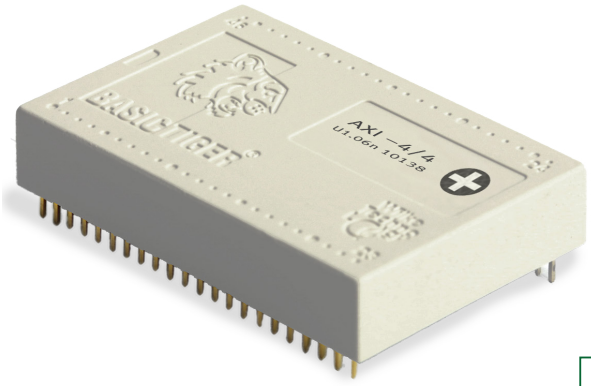
BASIC-Tiger® *plus* - Data Sheet

BASIC-Tiger® *plus* Generation 3

Tiny, high speed multitasking computers in the size of a component. Basic-Tiger® *plus* are universal, full featured control computers used in numerous projects and series products as:

- medical equipment
- GPS systems
- communication equipment
- industrial control
- alarm systems
- vending machines
- container tracking
- power plants ... and many more

New *plus*-series
Highly compatible to BASIC-Tiger



Basic-Tiger® *plus* offers

- short development cycles
- highest product reliability
- low cost
- innovative features

RoHS

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

https://www.wilke.de/
or
https://www.wilke.de/en.html

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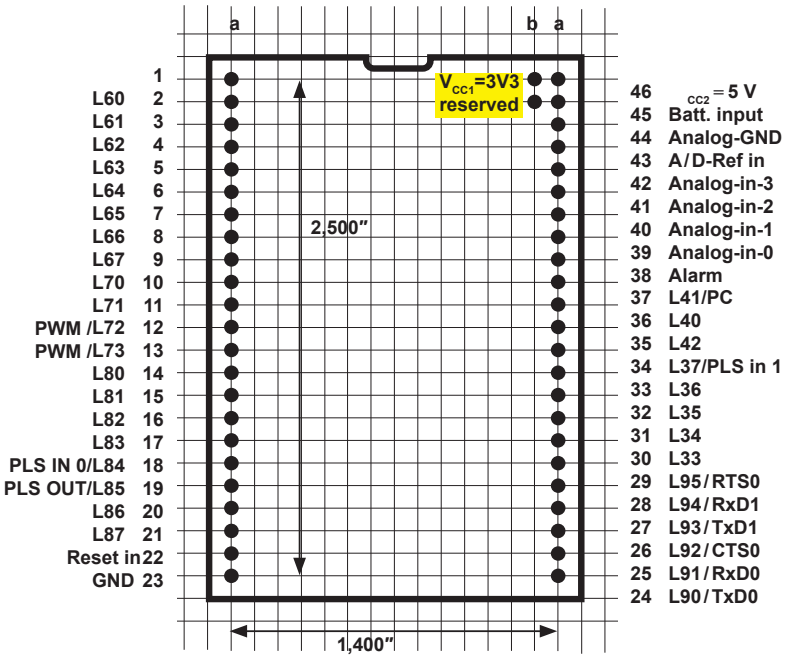
BASIC-Tiger® *plus* - Data Sheet

Content

BASIC-Tiger® *plus* - Data Sheet

Pinout



Yellow Areas changed compared to BTI-ACI-X/X-R

BASIC-Tiger® *plus* - Data Sheet

Electrical Specifications

- Operating voltage: a) VCC2=5 V (integrated regulator to 3.3 V) to pin 46a
  abs. max. rating +5.5 V
  b) Alternatively VCC1=3.3 V to pin 46b 3.5 Vmax

- Typ. power draw: max. 300 mA (for power supply layout incl. external load on module pins)

Default ▶

Syntax/Pseudo code	Speed	Typ. power consumption*)		
		Tiger 1	Tiger 2	Tiger *plus*
USER_FREQUENCY SPEED_25	25%	36 mA	82 mA	44 mA
USER_FREQUENCY SPEED_50	50%			74 mA
USER_FREQUENCY SPEED_100	100%			135 mA

