

# SHELLY ASSOCIATES

Components  
Group

**WIDE TEMPERATURE RANGE  
FIELD EFFECT  
LIQUID CRYSTAL  
DISPLAYS**

## 9000 SERIES

DS-003 0683

Shelly Associates offers Field Effect liquid crystal displays in 3½, 4 and 6 digit configurations. These LCD's are available in reflective and transmissive viewing modes and may be selected with .5" or .7" high characters.

### WIDE TEMPERATURE RANGE

These LCD's will operate at temperatures that range from -30°C to +85°C. The combination of wide temperature range and CMOS/TTL compatibility make these LCD's ideal for use in portable equipment and other low power applications.

### HIGH VISIBILITY

Shelly liquid crystal displays feature excellent readability. The high contrast achieved by black characters on a uniform silver background makes these LCD's suitable for use in sunlight, direct and indirect lighting conditions.

### RELIABILITY

Rigid quality assurance standards and a service life exceeding 50,000 hours insure that these LCD's will deliver the maximum in performance and dependability.

### CONVENIENT MOUNTING

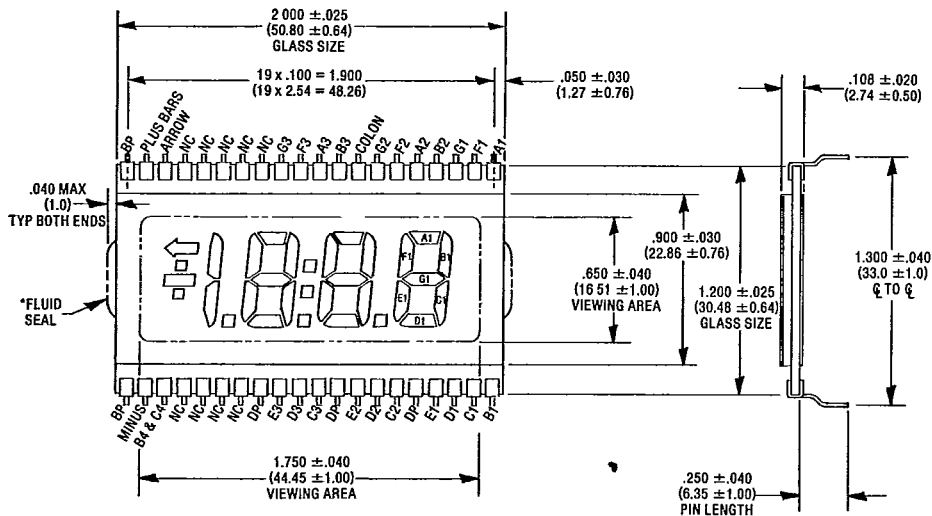
Dual in-line pins are bonded along two edges of the display to simplify mounting.

### APPLICATIONS

The possible uses of these LCD's are virtually unlimited. Applications include industry, electronics, medical and communications equipment.

