

## ***DESCRIPTION***

The WT5082 is a high-performance, low-cost, CMOS 8-bit single-chip micro-controller with POCSAG decoder, 12KB SRAM, 296KB ROM and 56x32/56x33 dot-matrix LCD driver embedded, which is suitable for information paging applications, especially when large number of LCD dots and large ROM and SRAM space are needed, such as Chinese character display pagers.

This chip has 8-bit CPU, RAM, ROM, I/Os, two timers/counters, interrupt controller, LCD driver and watchdog timer. To be suitable for portable battery-powered applications, a power saving function is included.

## ***FEATURES***

- ◆ POCSAG pager code decoder
  - ◇ Single crystal support 512, 1200 and 2400 baud rates ( 76.8kHz crystal )
  - ◇ Support 6 RICs addresses and 6 independent frame numbers
  - ◇ Support partial address match facility for address F (up to 260k addresses are provided)
  - ◇ 3 RF control lines (PLL, quick charge and enable)
  - ◇ Build in data filter (16-times over-sampling) and data bit clock recovery
  - ◇ Interrupt 6502 CPU when there are any status change
  - ◇ DMA or interrupt mode to send the received message data to CPU
- ◆ 8-bit single chip Microcontroller with 56x32/56x33 LCD driver
- ◆ 12Kbytes SRAM (~2K bits for LCD display SRAM), 256 Kbytes character pattern ROM, 32Kbytes program ROM and 8Kbytes ROM for test program
- ◆ Wide voltage operating range from 2.5 V to 3.6 V
- ◆ Built-in Ring Oscillator with maximum frequency up to 2.0 MHz
- ◆ I/O port (21 pins)
  - Input port                    8 pins
  - Input/output port        13 pins
- ◆ Watchdog Timer
- ◆ Operating current 1mA/1MHz@3V; providing standby mode and key wake-up mode
  - ◇ Ring OSC OFF and 76.8KHz X'tal OSC ON: current consumption < 85  $\mu$ A @3V
- ◆ Dual timer/counters



# WT5082

**Pager Controller with POCSAG Decoder, 12KB SRAM,  
296KB ROM and 56x32/56x33 LCD Driver**

---

v.0.97

- ◆ 7-bit EPI (external port interrupt) for key wake-up interrupt
- ◆ 1-bit EPI (external port interrupt to 6502 NMI) for battery remove detect
- ◆ SIO for flex decoder (32bit)
- ◆ UART(10 bits)
- ◆ One PWM signal function
- ◆ 2.2V threshold automatic power on reset
- ◆ 2.0V low power reset
- ◆ Package: Chip form or 128-pin LQFP (14mm x 14mm x 1.4mm)

### PIN FUNCTION (128-pin LQFP)

PIN NAME	PIN#	In/Out	FUNCTIONS
COM1~COM15	1~15	Output	LCD common output
SEG0~SEG31	16~47	Output	LCD segment output
GND	48	P	Ground
VDD	49	P	Power Source
SEG32~SEG55	50~73	Output	LCD segment output
COM31~COM16	74~89	Output	LCD common output
COM32	90	Output	LCD common output (for ICON)
BIAS1~BIAS4	91~94	Output	LCD bias voltage output
V <sub>LCD</sub>	95	Input	LCD voltage supply
V <sub>pp</sub>	96	Output	V <sub>RO</sub> *2
C <sub>b</sub>	97	Output	LCD pumping capacitor
C <sub>a</sub>	98	Output	LCD pumping capacitor
P14_EPI4	99	Input	EPI4, Battery low detect
P15_EPI5	100	Input	EPI5, Battery remove detect
P20_LMP	101	I/O	General I/O or Lamp output
P21_SS	102	I/O	General I/O, SS output pin for Serial I/O or UART serial output
P22	103	I/O	General I/O or PLL_LE
P23_ECS	104	I/O	General I/O for EEPROM CS
P24_ECK	105	I/O	General I/O for EEPROM CK & PLL CK
P25 EDI	106	I/O	General I/O for EEPROM DI & PLL DATA
P26_EDO	107	I/O	General I/O for EEPROM DO
P27_RE2	108	I/O	RF control signal 2 output (RF enable) or MISO input pin for Serial I/O
P06_RDY	109	I/O	General I/O or RDY input pin for Serial I/O; EPI6 or UART Serial Input
P01_RE1	110	Output	RF control signal 1 output (quick charge) or MOSI output pin for Serial I/O
P00_RE	111	Output	RF control signal output or SCK output pin for SIO
P04_RFDI	112	Input	RF signal data input
P07	113	I/O	General I/O port , Input port for RF signal output

P10_EPI0~ P13_EPI3	114-117	Input	4-bit input port for External interrupt and general input
RESETB	118	Input	System reset signal input; low active
GND	119	P	Ground
XIN	120	Input	Crystal input
XOUT	121	Output	Crystal output
VDD	122	P	Power source
ROSC	123	Input	Resistor for ring oscillator
P02_Ptimer0	124	I/O	General I/O port or output from ptimer0
P03_Ptimer1	125	I/O	General I/O port or output from ptimer1
768KO	126	Output	76.8KHz clock output for FLEX decoder or PWM Enable control signal
TEST	127	Input	Test pin. High active
COM0	128	Output	LCD common output