*) with no external load. Depends on application from 50 to 200 mA

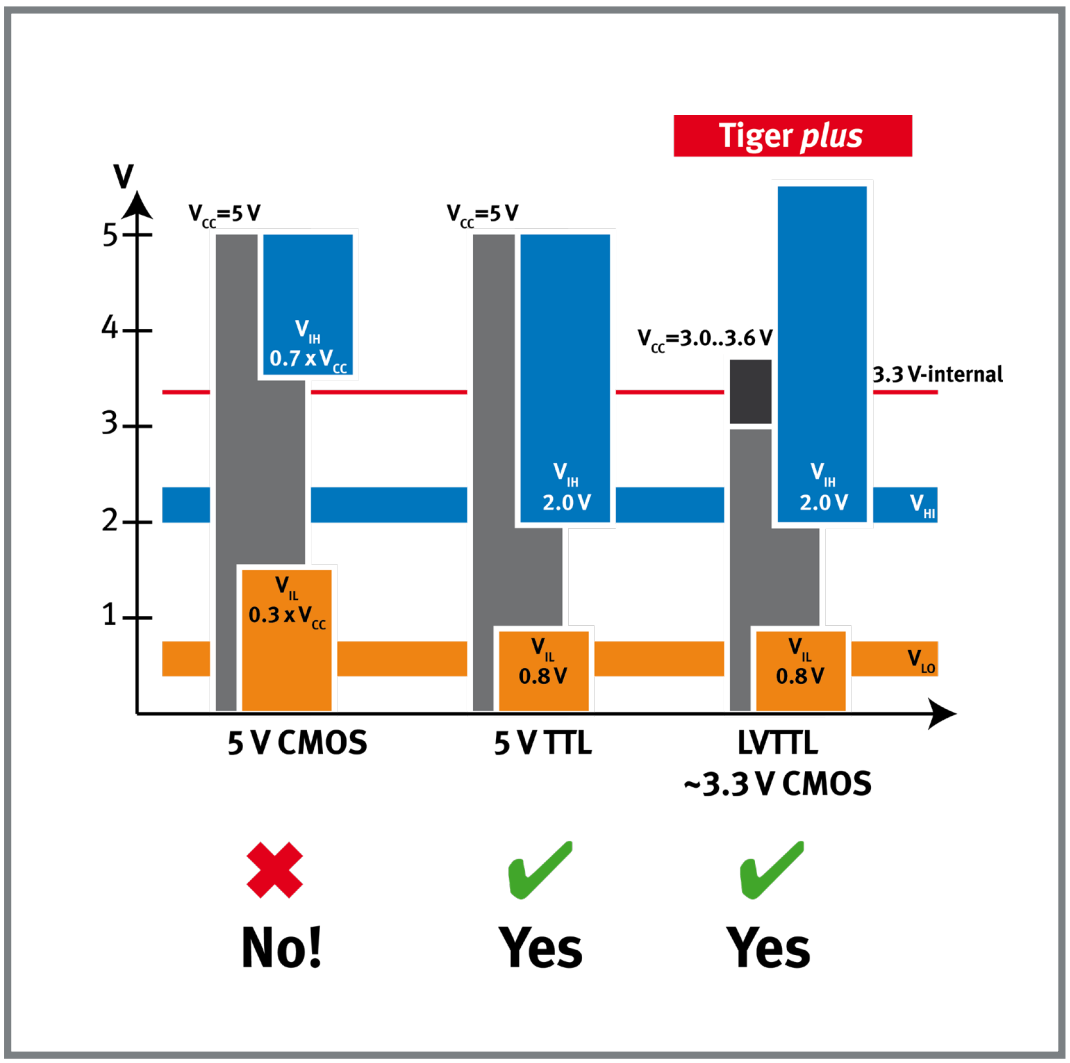
- Absolut max. ratings:

Max. sink capability:	-5 mA per pin (5.0 V tolerant output) -3 mA @ Alarm pin
Max. sink over all pins:	-25 mA (5.0 V tolerant output)
Max. source/sink capability:	±25mA per pin (3.3 V out put)
Max. source/sink over all pins:	±125 mA (3.3 V output) -0.3 V to + 5.5 V in I/O mode 3 mA @ Alarm pin
Max. voltage	-0.3 V to +5.5 V in I/O mode

BASIC-Tiger® *plus* - Data Sheet

-0.3 V .. 5.5 V	Pin 39-42 used as Analog-IN:
+3.3 V .. 5.5 V	Analog Reference:
1-2µA typ.	RTC-Sleep
200-500µA typ.	RAM-Sleep