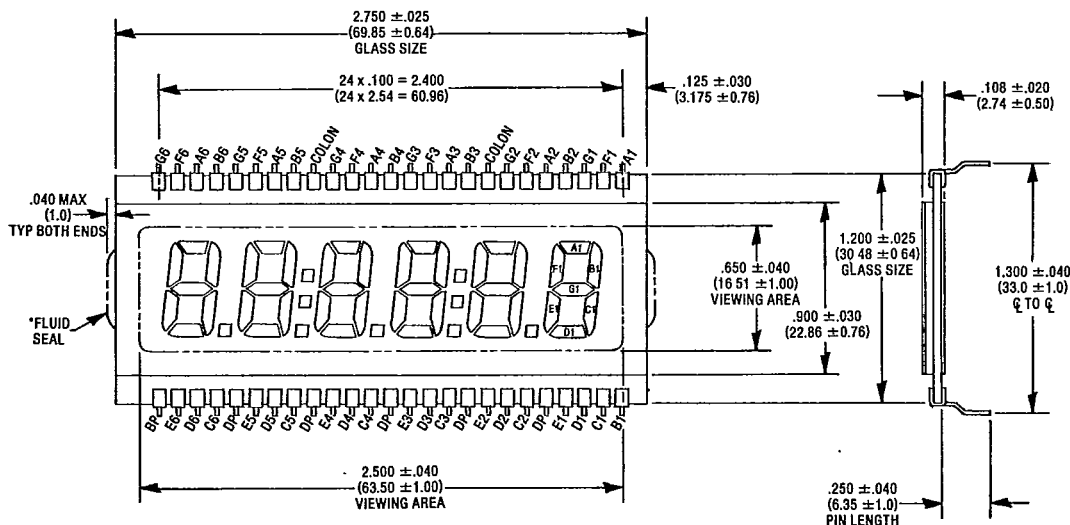
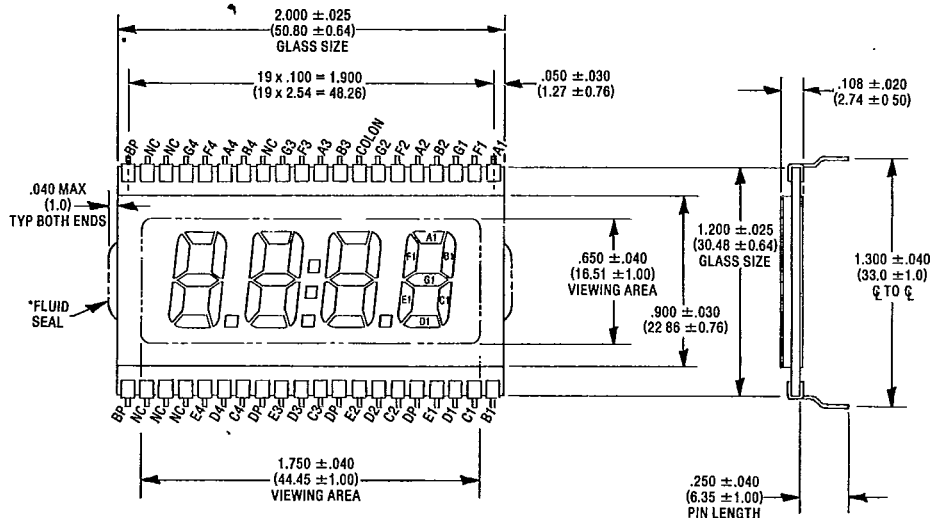


