

iC-TW9 *Moskito*

16 BIT ABZ QUADRATURE COUNTER

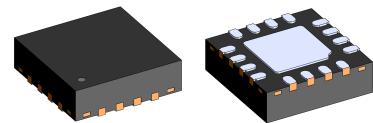
FEATURES

- 16 bit counter easily extendable to any width using μ C software
- 100 MHz counter at 5 V supply
- 2-wire, 3-wire, 4-wire SPI
- Two programmable set-points
- Power supply voltage of 1.7 V to 5 V operation
- 5 V tolerant ABZ inputs for any supply voltage
- 3 mm x 3 mm QFN16
- $<1 \mu\text{A}$ power consumption with no ABZ input activity
- Extended temperature range of -40 to $+125 \text{ }^\circ\text{C}$

APPLICATIONS

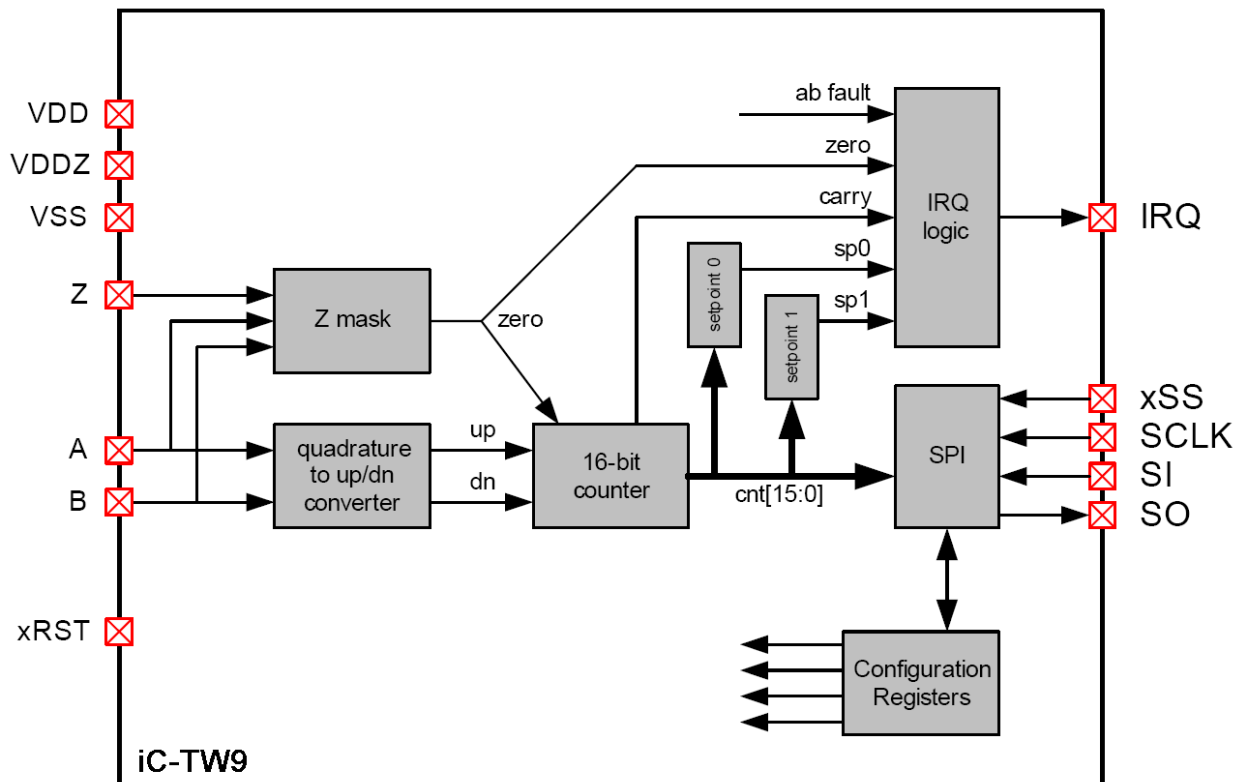
- Flexible incremental control applications
- Linear and rotary encoder applications

PACKAGES



QFN16 3x3

BLOCK DIAGRAM



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preliminary



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DESCRIPTION

The Mosquito Chip iC-TW9 is an up to 100MHz quadrature ABZ counter with an SPI back-end interface. The counter is 16-bit wide but it can be easily extended to arbitrary length by software.

The iC-TW9 implements an automatic sleep mode, only consuming power when actively counting. Its power consumption is directly proportional to the ABZ input activity and goes down to less than 1 μ A with no activity.

The iC-TW9 also provides several IRQ sources, therefore relieving the controlling μ C from constantly needing to poll the device. Once a condition triggers an IRQ, the μ C can read-out the iC-TW9 status and react accordingly.

Two set-points can be programmed to trigger an IRQ when reached by the 16-bit counter.

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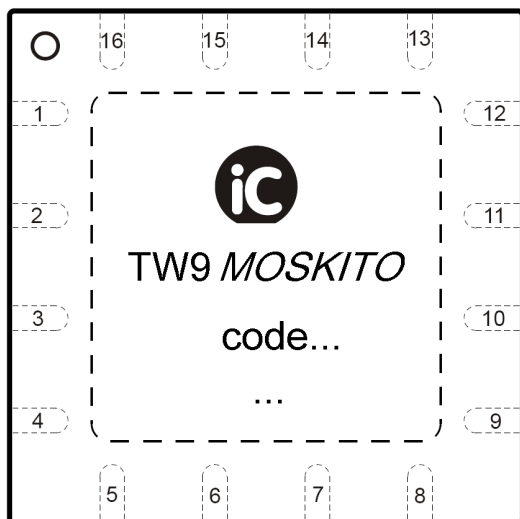
preliminary



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PACKAGES

PIN CONFIGURATION QFN16 3 mm x 3 mm



PIN FUNCTIONS

No. Name Function

1	xRST	External Reset Input (active low, I)
2	IRQ	IRQ Interrupt Request Output (O)
3	xSS	SPI Slave Select (I)
4	nc	not connected
5	SO	SPI Data Out (O)
6	SI	SPI Data In (I)
7	SCLK	SPI Slave Clock Input (I)
8	nc	not connected
9	nc	not connected
10	DVSS	Ground GND
11	ZAP	ZAP needs to be tied to DVDD
12	DVDD	1.7 V to 5.5 V Supply DVDD
13	PINA	A Signal Input (I)
14	PINB	B Signal Input (I)
15	PINZ	Z Signal Input (I)
16	nc	not connected
TP	GND	Thermal Pad (bottom side)

The *Thermal Pad* of the QFN package (bottom side) is to be connected to a ground plane on the PCB which must have GND potential.

Function: I = input, O = output, B = bidirectional.

Only pin 1 marking on top or bottom defines the package orientation (iC-TW9 MOSKITO label and coding is subject to change).

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We understand suitable application of our published designs to be state-of-the-art technology which can no longer be classed as inventive under the stipulations of patent law. Our explicit application notes are to be treated only as mere examples of the many possible and extremely advantageous uses our products can be put to.

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ORDERING INFORMATION

Type	Package	Order Designation
iC-TW9 Evaluation Board	QFN16, 3 mm x 3 mm PCB, 100 mm x 80 mm	iC-TW9 QFN16 iC-TW9 EVAL TW9_1D

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