Specifications of Signal Levels



BASIC-Tiger® *plus* - Data Sheet

Electrical Specifications

• Impedance digital Inputs:	Pull-up resistor:	40 kΩ typ.
• Digital Inputs:	Input voltage „high“:	2.0 Vmin
	Input voltage „low“:	0.8 Vmax
• Analog:	Inputs:	4 channels
	Vref Input:	3.5 V .. 5.0 V
	Impedance inputs:	375 kΩ typ.
	Input Range:	0 .. 5 V (abs. max. = -0.3 .. 5.5 V)
	Input resolution:	to be selected by the according device driver 12 bit (physical resolution of A/D converter) 10 bit 8 bit 14 bit (oversample)
	Input accuracy:	typ. ± 2 LSB, ± V_{ref} accuracy
	Sampling rate:	up to ~160 kS/sec depending on Device Driver used

USER_FREQUENCY SPEED_25	80 kS/sec. max
USER_FREQUENCY SPEED_50	160 kS/sec. max
USER_FREQUENCY SPEED_100	160 kS/sec. max

BASIC-Tiger® *plus* - Data Sheet

Electrical Specifications

- Serial channels: 2 UART channels:
  CH-0: RxD, TxD, CTS, [RTS]
  Baudrates: up to 614 400 Bd
  Data/Parity: 7E, 7O, 8N, 8E, 8O,9N
  CH-1: as above, RxD and TxD lines
  Level systems: 3.3 V TTL level on ANN and ACN-Modules
  5 V tolerance
  RS232/V.24 on AXI-Modules
  Variable buffer-size:
  Up to 8 KB

- Serial channels (soft UARTs): Up to 8 additional serial I/O channels through software driver SER2_pp_xx.TD3.
  Selectable PIN functions: RxD RTS, CTS
  TxD TE (RS 485)
  RxD + TxD

- System timebase accuracy: ± 50 ppm base tolerance,
  ± 30 ppm over temp. range -20 °C to +70 °C add.drift.
  ± 5 ppm per year max. aging

- Reset: Reset input: LOW-active, internal pull-up R = 10 kΩ typ.

- I/O pins: 38 universal I/O-pins

BASIC-Tiger® *plus* - Data Sheet

Baudrates

Syntax	Setting [Bd]	Actual Value	Deviation [%]
BD_1_800	1 800	1 800,02	0,00
BD_2_400	2 400	2 400,10	0,00
BD_3_600	3 600	3 600,04	0,00
BD_4_800	4 800	4 800,20	0,00
BD_7_200	7 200	7 200,72	0,01
BD_9_600	9 600	9 601,54	0,20
BD_10_400	10 400	10 400,42	0,00
BD_14_400	14 400	14 404,03	0,03
BD_19_200	19 200	19 203,72	0,02
BD_26_040	26 040	26 041,67	0,01
BD_28_800	28 800	28 818,44	0,06
BD_31_250	31 250	31 250,00	0,00
BD_38_400	38 400	38 424,59	0,06
BD_41_600	41 600	41 623,31	0,06
BD_57_600	57 600	57 636,89	0,06
BD_62_500	62 500	62 500,00	0,00
BD_76_800	76 800	76 923,08	0,16
BD_100_000	100 000	100 000,00	0,00
BD_115_200	115 200	115 273,78	0,06
BD_153_600	153 600	153 846,15	0,16
BD_230_400	230 400	231 213,87	0,35
BD_250_000	250 000	250 000,00	0,00
BD_307_200	307 200	307 692,31	0,16
BD_312_500	312 500	312 500,00	0,00
BD_614_400	614 400	615 384,62	0,16
BD_625_000	625 000	625 000,00	0,00
BD_631_579	631 579	634 920,63	0,53

PC-Mode/
Standard Download ▶

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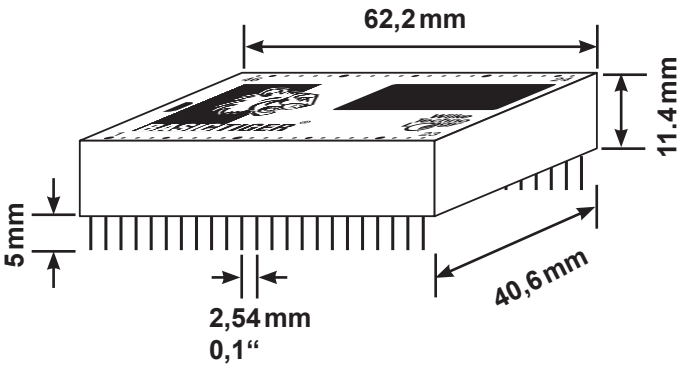
BASIC-Tiger® *plus* - Data Sheet

