
MTCH6301 Projected Capacitive Touch Controller

Summary

The MTCH6301 is a turnkey projected capacitive touch controller that allows easy integration of multitouch and gestures to create a rich user interface in your design. Through a sophisticated combination of Self and Mutual Capacitive scanning for both XY screens or touch pads, the MTCH6301 allows designers to quickly and easily integrate projected capacitive touch into their application.

A new Projected Capacitive Configuration Utility with an autotune feature allows fast customization for different sizes and top layer thicknesses.

For further customization, designers can also get access to the firmware library to optimize and improve designs as needed.

Touch Features

- Multitouch (up to 10 touches)
- Gesture detection and reporting
- Single and dual touch drawing
- Self/Mutual signal acquisition
- Built-in noise detection and filtering

Touch Performance

- >100 reports per second single touch
- >60 reports per second dual touch
- Up to 12-bit resolution coordinate reporting

Touch Sensor Support

- Up to 13RX x 18TX channels
- Individual channel tuning
- Works with Printed Circuit Board (PCB) sensors, film and glass-based sensors, and Flexible Printed Circuits (FPC)
- Cover layer support:
 - Plastic: up to 3 mm
 - Glass: up to 5 mm

Power Management

- Configurable Sleep mode
- Integrated Power-on Reset and Brown-out Reset
- 20 μ A sleep current (typical)

Communication Interface

- I²C™ module (up to 400 kbps)

Operating Conditions

- 2.4V to 3.6V, -40°C to +105°C

Package Types

- 44-Lead TQFP
- 44-Lead QFN

Applications

- Human-machine interfaces with configurable button, keypad or scrolling functions
- Single finger gesture interfaces to swipe, scroll, or doubletap controls
- Home automation control panels
- Security control keypads
- Automotive center stack controls
- Gaming devices
- Remote control touch pads

