TINY-Tiger™

High Speed Multitasking Computers

Technical Documentation

Tiny, high speed multitasking computers in the size of a component. TINY Tigers™ are universal, full featured control computers used in numerous projects and series products as:

- GPS systems + traffic control
- Medical instruments
- Security applications + access control
- Vending machines
- Communication equipment
- Industrial control
- Point of sales applications
- Power plants ... and many more

TINY Tigers™ offer

- Shortest development cycles
- Highest product reliability
- Low cost
- Innovative, additional features

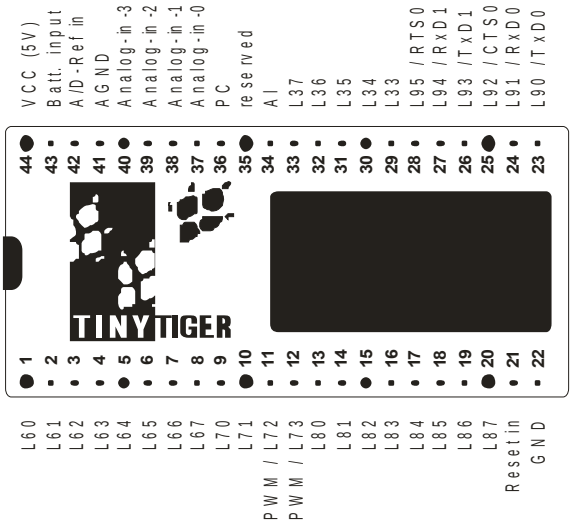
For further information, detailed literature and manuals in printed or downloadable formats visit:

www.wilke.de

or

www.wilke-technology.com

544 kB to2.5 MB FLASH + SRAM



TNN-R/4, TCN-1/4, TCN-4/4, TCN-4/16

- Dimensions: **approx. 28.1 x 59.8 x 10.7 mm / 1.11 x 2.35 x 0.42“**
  44-pin DIP type case
  pin to pin clearance 2.54 mm / 0.1“, row distance 22.86 mm / 0.9“
  square pins 0.64 x 0.64 mm / 0.025 x 0.025“
- Weight: approx. 28g / 1 ounce
- Operating temperature: -20°C to +80°C
- Power supply: 4.6V - 5.5V / 45-60 mA typ.
- System timebase accuracy: +/-50 ppm base tolerance,
  +/-30 ppm over temp. range -20°C to +70°C
  +/-5 ppm per year max. aging
  Other specifications available optional
- Reset: Power-ON reset internal, active @Vcc = 4,5V +/- 0.1V
  Reset input: LOW-active, internal pull-up R = 10 K**W** typ.
- I/O pins: 36 universal I/O-pins
- Max current for digital outputs: 1.6 mA / pin (low, U=0.45V max)
  -0.4 mA / pin (high, U=2.4V min)

Max. darlington driver current: -3,5 mA (U=1.5V), max 8 pins

- Rising time / falling time: 15 ns typ. (10%, 90%)
- Impedance digital Inputs: High-Impedance or additional pull-up resistor:

L33 ... L37	pull-up 50 ... 150 kΩ
L41	pull-up 50 ... 150 kΩ
L60 ... L67	pull-up 50 ... 150 kΩ
L70...L73	pull-up 50 ... 150 kΩ
L80...L87	pull-up 50 ... 150 kΩ
L90...L95	pull-up 50 ... 150 kΩ