# .5" CHARACTER DISPLAY



## 3 1/2 DIGIT #9054

## 4 DIGIT #9055

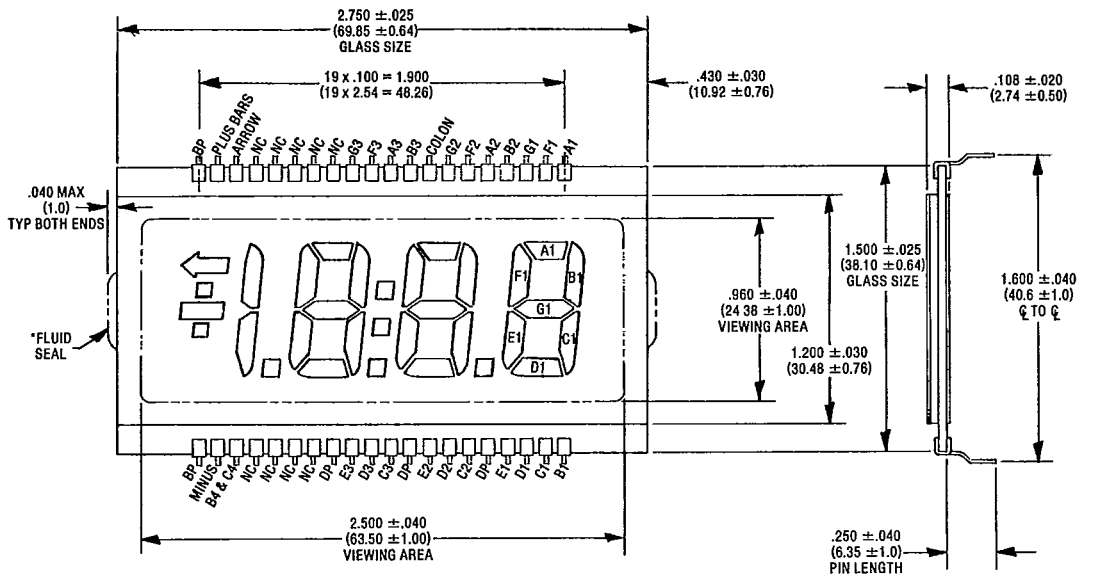


## 6 DIGIT #9071

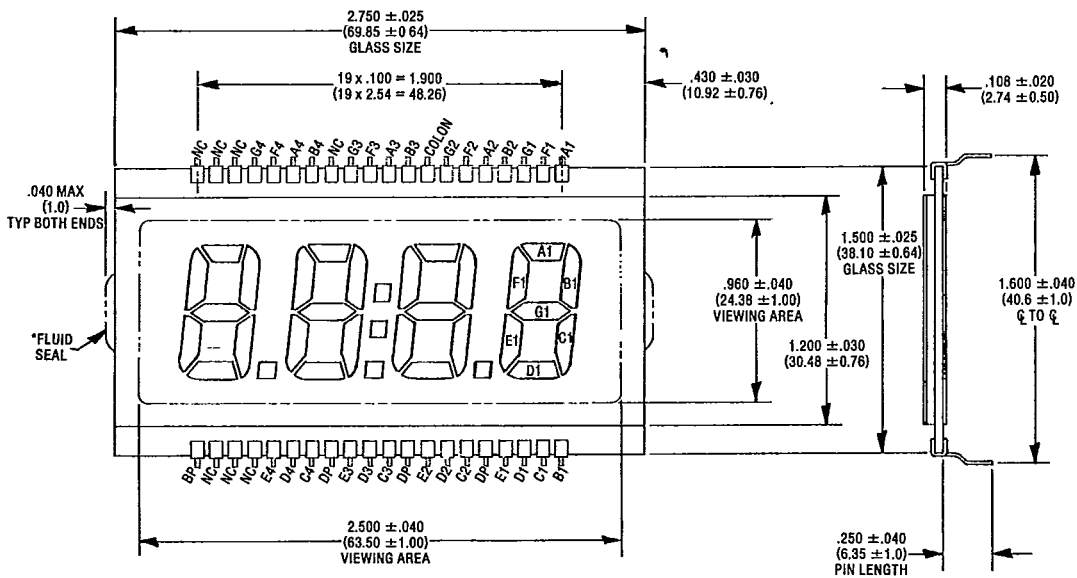
NOTE: CHARACTER PITCH IS 6° ON ALL DEVICES  
\*SEAL MAY BE ON RIGHT OR LEFT

# .7" CHARACTER DISPLAY

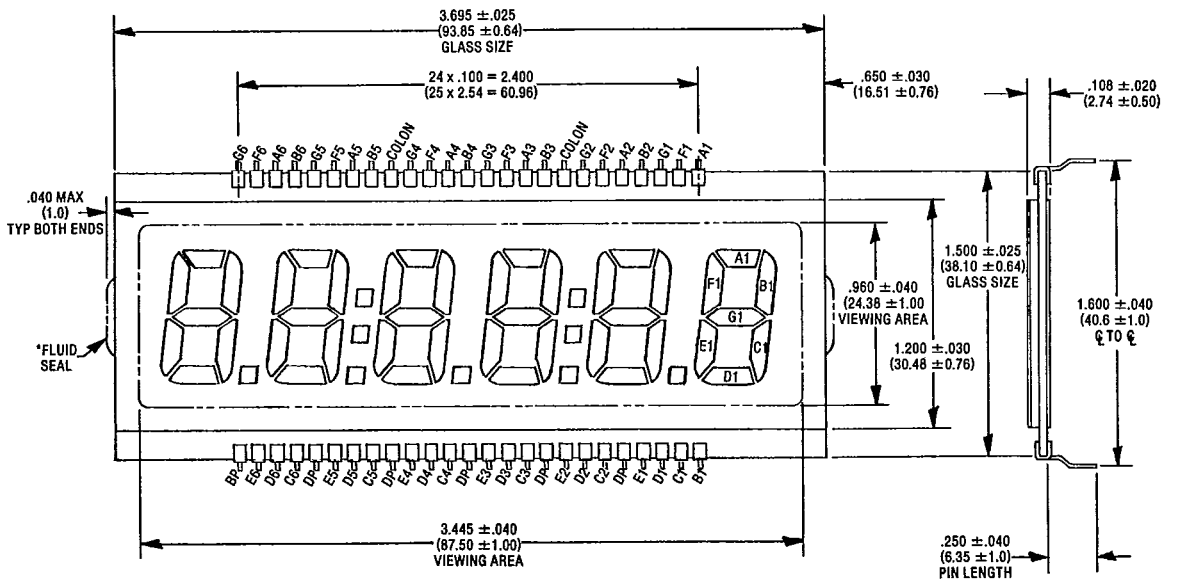
**3 1/2 DIGIT**  
**#9064**



**4 DIGIT**  
**#9065**



**6 DIGIT**  
**#9081**



Dimensional drawings are actual size.

# PERFORMANCE SPECIFICATIONS

CHARACTERISTIC	WIDE TEMP RANGE FLUID		
	MIN/MAX	TYPICAL OPERATING RANGE	UNITS
UNLESS OTHERWISE SPECIFIED $T_A = +25^\circ\text{C}$ AND TEST VOLTAGE IS TYPICAL			
OPERATING VOLTAGE	3 TO 15	5 TO 12	$V_{rms}$
DC DRIVE COMPONENT ALLOWABLE		25	mV
OPERATING FREQUENCY RANGE*	30 TO 100	32 TO 64	Hz
CURRENT (ALL SEGMENTS ON)	10 MAX	7	$\mu\text{A}$
RESPONSE TIME			
SEGMENT ON ( $T_A = +25^\circ\text{C}$ )	80 MAX	40	ms
SEGMENT OFF ( $T_A = +25^\circ\text{C}$ )	50 MAX	20	ms
SEGMENT ON ( $T_A = -20^\circ\text{C}$ )	850 MAX	500	ms
