Electronics Other Sensors

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Transistors and diodes Single-chip devices Assigning transducers Wiring tips

Transistors and diodes

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Transistors and diodes

• diodes like zener diode; reverse current changes

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Transistors and diodes

- diodes like zener diode; reverse current changes
- transistors: base comes from environment; pull-up on output (or pull-down)

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Single-chip devices

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Single-chip devices

• Hall effect

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Transistors and diodes Single-chip devices Assigning transducers Wiring tips

Single-chip devices

- Hall effect
- Temperature, etc.

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Transistors and diodes Single-chip devices Assigning transducers Wiring tips

Single-chip devices

- Hall effect
- Temperature, etc.
- linear, usually 5V in

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Transistors and diodes Single-chip devices Assigning transducers Wiring tips

Available transducers

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Available transducers

UGN3503 Hall sensor

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Transistors and diodes Single-chip devices Assigning transducers Wiring tips

Available transducers

UGN3503 Hall sensor PDB-C107 photodiode

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Available transducers

UGN3503 Hall sensor PDB-C107 photodiode PDB-V107 photodiode

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Available transducers

UGN3503 Hall sensor PDB-C107 photodiode PDB-V107 photodiode SFH229 photodiode

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Available transducers

UGN3503 Hall sensor PDB-C107 photodiode PDB-V107 photodiode SFH229 photodiode MRD-310 phototransistor

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Transistors and diodes Single-chip devices Assigning transducers Wiring tips

Available transducers

UGN3503 Hall sensor PDB-C107 photodiode PDB-V107 photodiode SFH229 photodiode MRD-310 phototransistor GP2Y0A21YK-1 infrared distance sensor

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Wiring tips

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Transistors and diodes Single-chip devices Assigning transducers Wiring tips

Wiring tips

• "Extra" current from TTL

Transistors and diodes Single-chip devices Assigning transducers Wiring tips

Wiring tips

- "Extra" current from TTL
- sink instead of source

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Transistors and diodes Single-chip devices Assigning transducers Wiring tips

Wiring tips

- "Extra" current from TTL
- sink instead of source
- 0.4mA vs. 8 mA (LS)

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Other Input Transducers	Transistors and diodes Single-chip devices Assigning transducers Wiring tips
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Current sourcing

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Other Input Transducers	Transistors and diodes Single-chip devices Assigning transducers Wiring tips
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Current sourcing



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Current sourcing



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Other Input Transducers	Transistors and diodes Single-chip devices Assigning transducers Wiring tips
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Current sinking

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Current sinking



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Other Input Transducers	Transistors and diodes Single-chip devices Assigning transducers Wiring tips
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Current sinking



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Using a TTL gate to sink instead of source allows 20x the current!

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