-106	16 characters x 2 lines	STN Chip-On-Board	122.0 x 44.0 x 15.0	99.0 x 23.0	4.84 x 9.22	LED/Yellow-Green	6 o'clock	-30° to 80°	-40° to 80°	1/16 Duty; 1/4 Bias
MDLS-201812D-05	20 characters x 1 line	STN Chip-On-Board	182.0 x 43.5 x 14.5	147.0 x 18.7	5.90 x 12.70	LED/Yellow-Green	12 o'clock	-20° to 70°	-30° to 80°	1/16 Duty; 1/4 Bias
MDLS-20265D-161	20 characters x 2 lines	FSTN Chip-On-Board	116.0 x 37.0 x 14.0	83.0 x 18.6	3.20 x 5.55	LED/White	6 o'clock	-20° to 70°	-40° to 80°	1/16 Duty; 1/5 Bias
MDLS-20268D-51	20 characters x 2 lines	IBN Chip-On-Board	146.0 x 43.0 x 15.0	123.0 x 23.0	4.84 x 9.22	LED/White	6 o'clock	-20° to 70°	-30° to 80°	1/16 Duty; 1/4 Bias
MDLS-20464D-212	20 characters x 4 lines	STN Chip-On-Board	98.0 x 60.0 x 14.0	76.0 x 25.2	2.90 x 4.70	LED/Yellow-Green	6 o'clock	-30° to 80°	-40° to 80°	1/16 Duty; 1/4 Bias
MDLS-20468SP-28	20 characters x 4 lines	STN Chip-On-Board	146.0 x 62.5 x 14.0	123.0 x 42.5	4.84 x 9.22	LED/Yellow-Green	6 o'clock	-20° to 70°	-30° to 80°	1/16 Duty; 1/4 Bias
MDLS-24269D-21	24 characters x 2 lines	STN Chip-On-Board	190.0 x 42.0 x 14.5	159.3 x 23.0	5.40 x 8.70	N/A	6 o'clock	0° to 50°	-10° to 60°	1/16 Duty; 1/5 Bias
MDLS-402665P-42	40 characters x 2 lines	STN Negative Mode Chip-On-Board	182.0 x 33.5 x 14.0	154.4 x 27.6	3.15 x 5.50	LED/Yellow-Green	6 o'clock	0° to 50°	-10° to 60°	1/16 Duty; 1/5 Bias
MDLS-40466D-130	40 characters x 4 lines	STN Chip-On-Board	196.0 x 56.0 x 14.5	154.4 x 27.6	3.15 x 5.50	LED/Yellow-Green	12 o'clock	-20° to 70°	-30° to 80°	1/16 Duty; 1/4 Bias

Monochrome Graphic Modules

Part Number	Resolution	Technology	Module Size (W x H x D) (mm)	Viewing Area (W x H) (mm)	Backlight Type/Color	Viewing Angle	Operating Temp (°C)	Storage Temp (°C)	Driving Scheme
COG-12864-06	128 x 64 dots	FSTN Chip-On-Glass	67.5 x 55.5 x 5.6	62.0 x 44.0	LED/White	6 o'clock	0° to 50°C	-10° to 60°	1/65 Duty; 1/9 Bias
COG-248160-02	248 x 160 dots	FSTN Chip-On-Glass	63.0 x 66.7 x 8.3	57.0 x 41.0	LED/White	12 o'clock	-10°C to 70°	-40° to 80°	1/160 Duty; 1/12 Bias
DTP- LCM240128T-17	240 x 128 dots	STN Negative Blue Chip-On-Board, 4-wire resistive touch panel	144.0 x 104.0 x 17.0	114.0 x 64	LED/White	6 o'clock	0° to 50°	-10° to 60°	1/128 Duty; 1/12 Bias
MGLS-160128-03	160 x 128 dots	STN Chip-On-Board	129.0 x 102.0 x 19.2	101.0 x 82.0	LED/Yellow-Green	6 o'clock	-20° to 70°	-30° to 80°	1/128 Duty; 1/12 Bias
MGLS-19264D-107	192 x 64 dots	STN Chip-On-Board	100.0 x 60.0 x 13.0	84.0 x 31.0	LED/Yellow-Green	6 o'clock	-20° to 70°	-30° to 80°	1/64 Duty; 1/9.3 Bias
MGLS-24064-61C	240 x 64 dots	STN Chip-On-Board	180.0 x 65.0 x 16.0	132.0 x 39.0	LED/Yellow-Green	6 o'clock	0° to 50°	-10° to 60°	1/64 Duty; 1/8.7 Bias
MGLS-24064Z-09	240 x 64 dots	STN Chip-On-Board	180.0 x 65.0 x 16.0	132.0 x 39.0	LED/Yellow-Green	6 o'clock	-20° to 70°	-30° to 80°	1/64 Duty; 1/9 Bias
MGLS-240128Z-05	240 x 128 dots	FSTN Chip-On-Board	144.0 x 104.0 x 15.0	114.0 x 64.0	LED/Yellow-Green	6 o'clock	-20° to 70°	30° to 80°	1/128 Duty; 1/12.4 Bias
TAB-240128-01	240 x 128 dots	FSTN Tape-Automated-Bond	77.2 x 40.7 x 5.1	60.0 x 30.62	LED/White	12 o'clock	0° to 50°	-20° to 60°	1/128 Duty; 1/12 Bias
PDA-320240D-04	320 x 240 dots	FSTN Tape-Automated-Bond, 4-wire resistive touch panel	96.3 x 74.3 x 6.9	78.38 x 59.18	LED/White	6 o'clock	0° to 50°	-20° to 70°	1/240 Duty; 1/13 Bias

