

## TouchCore 1.0 Family 8-bit turbo 80C52 Architecture



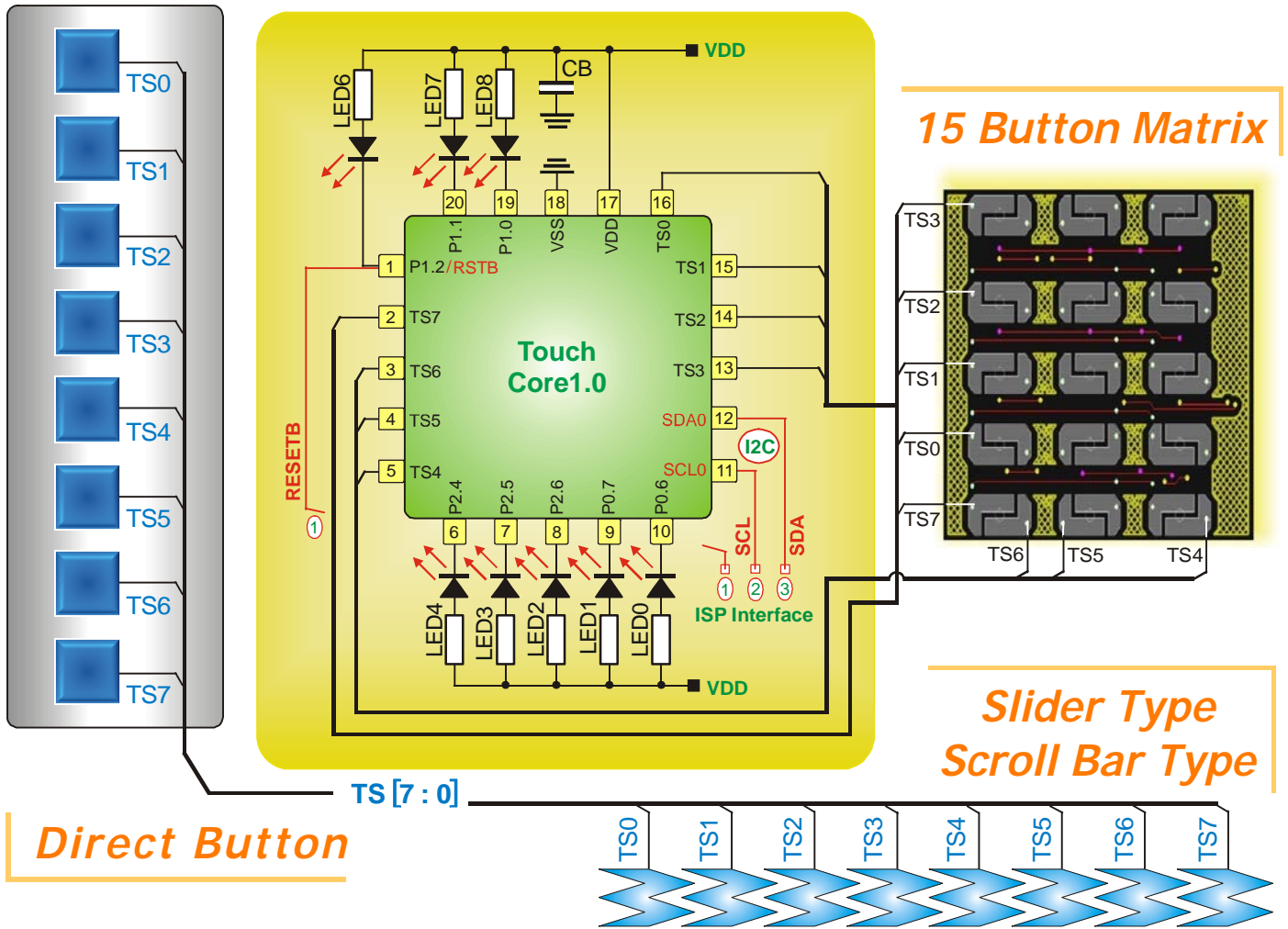
### Features

- ◆ **CPU:** 8-bit turbo 80C52 architecture  
4 cycles/1 machine cycle  
instruction level compatible with 80C52
- ◆ **Memory:** 4kB FLASH > 256B User EEPROM  
128B RAM
- ◆ **Operating Voltage:** 1.8V ~ 5.5V
- ◆ **Operating Frequency:** max. 23MHz @5.0V  
max. 12MHz @3.0V
- ◆ **Max. 18 I/O Pins:** programmable  
Pull-up control, open drain, push-pull output  
TTL and CMOS compatible logic levels
- ◆ **Low Voltage Detector**
- ◆ **Internal Ring OSC:** max. 12MHz @5.0V  
4MHz @2.7V ~ 5.0V ( $\pm 3\%$ )  
32KHz @2.7V ( $\pm 10\%$ )  
(Low power 32kHz OSC)
- ◆ **Watchdog Timer:** 16-bit programmable
- ◆ **Timer/Counters:** 2 x 16-bit
- ◆ **PWM:** 1-channel 8-bit high speed
- ◆ **UART:** Full-Duplex
- ◆ **I2C:** 2-channel (I2C Master/Slave, I2C Slave)
- ◆ **14 Interrupt Sources:**  
Timer0/1, WDT, LVD, ADC, UART, two I2C, TS  
4 External Source: both edge/level  
two-level interrupt priority
- ◆ **Reset Sources:** On-chip power-on-reset  
External reset  
Low voltage detector reset  
Watchdog timer reset
- ◆ **16-channel 10-bit ADC:**  
max. 104ksps (@FADC= 10MHz)  
Programmable input clock frequency

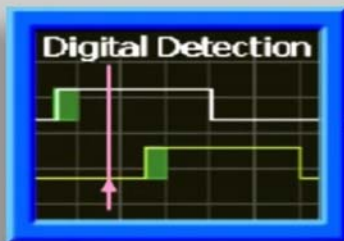