MTCH6301

FIGURE 1: SYSTEM BLOCK DIAGRAM

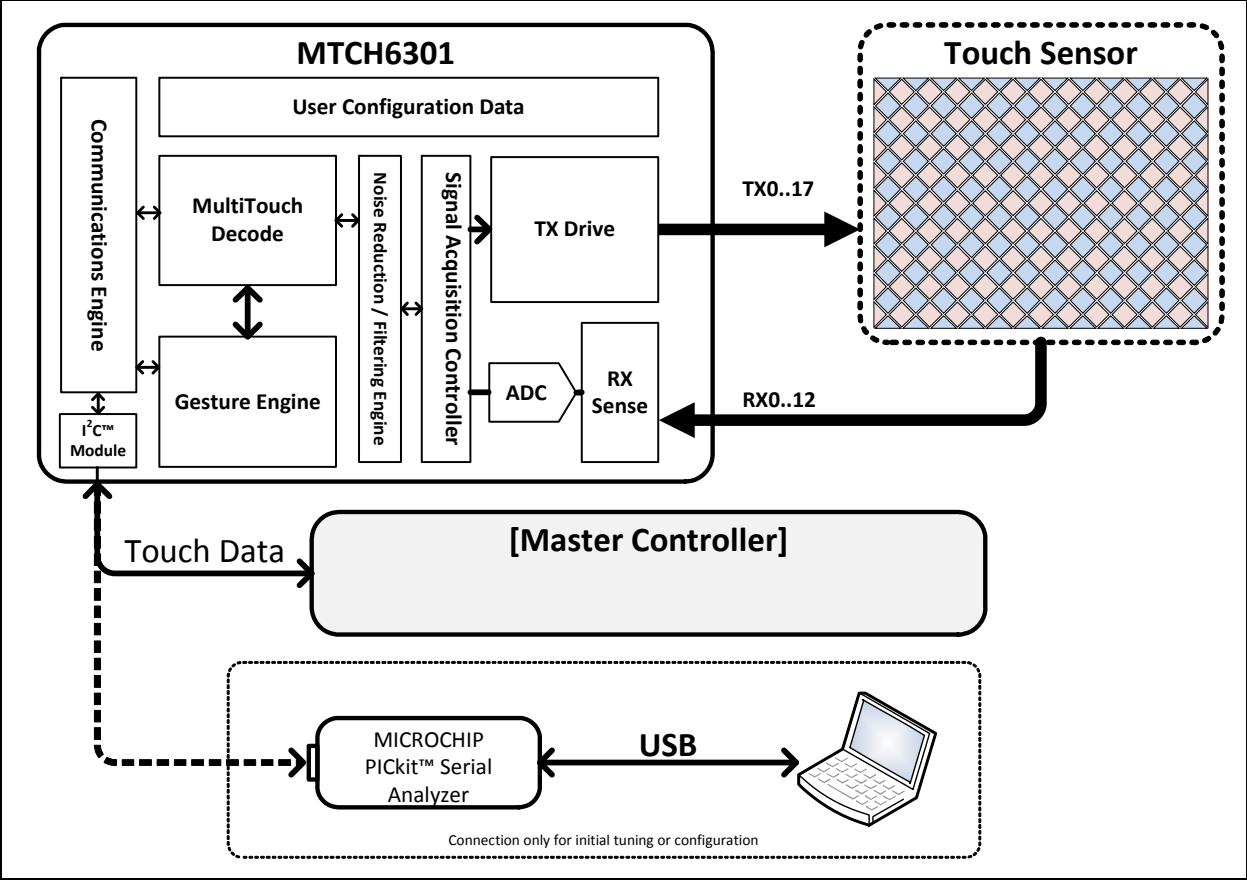
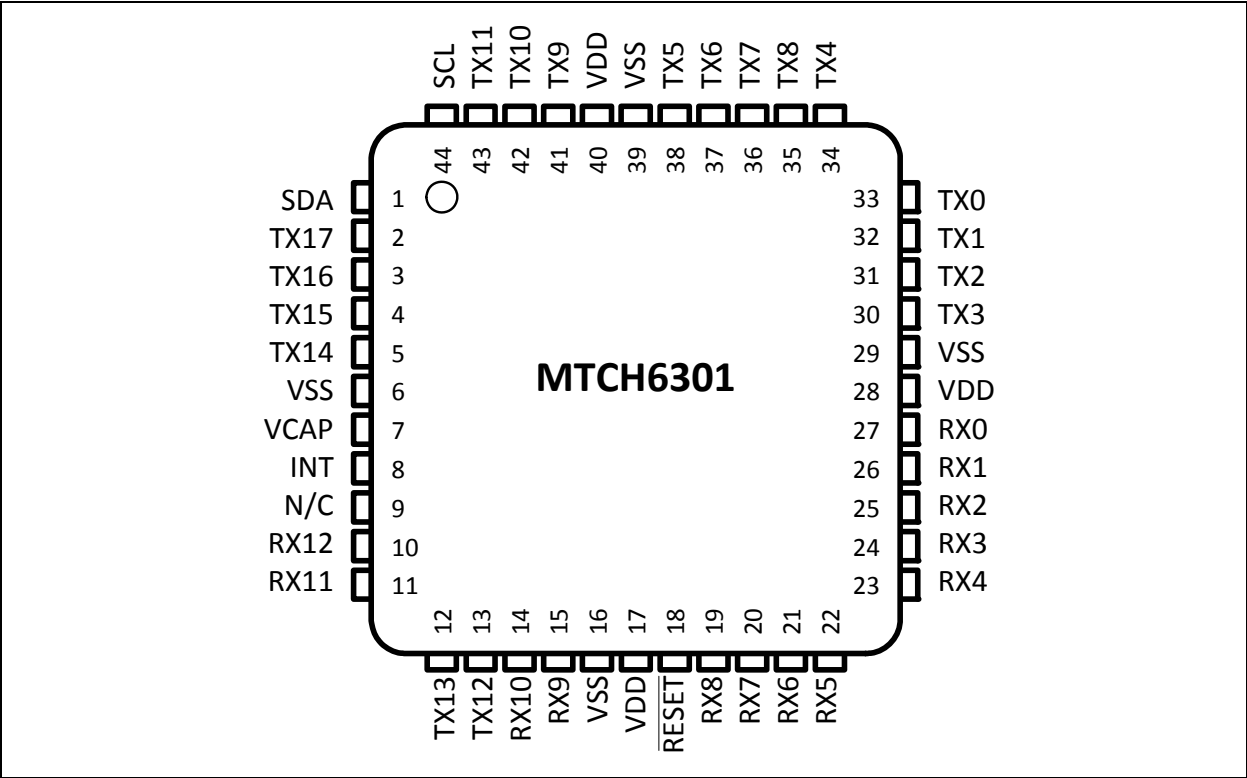


