

3½-Digit Clock and Instrument Display

Optoelectronic Products

FLB3513X1 FLB3513X2

General Description

The FLB3513X1 and FLB3513X2 are liquid crystal displays that are hermetically sealed with glass frit. They are available in pinned or elastomeric connector configurations, offer four polarizer options and operate at the standard temperature range of -20°C to $+60^{\circ}\text{C}$. Applications include clock, digital panel meter and general instrumentation.

0.5-Inch Digits (13 mm)

Decimal Points for DPMs

Colon for Timekeeping

Four Polarizer Options

Glass-Frit Seal for High Reliability

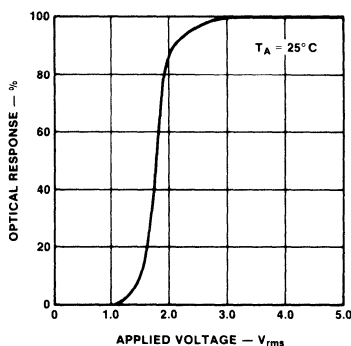
Electrical Characteristics Measured at 25°C with drive voltage of 5.0 V, square wave at 32 Hz.

Characteristic	Min	Typ	Max	Units
Operating Voltage	2.8	5.0	12	V
Saturation Voltage	2.0	2.2	2.4	V
Operating Frequency Range	30	32	1000	Hz
Drive Current at 3.0 V, All Segments On			5.0	μA
Viewing Angle		45		degrees
Contrast Ratio		20:1		
Response Times: t_{on} (Includes Delay Time)		70	150	ms
t_{off} (Includes Delay Time)		100	150	ms
Operating Temperature Range (Note)	-20		60	$^{\circ}\text{C}$
Storage Temperature Range	-20		80	$^{\circ}\text{C}$
Humidity	50/60			$^{\circ}\text{C}/\text{RH}$
Life Time		50K		hrs

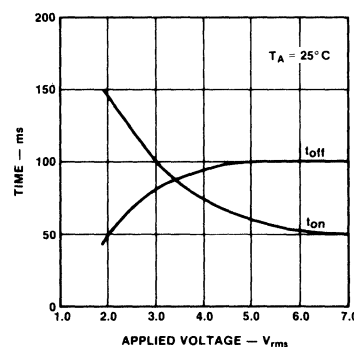
Note

Higher operating temperature is available. Consult the factory for details.

Voltage Characteristics



Response Time

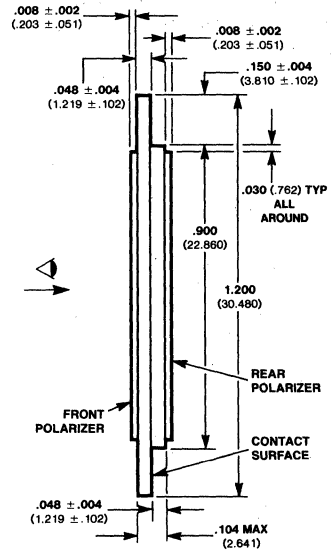
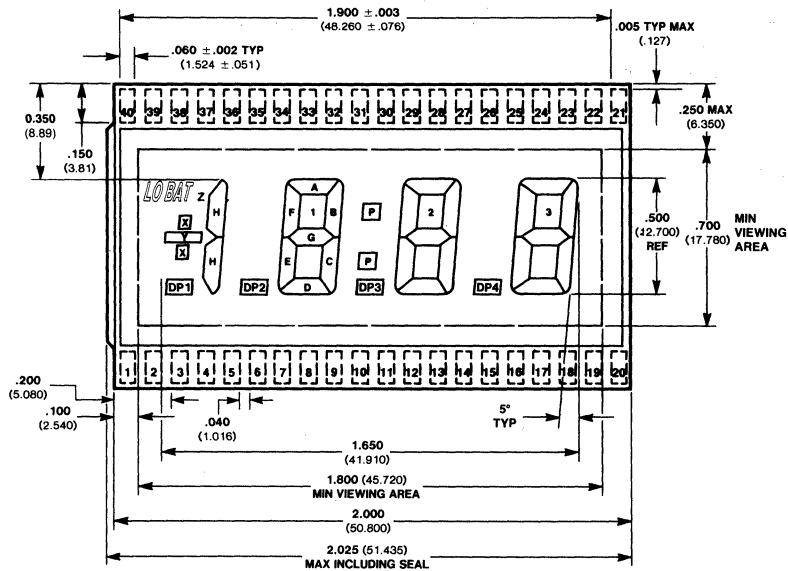