Color STN Graphic Modules

Part Number	Resolution	Technology	Module Size (W x H x D) (mm)	Viewing Area (W x H) (mm)	Backlight Type/Color	Viewing Angle	Operating Temp (°C)	Storage Temp (°C)	Driving Scheme
COG-C144MVGI-03F	128 x RGB x 128 CSTN	Negative mode Chip-On-Glass	30.90 x 35.60 x 1.57	28.10 x 28.20	N/A	6 o'clock	-20° to 70°	-30° to 80°	1/128 Duty
COG-C144MVGI-08	128 x RGB x 128 CSTN	Negative mode Chip-On-Glass	33.35 x 41.64 x 3.05	28.10 x 28.20	LED/White	6 o'clock	-20° to 70°	-30° to 80°	1/128 Duty
COG-C172MVHC-04	128 x RGB x 160 CSTN	Negative mode Chip-On-Glass	32.50 x 43.30 x 1.57	29.50 x 34.44	N/A	6 o'clock	-20° to 70°	-30° to 80°	
COG-C177MVHS-06	128 x RGB x 160 CSTN	Negative mode Chip-On-Glass	34.70 x 65.80 x 3.50	30.54 x 36.04	LED/White	6 o'clock	-20° to 70°	-30° to 80°	1/160 Duty; 1/6 Bias
COG-C192MVHS-01	128 x RGB x 160 CSTN	Negative mode Chip-On-Glass	38.50 x 73.85 x 3.55	33.60 x 39.44	LED/White	6 o'clock	-20° to 70°	-30° to 80°	1/160 Duty; 1/6 Bias

TFT Graphic Modules

Part Number	Diagonal Size (in)	Resolution	Technology	Module Size (W x H x D) (mm)	Active Area (W x H) (mm)	Backlight Type/ Color	Viewing Angle	Operating Temp (°C)	Storage Temp (°C)
COG-T177MXHA-02	1.77"	128 x RGB x 160; 65K colors	TFT TN	34.70 x 46.70 x 2.75	28.03 x 35.04	LED/White	12 o'clock	-20°C to 70°	-30° to 80°
COG-T240V6080-02	2.4"	240 x RGB x 320 dots;	TFT MVA	42.80 x 82.55 x 3.55	36.72 x 48.96	LED/White	80/80/80/80	-20°C to 70°	-30° to 80°
COG-T280MCQB-03	2.8"	240 x RGB x 320 dots; 262K colors	TFT TN	50.00 x 96.20 x 3.80	43.20 x 57.60	LED/White	6 o'clock	-20°C to 70°	-30° to 80°
COG-T350MCQV-03	3.5"	320 x RGB x 240 dots; 262K colors	TFT TN; 4-wire resistive touch panel	77.45 x 108.15 x 4.72	72.08 x 54.56	LED/White	6 o'clock	-20°C to 70°	-30° to 80°
COG-T350MCQV-04	3.5"	320 x RGB x 240 dots; 262K colors	TFT TN	77.45 x 108.15 x 4.72	72.08 x 54.56	LED/White	6 o'clock	-20°C to 70°	-30° to 80°
COG-VLGT6566-03	4.3"	480 x RGB x 272 dots, 16M colors	TFT TN; 4-wire resistive touch panel	105.50 x 109.80 x 4.50	95.04 x 53.86	LED/White	6 o'clock	-20°C to 70°	-30° to 80°
COG-VLGT6566-04	4.3"	480 x RGB x 272 dots, 16M colors	TFT TN	105.50 x 109.80 x 4.50	95.04 x 53.86	LED/White	6 o'clock	-20°C to 70°	-30° to 80°
COG-T500F6080-01	5.0"	240 x RGB x 320 dots; 262K colors	TFT IPS	91.40 x 119.30 x 18.60	75.60 x 100.80	LED/White	85/85/85/85	-20°C to 70°	-30° to 80°
TLM-T700T2120-03	7.0"	800 x RGB x 480 dots; 16.7M colors	TFT TN	162.40 x 105.00 x 7.30	152.40 x 91.44	LED/White	6 o'clock	-30° to 85°	- 40° to 90°
COG-T800F2120-01	8.0"	800 x RGB x 480 dots; 16.7M colors	TFT AFFS+	190.00 x 120.00 x 11.00 1	74.00 x 104.40	LED/White	89/89/89/89	-30° to 85°	- 40° to 90°
TLM-TA10MHZ-02	10.1"	1024 x RGB x 600 dots; 262K colors	TFT TN	235.00 x 145.80 x 5.50	220.42 x 129.15	CCFL/White	6 o'clock	0° to 50°	- 20° to 60°

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