



WT5053

8-bit μ C with 4KB ROM and an 8-CH 12-bit A/D Converter

v1.2

DESCRIPTION

The WT5053 is a high-performance, low-cost, CMOS 8-bit single-chip microcontroller with 4KBytes on-chip ROM and an 8-channel 12-bit analog to digital converter. This chip is suitable for variable applications, especially where analog signal (sensor output) to digital signal conversion is required, including industrial control, consumer, communications, and security products.

This chip has 8-bit CPU, RAM, ROM, I/Os, dual 16-bit timer/counters, interrupt controller, and an 8-channel 12-bit A/D converter. To be suitable for portable battery-powered applications, a power saving function is included.

FEATURES

- ◆ 8-bit single chip microcontroller with 4Kbytes ROM and 128bytes SRAM
- ◆ Wide voltage operating range from 2.4 V to 5.5 V
- ◆ On-chip RC oscillator runs at 2MHz and crystal oscillator can run up to 8.0 MHz
- ◆ 6 interrupt sources (external:1; internal:5) ; all sources have independent latches each and multiple interrupt control is available
- ◆ I/O port (12 pins)
 - ◆ Port P0 8 pins (shared with analog inputs; 4 pins with 20 mA sink current)
 - ◆ Port P1 4 pins (20mA sink current)
- ◆ Operating current 2mA/4MHz@5V; providing standby mode (OSC is stopped and current consumption < 1 uA@5V)
- ◆ Watchdog timer
- ◆ Dual PWM
- ◆ Dual 16-bit timer/counters
- ◆ A/D converter module
 - ◆ 8 analog inputs multiplexed into one A/D converter
 - ◆ Sample and hold
 - ◆ 20 μ S conversion time/per channel
 - ◆ 12-bit resolution with ± 2 LSB accuracy
 - ◆ External reference input, AD_{VREF}
- ◆ Package: Chip form, or 20/18/16-pin PDIP/SOP

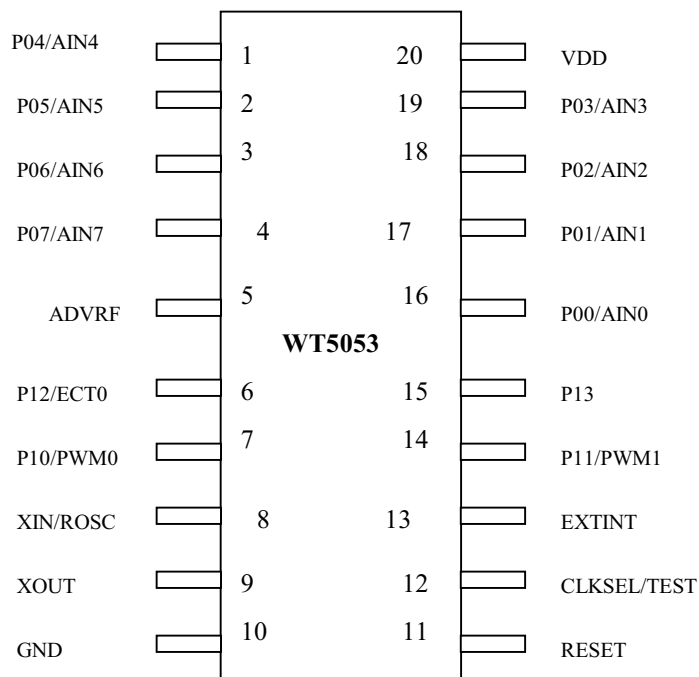


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PACKAGE PIN ASSIGNMENT (20-PIN PDIP)