Package Outline

FLB3513X1 FLB3513X2

Package Outline

FLB3513X1 (Elastomer connection)



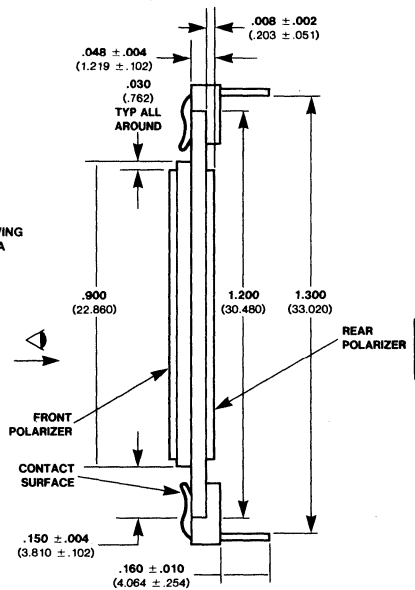
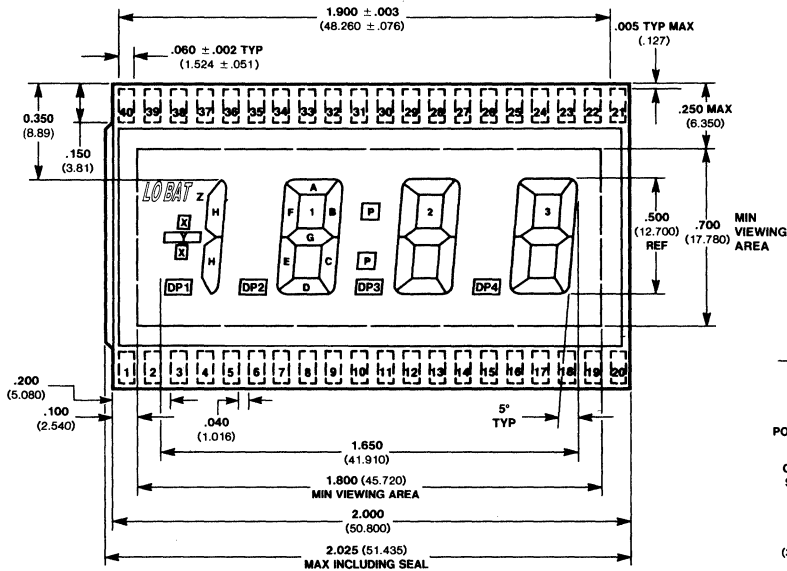
Pin Assignments

1 Backplane	9 Segment E ₁	17 Segment E ₃	25 Segment A ₂	33 NC
2 Y	10 Segment D ₁	18 Segment D ₃	26 Segment F ₂	34 NC
3 H	11 Segment C ₁	19 Segment C ₃	27 Segment G ₂	35 NC
4 Decimal Point	12 Decimal Point 3	20 Segment B ₃	28 Colon P	36 NC
5 NC	13 Segment E ₂	21 Segment A ₃	29 Segment B ₁	37 NC
6 NC	14 Segment D ₂	22 Segment F ₃	30 Segment A ₁	38 Z
7 NC	15 Segment C ₂	23 Segment G ₃	31 Segment F ₁	39 X
8 Decimal Point 2	16 Decimal Point 4	24 Segment B ₂	32 Segment G ₁	40 Blank

Pin Assignments Ordering Information

FLB3513X1 FLB3513X2

FLB3513X2 (Pin connection)



Notes

All dimensions in inches **bold** and millimeters (parentheses)

Ordering Information

Elastomeric

Connector Configuration

FLB3513A1

FLB3513B1

FLB3513C1

FLB3513D1

Connector Pins

FLB3513A2

FLB3513B2

FLB3513C2

FLB3513D2

Polarizer Option

Non-polarized

Transflective

Reflective

(smooth)

Transmissive

Connectors

Display is available in pinned or elastomeric configuration.

See page 6-42 for elastomeric connector suppliers.

Drivers

See page 6-43 for available drivers.