NXP display demo with LCD driver PCF8576 & capacitive sensor PCA8885

Touch-sensitive segmented 4 x 40 display

Developed through a partnership with Truly, this advanced display showcases the LCD driver PCF8576 and the capacitive sensor PCA8885. It can be used to drive a segmented Vertical Alignment (VA) screen with integrated touch buttons, and supports a wide range of automotive, industrial, and consumer applications.

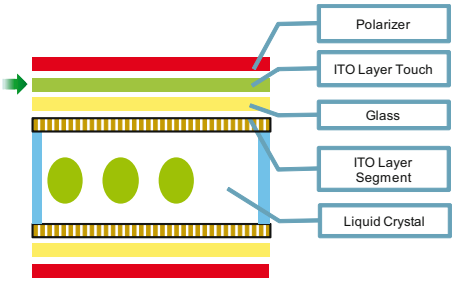
DEMO BOARD KEY FEATURES

- BVA display with 52 display elements and 14 touch buttons
- On-cell ITO touch layer
- LCD driver PCF8576
  - TSSOP56 package
  - Resolution: 4 x 40
- Capacitive sensor PCA8885
  - TSSOP28 package
  - 8 sensor channels
  - Multiplexed configuration with 2 channels per touch button
- Display supplied by Truly

APPLICATIONS

- Automotive
  - Climate control
  - Car entertainment
  - Car radios
- Industrial and consumer
  - Entertainment devices
  - Small appliances
  - White goods
  - Medical and healthcare
  - Measuring equipment
  - Information boards
  - General-purpose display modules

Sample displays



Compared to the normal structure, where the ITO touch glass is implemented outside the LCD structure, the on-cell technology offers the following advantages:
- Simpler structure: two glass layers instead of three
- Thinner thickness
- Easier assembly
- Lower cost

On-cell ITO touch layer

PCF8576DT KEY FEATURES

- 40 segments and 4 backplane outputs
  - Graphics with up to 160 display elements
  - Up to 20 seven-segment alphanumeric characters
  - Up to 10 fourteen-segment alphanumeric characters
- Multiplex rates selectable for static, 1:2, 1:3, and 1:4
- LCD bias configuration selectable for static, 1/2 and 1/3
- Independent supplies for LCD and logic voltages
- Wide power supply range: 1.8 to 5.5 V
- Wide LCD supply range (2.5 to 6.5 V) suitable for VA displays
- Selectable internal or external oscillator
- Frame frequency: 77 Hz (typ.)
- Blinking function
- Up to 16 ICs can be cascaded to drive displays up to
- 16 x 160 elements
- I^2C-bus interface up to 400 kHz
- Operating temperature range: -40 oC to 85 oC
- TSSOP56 package: 14 x 6.1 x 0.95 mm
- AEC-Q100 compliant for automotive applications (PCF8576DT/S400/2 version only)

PCA8885TS KEY FEATURES

- Capacitive 8-channel touch and proximity sensor with auto-calibration
- Adjustable sensitivity and response time
- Three sensing modes: one-key, two-keys, N-keys
  - Up to 8 sensors in one-key mode
  - Up to 28 sensors in two-keys mode
- Two event handling modes: push-button and toggle
- I^2C Fast-mode plus interface, up to 1 MHz
- One sub-address for cascading two ICs (up to 64 sensors)
- Power supply range: 2.5 to 5.5 V
- Low power consumption
  - 10 µA in operating mode
  - 100 nA in sleep mode (activated via I^2C or external input)
- Operating temperature range: -40 to +85 °C
- TSSOP28 package: 9.7 x 4.4 x 0.9 mm
- AEC-Q100 compliant for automotive applications

Ordering information

Type	Package and description	Delivery format	IC version
PCF8576DT/2	TSSOP56: plastic small outline package; 56 leads; body size: 14 mm x 6.1 mm x 0.95 mm	Tape and reel, 13 inch	2
PCA8885TS/Q900/1	TSSOP28: plastic small outline package; 28 leads; body size: 9.7 mm x 4.4 mm x 0.9 mm	Tape and reel, 13 inch	1

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