Physical Specifications

- Dimensions: approx. 40,6 x 62,2 x 11,4 mm / 1.59 x 2.45 x 0.45“ (without pins)
  48-pin DIP type case
- Case type: pin to pin clearance 2.54 mm / 0.10“,
  row distance 35,6mm/1,4“
- Pin size: square pins 0.64 x 0.64 mm / 0.025 x 0.025“
- Case Dimensions:



Dimensions identical with Basic Tiger moduls of Generation 1 Product

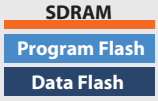
- Weight: approx. 46 g / 1,6 ounces
- Operating temperature: -40 to 85 °C
  Expanded: expanded temperature ranges on request
- Flash erase cycles: Min. 10.000 cycles, typ. ~ 500.000
- Flash data retention: › 10 years
- Flash sector size: 64 kB

BASIC-Tiger® *plus* - Data Sheet

Physical Specifications ANN-series

Memory constellation overview for different BASIC-Tiger plus module types

ANN-Series	ACN-Series	AXN-Series	AXI-Series



128 kByte
1 MByte
1 MByte

BTI-ANN-1/4-PLUS

BASIC-Tiger® *plus* - Data Sheet

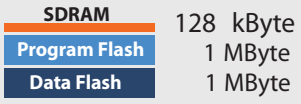
Physical Specifications ACN-Series

Memory constellation overview for different BASIC-Tiger plus module types

BASIC-Tiger® *plus* - Data Sheet

Physical Specifications AXN-Series

Memory constellation overview for different BASIC-Tiger plus module types



128 kByte
1 MByte
1 MByte

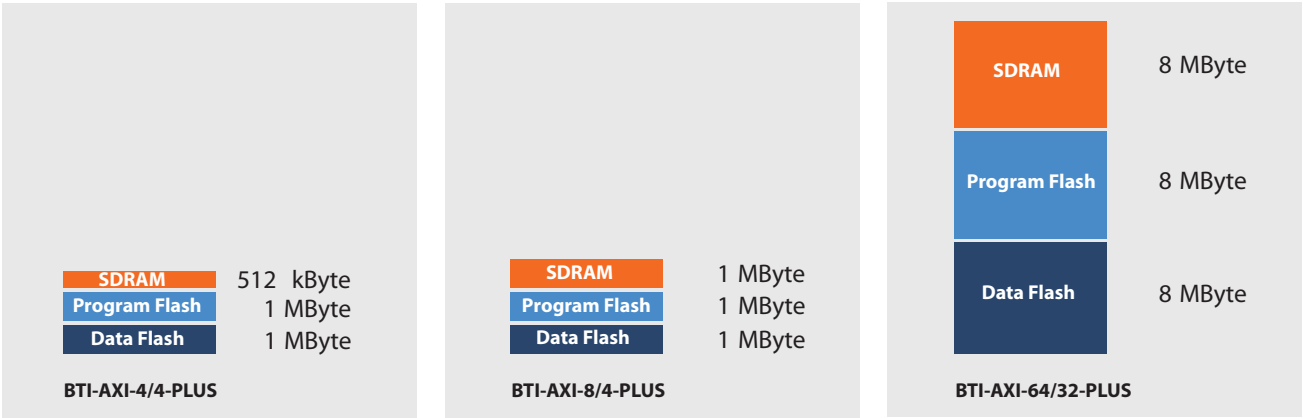
BTI-AXN-1/4-PLUS

BASIC-Tiger® *plus* - Data Sheet

Physical Specifications AXI-Serie

Memory constellation overview for different BASIC-Tiger plus module types

ANN-Serie | ACN-Serie | AXN-Serie | **AXI-Serie**



BASIC-Tiger® *plus* - Data Sheet

Cross References/Order Codes

Previous BASIC-Tiger Modules

BASIC-Tiger

Product Code	RAM	FLASH
BTI-ANN-1/4-R	128 kByte	512 kByte
BTI-ACN-1/4-R	128 MByte	512 kByte
BTI-ACI-4/4-R	512 kByte	512 kByte
BTI-ACI-8/4-R	1 MByte	512 kByte
BTI-ACI-16/32-R	2 MByte	4 MByte
New Module ⟶		
BTI-AXN-1/4-R	128 kByte	512 kByte
BTI-AXI-4/4-R	512 kByte	512 kByte
BTI-AXI-8/4-R	1 MByte	512 kByte
New Module ⟶		