- ◆ **Power Consumption:**  
active current: max. 1mA @3V, 2MHz  
idle current: max. 0.5mA @3V, 2MHz  
snap current: typ. 6 $\mu$ A @2V (Touch Sensing)  
stop current: max. 5 $\mu$ A @3V (WDT on)  
all clock off: max. 1 $\mu$ A @5V
- ◆ **Supporting:** ISP (In-System Programming)  
IAP (In-Application Programming)
- ◆ **Temperature Range:** -20°C to +85°C
- ◆ **Package:** 20-SOIC / 20-QFN 4x4 and 8-SOIC
- ◆ **8-channel Touch Sensing:** 20SOIC/20TQFN
- ◆ **4-channel Touch Sensing:** 8SOIC  
max. 256 level sensitivity (8 bit)
- ◆ **Power Down Wake-up Sources:**  
Reset Sources + 4 External interrupt (both edges)
- ◆ **E.S.D. Protection up to:**  
6kV for Touch Sensor pad  
2kV for normal I/O pad
- ◆ **Latch-up Protection:** up to  $\pm 200$ mA

# Application Circuit with Touch Core Sensor Variants



## Advantages



**Touch  
Sensor  
Engine**

<b>Detections Type</b>	<b>Digital Detection</b>
<b>Environmental Noise</b> (Power, Humidity, Light, Temperature, ect.)	<b>Robust on the Noise</b>
<b>Cost</b>	<b>Low</b>
<b>External Components</b>	<b>Needless</b>
<b>Touch Resolution</b>	<b>Max. 256 Level</b>
<b>Detection Speed</b>	<b>Fast</b>
<b>Available Touch Sensors</b>	<b>Single-, Matrix-, Scroll Bar-, Complex-</b>
<b>Power Consumption</b>	<b>Snap Mode Support (typ. 6uA)</b>