SEGMENT OFF ( $T_A = -20^\circ\text{C}$ )	800 MAX	500	ms
CONTRAST RATIO		20:1	
OPERATING TEMPERATURE RANGE	-30 TO +85		$^\circ\text{C}$
STORAGE TEMPERATURE RANGE	-30 TO +90		$^\circ\text{C}$
EXPECTED LIFE		50,000	HOURS
VIEWING ANGLE		$\pm 60$	DEGREES

\*RECOMMENDED: FLICKER MAY OCCUR BELOW 30 Hz AND POWER CONSUMPTION INCREASES ABOVE 100 Hz.

Specifications are subject to change without notice.

## ORDERING INFORMATION

ORDER BY PART NUMBER. SPECIFY THE DISPLAY TYPE AND THE DESIRED VIEWING MODE.

EXAMPLE:

**#9054 - 01**

CODE	VIEWING MODE	SEGMENTS	BACKGROUND
01 04*	REFLECTIVE TRANSFLECTIVE	BLACK BLACK	SILVER SILVER

DISPLAY TYPE      VIEWING MODE

\*REFLECTS AMBIENT LIGHT AND TRANSMITS BACKLIGHTING

8-digit LCD'S are also available; .5" character height only, reflective and transflective viewing modes.

PART NUMBER - 9076

**SHELLY  
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Group**

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