NEW BASIC-Tiger Modules

BASIC-Tiger ***plus***

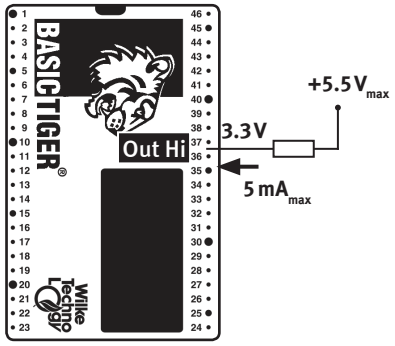
Product-Code	RAM	Program Flash	Data Flash
BTI-ANN-1/4-PLUS	128 kByte	1 MByte	1 MByte
BTI-ACN-1/4-PLUS	128 MByte	1 MByte	1 MByte
BTI-ACI-4/4-PLUS	512 kByte	1 MByte	1 MByte
BTI-ACI-8/4-PLUS	1 MByte	1 MByte	1 MByte
BTI-ACI-16/32-PLUS	2 MByte	8 MByte	8 MByte
BTI-ACI-64/32-PLUS	8 MByte	8 MByte	8 MByte
BTI-AXN-1/4-PLUS	128 kByte	1 MByte	1 MByte
BTI-AXI-4/4-PLUS	512 kByte	1 MByte	1 MByte
BTI-AXI-8/4-PLUS	1 MByte	1 MByte	1 MByte
BTI-AXI-64/32-PLUS	8 MByte	8 MByte	8 MByte

Note: *plus* Series products offer and use more firmware resources, so at least use the recommended replacement type or larger part.
10+ years delivery guarantee.

