

4-Digit Tape-Stereo- Radio-Clock Display

Optoelectronic Products

FLB4010X1

General Description

The FLB4010X1 is a liquid crystal display that is hermetically sealed with glass frit. It interfaces with elastomeric connectors, is available in four polarizer options and operates at the standard temperature range of -20°C to $+60^{\circ}\text{C}$. The FLB4010X1 is intended for auto radio/stereo cassette player applications.

0.4-Inch Digits (10 mm)

Decimal Points

Colons for Time Display

Digital Readout for Frequency and Time Display

AM-PM Time Indicators

Dolby™ Symbol (Note 1)

AM-FM Radio Mode Indicators

Stereo Mode Indicator

Tape Mode Indicator

Forward-Reverse Tape Direction Indicator

Glass-Frit Seal for High Reliability

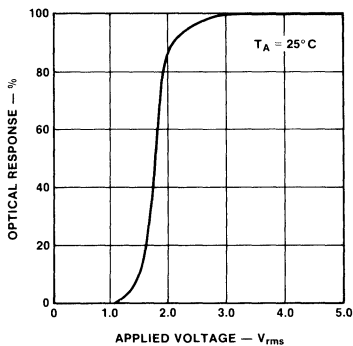
Electrical Characteristics Measured at 25°C with drive voltage of 5.0 V, square wave at 32 Hz.

Characteristic	Min	Typ	Max	Units
Operating Voltage	2.8	5.0	12.0	V_{rms}
Saturation Voltage	2.0	2.2	2.4	V_{rms}
Operating Frequency Range	30	32	1000	Hz
Drive Current at 3.0 V, All Segments On			100	μA
Segment Capacitance			3.0	pF
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
DC Drive Component Allowable			50	mV

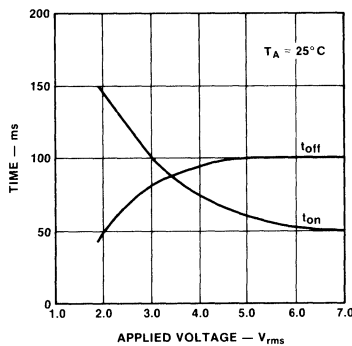
Note

Display may be operated beyond these limits for short periods of time. Extended periods of operation at high temperatures and humidities cause polarizer degradation resulting in reduced contrast. Higher operating temperature is available. Contact factory.

Voltage Characteristics



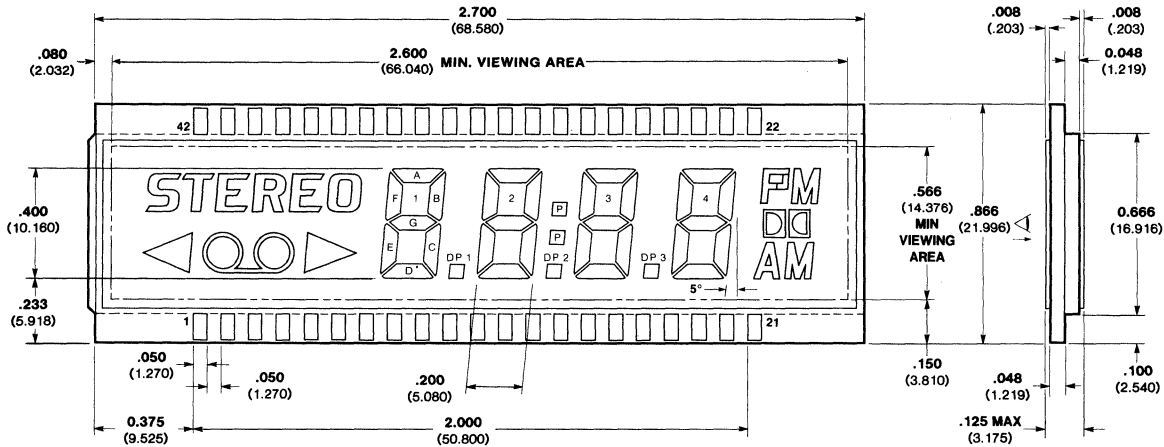
Response Time



Package Outline Pin Assignments

FLB4010X1

Package Outline



Notes

Dolby and the double-D symbol are trademarks of Dolby Laboratories. Permission for their use must be obtained from Dolby Laboratories.

All polarizers are the same size.

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

Decimal Points and colons (P) are the same width as segment widths.

Seal shall not exceed width of back glass.

Pin Assignments

1 Backplane	10 Segment D ₂	19 Segment C ₄	28 Segment G ₄	37 Segment G ₂
2 ◁	11 Segment C ₂	20 AM	29 Segment B ₃	38 Segment B ₁
3 ○○	12 Decimal Point 2	21 NC	30 Segment A ₃	39 Segment A ₁
4 ▷	13 Segment E ₂	22 PM	31 Segment F ₃	40 Segment F ₁
5 Segment E ₁	14 Segment D ₃	23 FM	32 Segment G ₃	41 Segment G ₁
6 Segment D ₁	15 Segment C ₃	24 Dolby	33 Colon P	42 Stereo
7 Segment C ₁	16 Decimal Point 3	25 Segment B ₄	34 Segment B ₂	
8 Decimal Point 1	17 Segment E ₄	26 Segment A ₄	35 Segment A ₂	
9 Segment E ₂	18 Segment D ₄	27 Segment F ₄	36 Segment F ₂	

Ordering Information

Device Type

FLB4010A1
FLB4010B1
FLB4010C1
FLB4010D1

Polarizer Option

Non-Polarized
Transflective
Reflective (smooth)
Transmissive

Connectors

Display interfaces with elastomeric connectors.
See page 6-42 for elastomeric connector suppliers.

Drivers

See page 6-43 for available drivers.