Weltrend

WT5058
8-bit μC with 8KB ROM, an 8-CH
12-bit A/D Converter and 16x4 LCD Driver

DESCRIPTION

The WT5058 is a high-performance, low-cost, CMOS 8-bit single-chip microcontroller with 8Kbytes on-chip ROM, an 8-channel 12-bit analog to digital converter and 16x4 LCD driver. This chip is suitable for variable applications, especially where analog signal (sensor output) to digital signal conversion and LCD display are 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, 16x4 LCD driver 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 8K bytes ROM and 384bytes 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 6.0 MHz

◆ 6 interrupt sources (external:1; internal:5) ; all sources have independent latches each and multiple interrupt control is available

◆ I/O port (32 pins)

    ◆ Port P0   8 pins (shared with analog inputs; 4 pins with 20 mA sink current)

    ◆ Port P1   8 pins (20 mA sink current)

    ◆ Port P2   8 pins (shared with SEG9~SEG16)

    ◆ Port P3   8 pins (shared with SEG1~SEG8)

◆ Interval Timer (Internal time base generator)

◆ Operating current 2mA/4MHz@5V; providing standby mode (OSC is stopped and current consumption < 1 uA@5V) and key wake-up mode

◆ Watchdog timer

◆ Dual PWM

◆ Dual 16-bit timer/counters

◆ A/D converter module

    ◆ 8 analog inputs multiplexed into one A/D converter
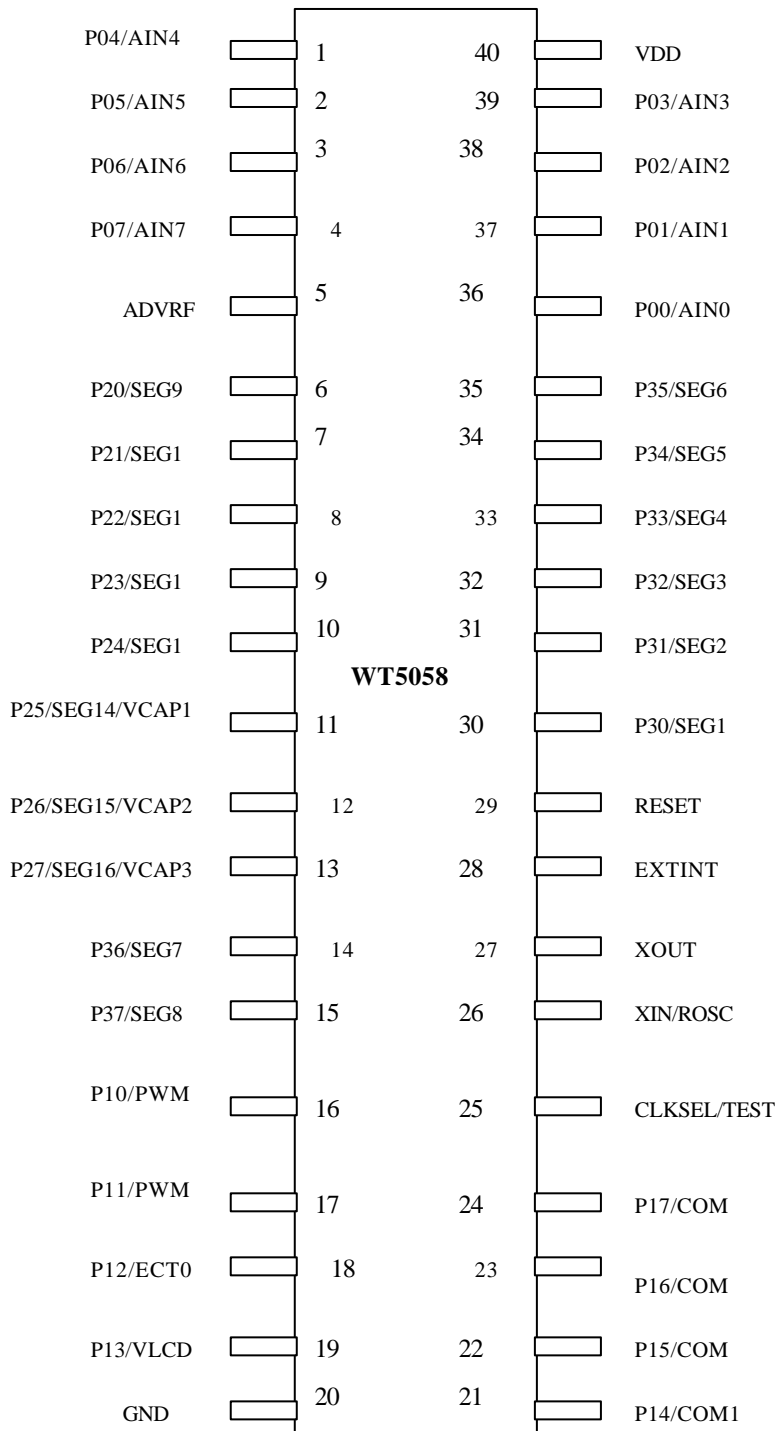   ◆ Sample and hold
    ◆ 20 μS conversion time/per channel