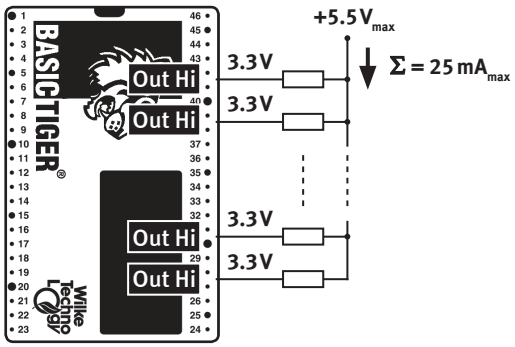
BASIC-Tiger® *plus* - Data Sheet

5 Volt I/O-Tolerance Conditions

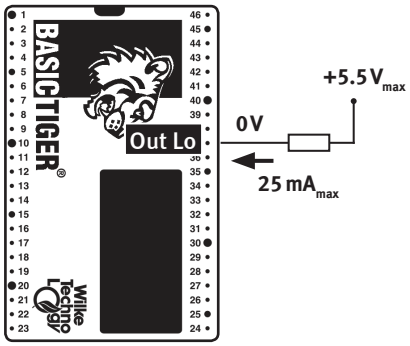
V_{CC1} = +3.3V OR V_{CC2} = +5.0V



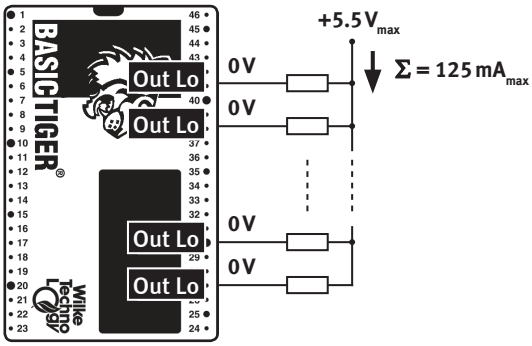
V_{CC1} = +3.3V OR V_{CC2} = +5.0V



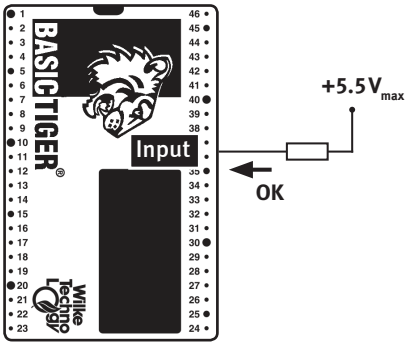
V_{CC1} = +3.3V OR V_{CC2} = +5.0V



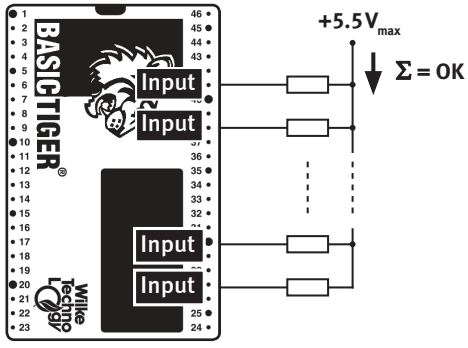
V_{CC1} = +3.3V OR V_{CC2} = +5.0V



V_{CC1} = +3.3V OR V_{CC2} = +5.0V



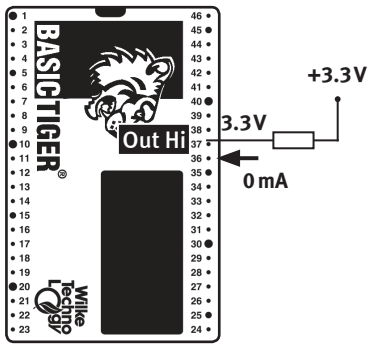
V_{CC1} = +3.3V OR V_{CC2} = +5.0V



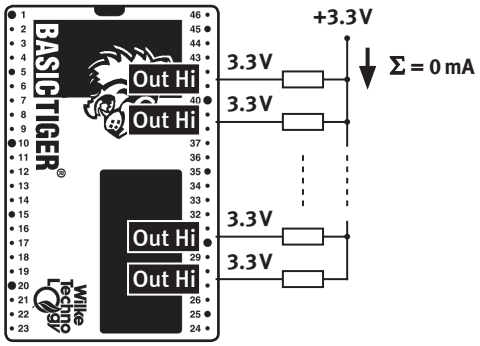
BASIC-Tiger® *plus* - Data Sheet

3.3 Volt I/O-Tolerance Conditions

V_{CC1} = +3.3V OR V_{CC2} = +5.0V



V_{CC1} = +3.3V OR V_{CC2} = +5.0V



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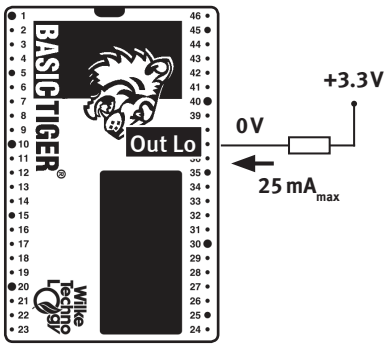
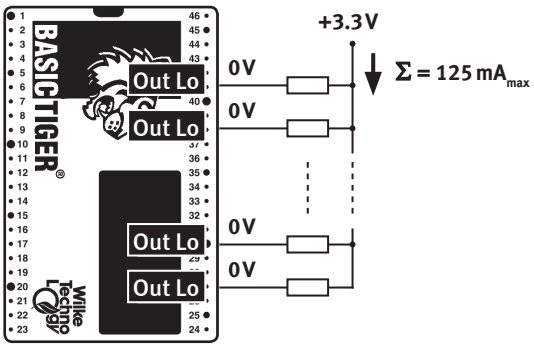


V_{CC1} = +3.3V OR V_{CC2} = +5.0V



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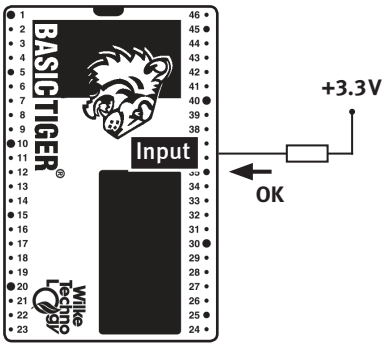