- Digital Inputs: Input voltage „high“: 0.7 * Vcc min.
  Input voltage „low“: 0.8V max.
- Analog input: 4 channels
- Input range Vref: Vcc-1.5V ... Vcc
- Vref input current: 0.5 mA typ, 1.5 mA max.
- Impedance analog inputs: 20 kΩ typ.,
  note: low impedance in power down state
- Analog input range: 0...Vref
- Analog input resolution: 10 bit internal hardware resolution,
  12 bit through moving window integration.
  Linearization and calibration through software function LIN_APPROX and flash calibration tables.
- Analog input accuracy: +/- 0.5 LSB quantize error
  +/- 1.5 LSB typ, +/- 4 LSB max at normal speed (-20°C ... 70°C)
  +/- 4.0 LSB typ, +/- 8 LSB max in high speed (-20°C ... 70°C)
- Analog sampling rate: up to 50,000 samples / sec
- Analog sampling buffer: up to 30 kByte
- PWM: 2 PWM output channels:
  6-bit resolution, 5 / 20 / 80 kHz
  7-bit resolution, 4 / 10 / 40 kHz
  8-bit resolution, 1.2 / 2.5 / 5 kHz
- Memory internal: 32 KB ... 512 KB Static RAM
  512 KB ... 2 MB FLASH
- Realtime clock: precision up to 20ppm via software calibration
  base tolerance 0.007% typ., 0.030% max.
  -0,04 ppm/°C temp. coefficient
  +/-3 ppm divergence per year
  2s quantisation error max.

Alarm function:
Alarm pin low = active,
Alarm pin high = waiting for alarm or no alarm task.
Buffered through battery backup input

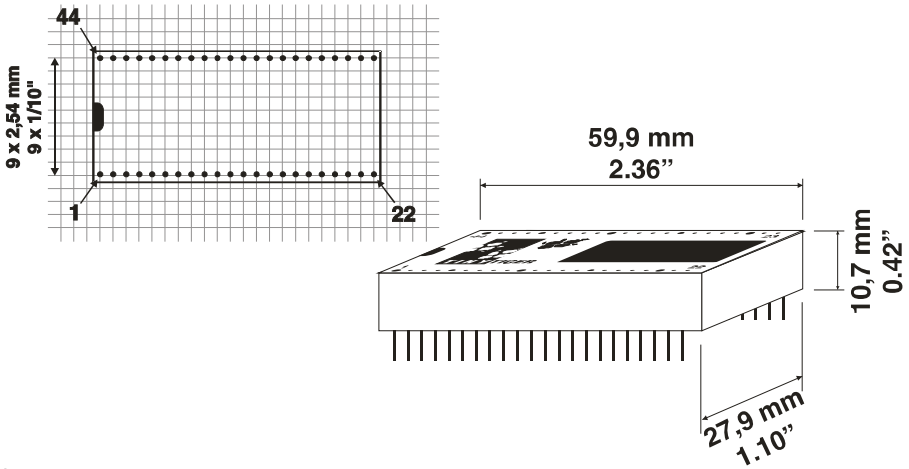
- Battery Backup Input: 2.7...4.5V, IBatt = 50 ... 300 µA typ.

- Serial channels: 2 buffered UART channels:
  CH-0: RxD, TxD, RTS, CTS
  Baudrates: 300,600,1200, 2400, 4800, 9600, 19200, 38400, 76800, 153600, 614400
  Data/Parity: 7N, 7E, 7O, 8N, 8E, 8O, 9N
  Buffer sizes: 256, 512, 1024, 2048, 4096 Bytes
  CH-1: as above, RxD and TxD lines

  Level systems: 5V CMOS levels

  Up to 8 additional serial I/O channels through software driver SER2.TDD.
  Selectable: RxD, TxD or RxD + TxD per channel
  Max baudrate (1 channel): 9600 Bd TxD, 4800 Bd RxD
  Max baudrate multi channel: -> divided by no of channels

- Pulses: Resolutions: 0.4 / 1.6 / 6.4 / 50 µs



TINY-Tiger™ Computer Modules

Type	SRAM	FLASH	Serial	Realtime Clock
TNN-R/4	32 KByte	512 KByte	5V	-
TCN-1/4	128 KByte	512 KByte	5V	RTC
TCN-4/4	512 KByte	512 KByte	5V	RTC
TCN-4/16	512 KByte	2 MByte	5V	RTC