- ◆ 12-bit resolution with ±2 LSB accuracy
- ◆ External reference input, AD_{VRF}

◆ LCD driver (automatically display)

- ◆ LCD direct drive (max. 8-digit display at 1/4 duty)
- ◆ 1/4, 1/3, 1/2 duties and 1/2, 1/3 biases can be selected by programming

◆ Package: Chip form, 28/40-pin PDIP or 28-pin Skinny

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PACKAGE PIN ASSIGNMENT (40-PIN DIP)

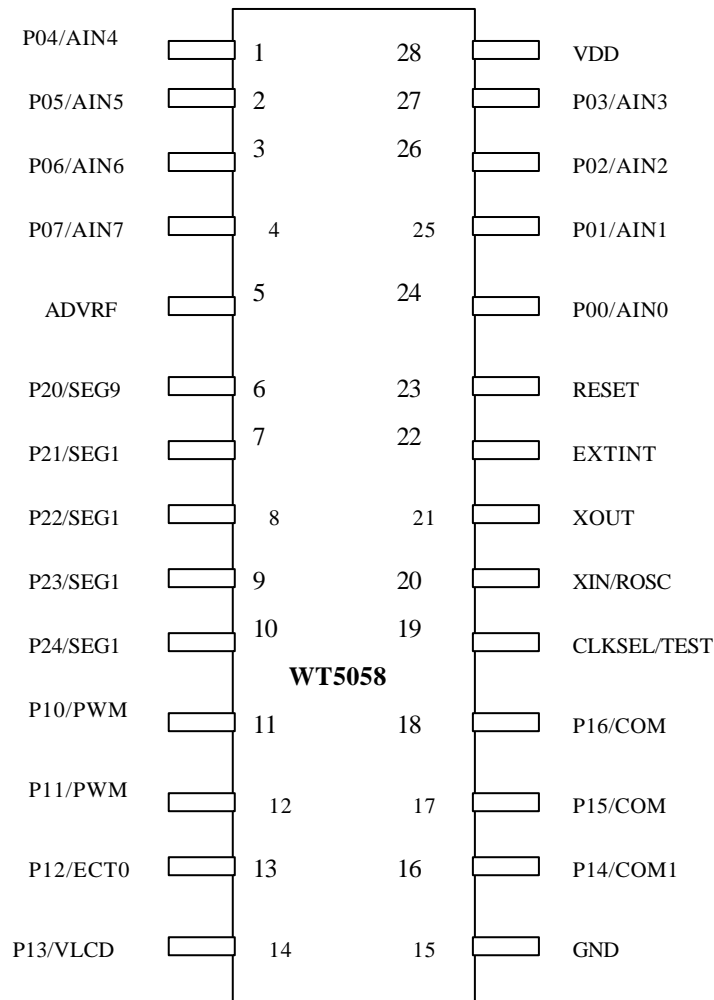| Pin		Pin	
P04/AIN4	1	40	VDD
P05/AIN5	2	39	P03/AIN3
P06/AIN6	3	38	P02/AIN2
P07/AIN7	4	37	P01/AIN1
ADVRF	5	36	P00/AIN0
P20/SEG9	6	35	P35/SEG6
P21/SEG1	7	34	P34/SEG5
P22/SEG1	8	33	P33/SEG4
P23/SEG1	9	32	P32/SEG3
P24/SEG1	10	31	P31/SEG2
P25/SEG14/VCAP1	11	30	P30/SEG1
P26/SEG15/VCAP2	12	29	RESET
P27/SEG16/VCAP3	13	28	EXTINT
P36/SEG7	14	27	XOUT
P37/SEG8	15	26	XIN/ROSC
P10/PWM	16	25	CLKSEL/TEST
P11/PWM	17	24	P17/COM
P12/ECT0	18	23	P16/COM
P13/VLCD	19	22	P15/COM
GND	20	21	P14/COM1

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PACKAGE PIN ASSIGNMENT (28-PIN DIP or 28-PIN SKINNY; Option #1)