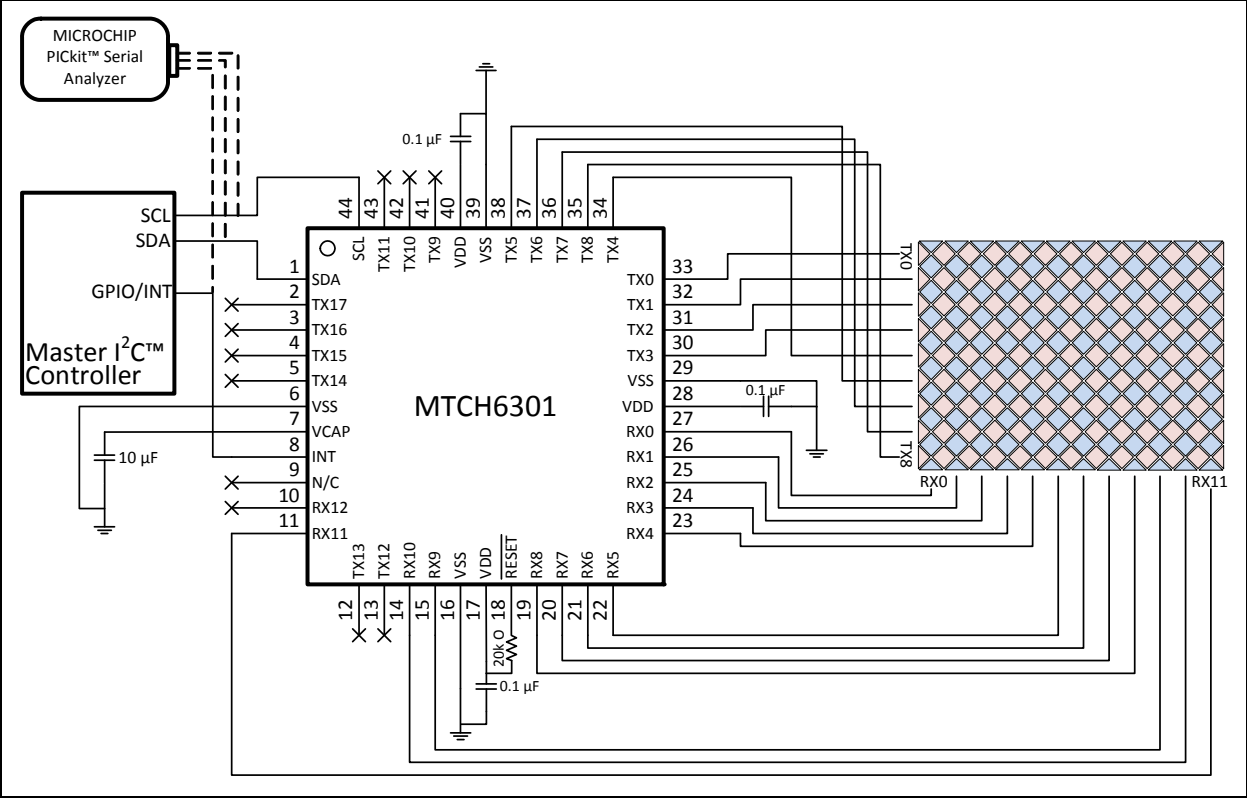
FIGURE 2: PIN DIAGRAM



Typical Application Circuit

Figure 3 portrays a typical application circuit, based on a 12RX/9TX touch sensor.

FIGURE 3: TYPICAL APPLICATION CIRCUIT



Gestures

Single finger gestures are a fast and intuitive way to navigate a feature rich human-machine interface. The MTCH6301 supports 11 single finger gestures natively, without requiring interaction from the master processor.

FIGURE 4: GESTURE TYPES

	Tap (Click)		Tap & Hold
	Double Tap (Double Click)		
	Swipe Down		Swipe Down and Hold
	Swipe Up		Swipe Up and Hold
	Swipe Right		Swipe Right and Hold
	Swipe Left		Swipe Left and Hold

MTCH6301

Part Numbers

TABLE 1: PART NUMBERS

Part Number	Pin Package	Packing
MTCH6301-I/PT	44 TQFP 10x10x1mm	Tray
MTCH6301-I/ML	44 QFN 8x8x0.9mm	Tube
MTCH6301T-I/PT	44 TQFP 10x10x1mm	T/R
MTCH6301T-I/ML	44 QFN 8x8x0.9mm	T/R

For more information, visit the mTouch™ Sensing
Solution Design Center: www.microchip.com/mtouch

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