

TVM2464BTC LCD Module



Via software you can draw graphics, adjust the display contrast, control the EL back-light, enable the sound transducer for button feedback or turn it on and off as an alarm. You can also modify the cursor style, select several switch areas as a single button or create phantom buttons in any of the 3 X 10 matrix switch areas of the touch panel. Automatic placement of buttons including labels can also be easily accomplished. All of this capability allows you the luxury of time to concentrate on developing important operational portions of your program while avoiding compromises to the user I/O functions.

A New Concept in LCD Technology

The TVM2464BTC combines the best of several “state of the art” technologies into one compact 5 Volt module. Containing a graphics LCD, touch panel, sound transducer, long life EL back-light with step up voltage transformer and a 16 bit high performance controller, the TVM2464BTC is truly a complete “ready to go” user interface. This integrated solution to the I/O problem frees up main CPU board space, simplifies front panel design and assembly, shortens product development time and reduces equipment size and cost while enhancing product appearance and operation.

The TVM2464 makes touch panel and graphics LCD technology available for low to medium quantity products where previously such individual components had been too expensive to be of practical use. Large volume users will like the advantages of a completed, tested module which, in addition to simplifying final product construction, is easily replaced or repaired if necessary.

Easy to Program

Because of its advanced instruction set which contains a variety of commands for both graphics and text operations, the TVM2464 module makes application programming easier than ever before.

Integrated command and data buffers free your main CPU to continue processing while the TVM2464 executes as a true peripheral returning status information including busy and error flags. Status signals exist to indicate key closures have occurred during main CPU operations and to ascertain the condition of the input and output buffers.

The TVM2464 has two built in text fonts (the bit patterns used to construct text) and can simultaneously accommodate three downloaded soft fonts. If other fonts are required, they can be easily loaded “on the fly” just prior to use. Using this approach, an unlimited number of fonts can be used to create a screen.

Built Tough

Liquid Crystal displays are primarily constructed of glass, so we built the TVM2464 with protection of the display in mind. Silicone and Poron gaskets plus a protective metal bezel create a shock absorbing environment for the LCD. The touch panel is fabricated from tough polyester with a hard coated touch surface that is easily cleaned using isopropyl alcohol and is highly resistant to most solvents, acids, bases and even your strongest coffee. Using an optically clear adhesive, a protective glass plate is bonded to the touch panel shielding the LCD from direct contact.

Both mounting holes and slots are provided should you desire to “piggy back” another board onto the TVM2464.

Connectors on the TVM2464 are standard .050 inch ribbon cable type shrouded headers. The touch panel switch matrix is accessible via an auxiliary cable connector accommodating applications where additional switch types and locations are desired.

Beneficial Cost Factors

The TVM2464, being a high quality mechanical and electrical system, presents an impressive features vs. cost ratio. Since the TVM2464 is so easy to program, time to market as well as both hardware and software development costs are reduced. Being a single component, the costs for TVM2464 procurement and storage are minimal.

Designer's Kit

The designer's kit includes a TVM2464 module, PC interface card, cable, manuals, software library and example programs (including source code) to run on your PC. With the designer's kit and powerful instruction set of the TVM2464 you'll be creating graphics, downloading soft fonts, and placing buttons in a very short time. A soft font compiler is also included with which you can create your own text fonts or a large graphic such as a company logo.

TVM2464BTC Specifications

Mechanical: Unless noted all dimension are in inches

Width x Height x Depth (including connectors)	6.35 x 2.90 x 1.25 162 x 74 x 32mm
Bezel opening	4.27 x 1.44, 109 x 37mm
Active viewing area	4.00 x 1.20, 102 x 31mm
Mounting hole size	.130 diameter (6-32)
Weight	7 oz
Storage Temperature	-20 to +60 °C
Operating Temperature	0 to +50 °C
Temperature Compensated	
Display	240 x 64 graphics LCD
Dot Size	.188 x .188mm
Dot Pitch	.218 x .218mm
Touch Panel	3 x 10 scanned matrix
EL Back-light	Long life aviation green
Connector A (CPU)	20 pin 3M type 3592
Connector B (TP matrix)	14 pin 3M type 3598

Electrical:

Power supply voltage	4.5 to 5.5	Volts
Power supply current (with EL)	150	mA
Power supply current (without EL)	50	mA
Maximum input low level	0.8	Volts
Minimum input high level	2.0	Volts
Maximum output low level	0.4	Volts
Minimum output high level	3.0	Volts

Notes:

Dimensions and electrical specifications are typical values. For complete specifications consult the TVM2464 designer's manual or contact C Sys Labs.

Back-light lifetime is generally calculated to the half brightness point of life. The TVM2464 includes a back-light which has a half life greater than 10,000 hours based on the manufacturer's specifications.

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Instruction Set Summary

Font Selection

Select Font
Down Load Font
Set Font Attributes

Cursor Positioning

SetXY
ReadXY
Cursor Up
Cursor Down
Cursor Left
Cursor Right
SetX
SetY
Set Cursor Attributes

Text Configuration

Set Text Window
Set Pitch
Set Height

Text Input

Input String

Graphics Input

Draw Box
Draw Block
Draw Horizontal
Draw Vertical
Draw Vector
Set Pixel

Button Input

Place Button
Load Button Buffer
Get Button Size
Place Phantom Button
Delete Button
Delete All Buttons
Read KeyCode
Set Button Attribute

Display Control

Blank Display
Clear Display
Refresh
Set Auto Refresh
Dump Display RAM
Load Display RAM
Move Block Vertically
Move Block Horizontally

System Instructions

Soft Reset
Set Contrast
Set EL
NOP
Set Beeper
Read Key Matrix