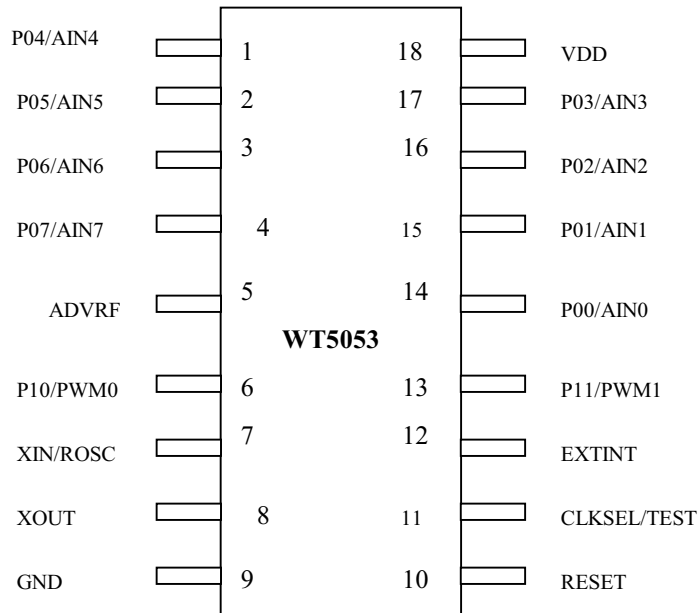


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PACKAGE PIN ASSIGNMENT (18-PIN PDIP)



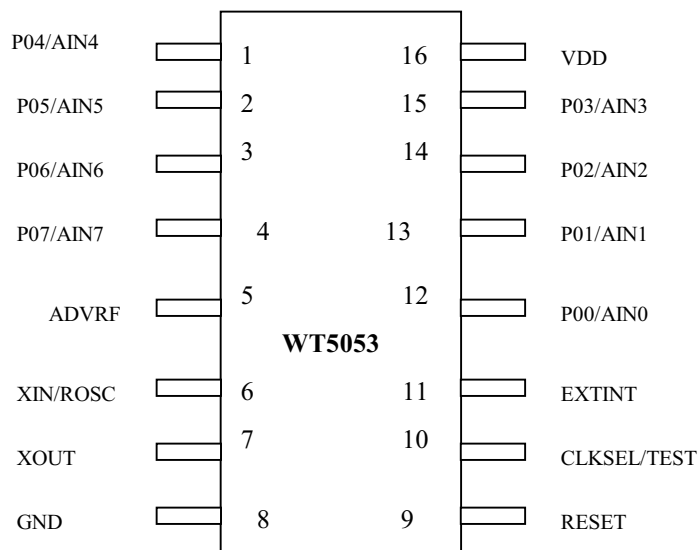


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PACKAGE PIN ASSIGNMENT (16-PIN PDIP)