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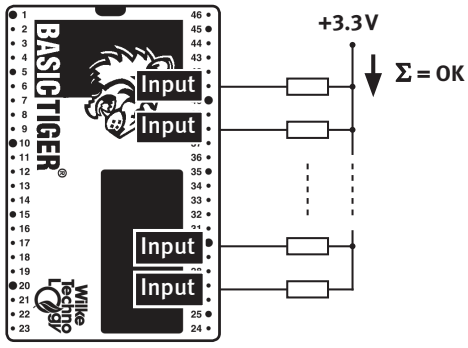
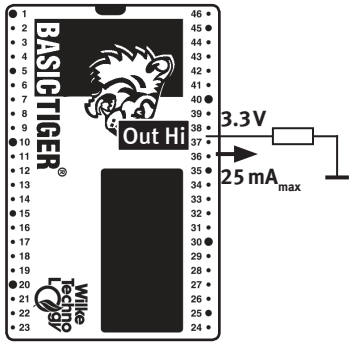


BASIC-Tiger® *plus* - Data Sheet

I/O Conditions to GND

V_{CC1} = +3.3V OR V_{CC2} = +5.0V



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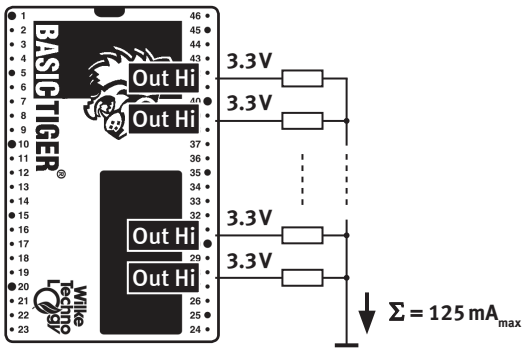
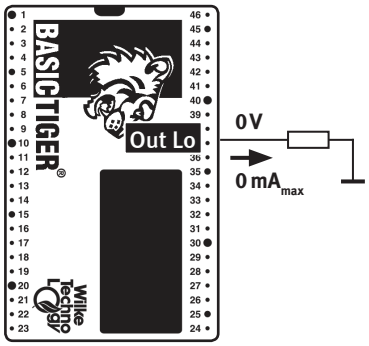
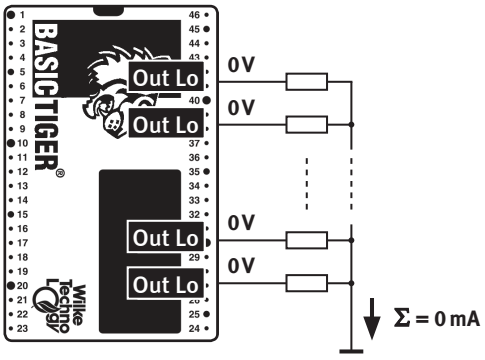


V_{CC1} = +3.3V OR V_{CC2} = +5.0V



V_{CC1} = +3.3V OR V_{CC2} = +5.0V



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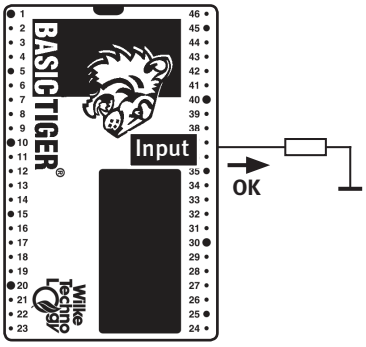
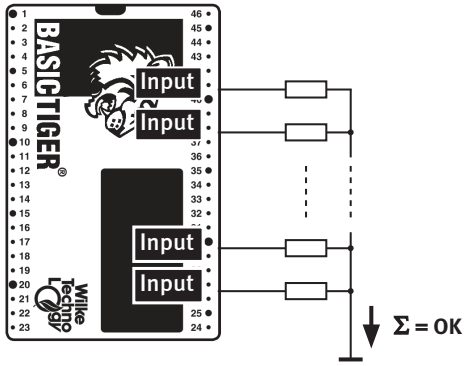


V_{CC1} = +3.3V OR V_{CC2} = +5.0V



BASIC-Tiger® *plus* - Data Sheet

Document Version History

V01	Electrical and physical specifications	November 3, 2015
V02	New electrical specifications	February 23, 2016
V03	Cross references	March 24, 2016
V04	Preliminary Data-Sheet	February 17, 2017
V05	First official release	September 20, 2017
V06	Small Corrections and Design	October 27, 2017
V07	Design Corrections	November 09, 2017
V09	Physical Specifications: Flash sector size, Cross References/Order Codes	November 23, 2018
V10	Corrections in Data Sheet	March 07, 2019

Notes:

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