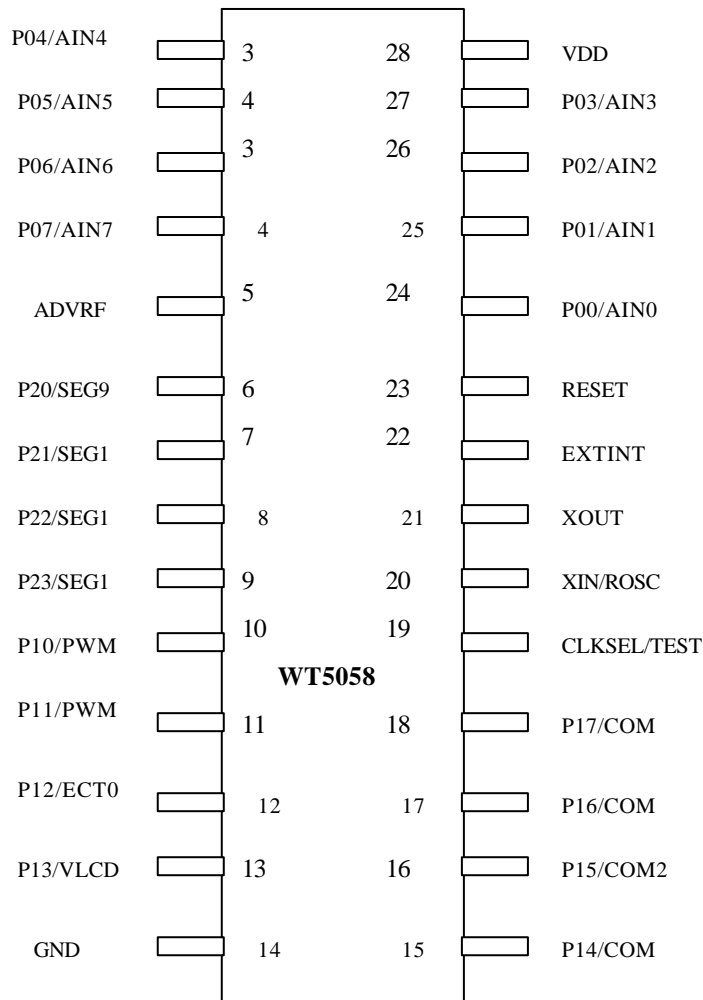| Left pin	No.		No.	Right pin
P04/AIN4	1		28	VDD
P05/AIN5	2		27	P03/AIN3
P06/AIN6	3		26	P02/AIN2
P07/AIN7	4		25	P01/AIN1
ADVRF	5		24	P00/AIN0
P20/SEG9	6		23	RESET
P21/SEG1	7		22	EXTINT
P22/SEG1	8	WT5058	21	XOUT
P23/SEG1	9		20	XIN/ROSC
P24/SEG1	10		19	CLKSEL/TEST
P10/PWM	11		18	P16/COM
P11/PWM	12		17	P15/COM
P12/ECT0	13		16	P14/COM1
P13/VLCD	14		15	GND

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PACKAGE PIN ASSIGNMENT (28-PIN DIP or 28-PIN SKINNY; Option #2)

Left Pin	#		#	Right Pin
P04/AIN4	3		28	VDD
P05/AIN5	4		27	P03/AIN3
P06/AIN6	3		26	P02/AIN2
P07/AIN7	4		25	P01/AIN1
ADVRF	5		24	P00/AIN0
P20/SEG9	6		23	RESET
P21/SEG1	7		22	EXTINT
P22/SEG1	8		21	XOUT
P23/SEG1	9		20	XIN/ROSC
P10/PWM	10	WT5058	19	CLKSEL/TEST
P11/PWM	11		18	P17/COM
P12/ECT0	12		17	P16/COM
P13/VLCD	13		16	P15/COM2
GND	14		15	P14/COM

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Preliminary

PIN FUNCTION

PIN NAME	40-pin	In/Out	FUNCTIONS
P00/AIN0~ P03/AIN3 P04/AIN4~P07/AIN7	36 ~ 39 1~4	I/O	8-bit I/O port; internal pull-up; o/p: sink 20mA(P04~P07); i/p: external pull-low (shared with analog inputs)
P10/PWM0 P11/PWM1 P12/ECT0 P13/V_{LCD} P14/COM1 P15/COM2 P16/COM3 P17/COM4	16 17 18 19 21 22 23 24	I/O	(shared with PWM output); 8-bit I/O port; internal pull-up; o/p: sink 20mA; i/p: external pull-low (External counter) (Bias voltage to LCD) (LCD common output) (LCD common output) (LCD common output) (LCD common output)
P20/SEG9 P21/SEG10 P22/SEG11 P23/SEG12 P24/SEG13 P25/SEG14/VCAP1 P26/SEG15/VCAP2 P27/SEG16/VCAP3	6 7 8 9 10 11 12 13	I/O	8-bit I/O port; internal pull-up; i/p: external pull-low (shared with LCD segment output) P20~P23 support key wake-up
P30/SEG1 P31/SEG2 P32/SEG3 P33/SEG4 P34/SEG5 P35/SEG6 P36/SEG7 P37/SEG8	30 31 32 33 34 35 14 15	I/O	8-bit I/O port; internal pull-up; i/p: external pull-low (shared with LCD segment output)
XIN/ROSC	26	Input	Crystal input/ROSC input
XOUT	27	Output	Crystal output
RESET	29	Input	System reset signal input; low active
VDD	40	Input	Power source
GND	20	Input	Ground
AD_{VRF}	5	Input	Reference voltage input to A/D
EXTINT	28	Input	External interrupt input
CLKSEL/TEST	25	Input	Clock sources select, connected to VDD for ROSC or to GND for Crystal (Test Pin)

Preliminary