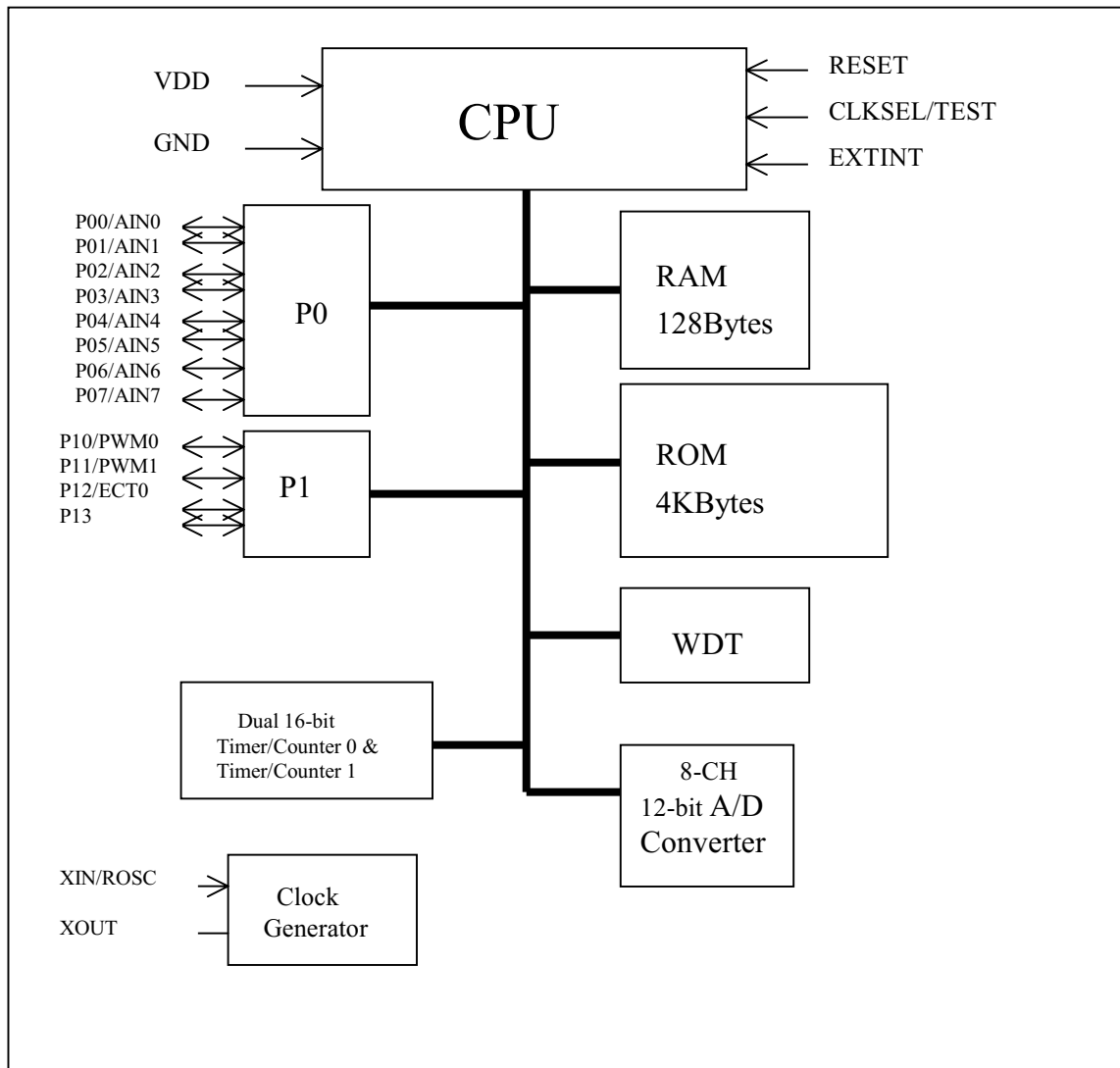


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BLOCK DIAGRAM





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PIN FUNCTION

PIN NAME	20-pin (18-pin) [16-pin]	In/Out	FUNCTIONS
P00/AIN0~ P03/AIN3 P04/AIN4~P07/AIN7	16~ 19 (14~17) [12~15] 1~4 (1~4) [1~4]	I/O	8-bit I/O port; internal pull-up; o/p: sink 20mA(P04~P07) ; i/p: external pull-low
P10/PWM0 P11/PWM1 P12/ECT0 P13	7 (6) [X] 14 (13) [X] 6 (X) [X] 15 (X) [X]	I/O	(PWM0 output) (PWM1 output) (External counter input) 4-bit I/O port; internal pull-up; o/p: sink 20mA; i/p: external pull-low
XIN/ROSC	8 (7) [6]	Input	Crystal input/ROSC input
XOUT	9 (8) [7]	Output	Crystal output
RESET	11 (10) [9]	Input	System reset signal input; low active
VDD	20 (18) [16]	Input	Power source
GND	10 (9) [8]	Input	Ground
AD _{VREF}	5 (5) [5]	Input	Reference voltage input to A/D
EXTINT	13 (12) [11]	Input	External interrupt input
CLKSEL/TEST	12 (11) [10]	Input	Clock sources select, connected to VDD for ROSC or to GND for Crystal (Test Pin)