AST Arrays
ART21 & ARK5

Rev A

Advanced Sensor Technology

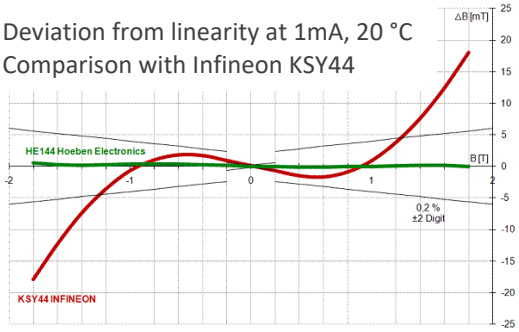
Linear High Precision

Analog Hall Sensor Arrays

Features

- Large magnetic field range - below milli-Tesla to over 10 Tesla
- Very small linearity error - typically 0,1 % up to 1,5 T
- Optimized for low Hall sensor current - typical 1200 Ohm and 0,2 Volt/Tesla at 1 mA
- Very high sensitivity
- Low noise
- Low drift
- Low inductive zero component, low EMC pickup
- Low temperature coefficients
- Very wide operating temperature range
- Very low PHE, Planar Hall Effect Error

Deviation from linearity at 1mA, 20 °C
Comparison with Infineon KSY44



Our products are lead free devices, compliant with RoHS, REACH and 'Japan green' demands.

Typical applications

- Magnetic field measurements
- Oil drill measurement
- Position and rotation sensing
- Distance and thickness measurements
- Aerospace
- Current and power measurement
- Multi-sensor and differential usage
- Control of motor flux strength
- Windmills
- Movement sensing

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When Performance Matters

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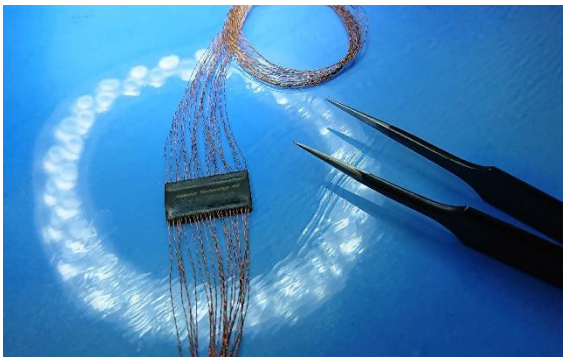
Array packages:

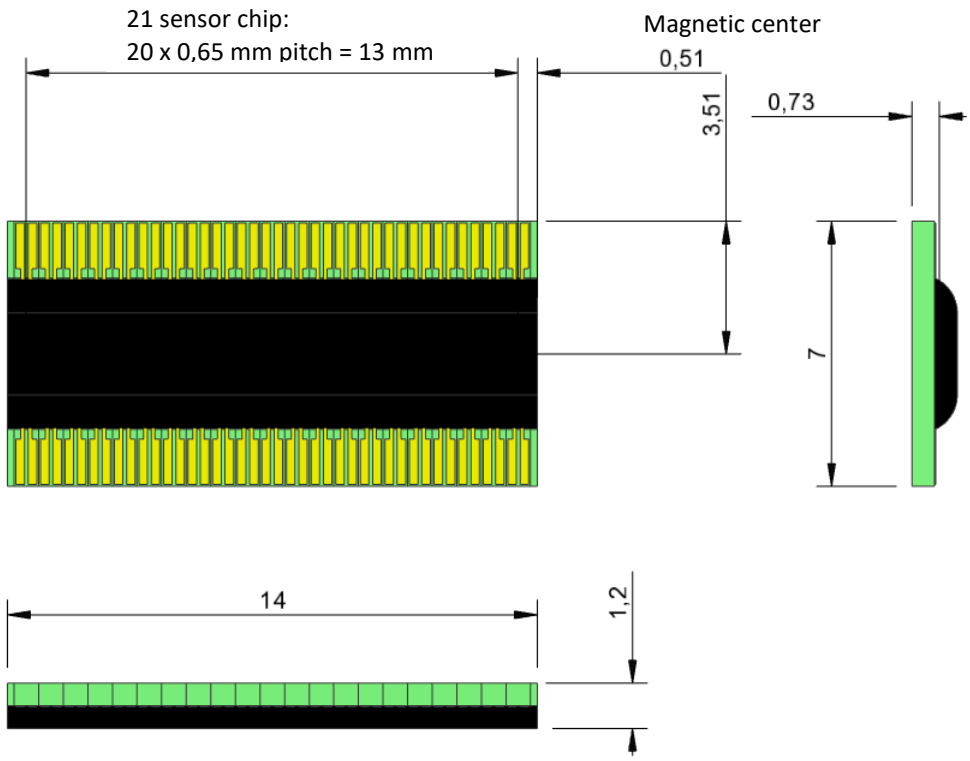
	ART21	**ARK5**
Size	14x7 mm, max thickness 1,5 mm	8x7 mm, max thickness 1 mm
No. of sensors	21	5
Sensor Pitch	0,65 mm	1 mm
Chip 144	YES	YES
Chip 244	N/A	YES
Connection	80 µm wires	140 µm wires
Current supply	In parallel (2x21 wires) or in series (2 wires)	In series (2 wires)

Wire function	**Std wire color** (up to +125 °C)	**High temp wire color** (up to +200 °C)
- supply current	Green	Green
+ supply current	Red	Red
Hall voltage	Blue	Black
Hall voltage	Gold	Gold

21-chip array ART21 (144 chip)

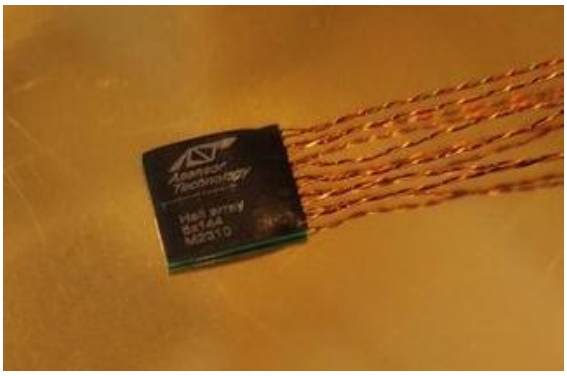
Body size 14 x 7 mm, pitch 0,65 mm. Max. thickness 1,5 mm.
Extra fine pair twisted wires welded to the contacts.
Maximum temperature of 125 °C.
Standard wire length is 20 cm, other lengths deliverable on request.

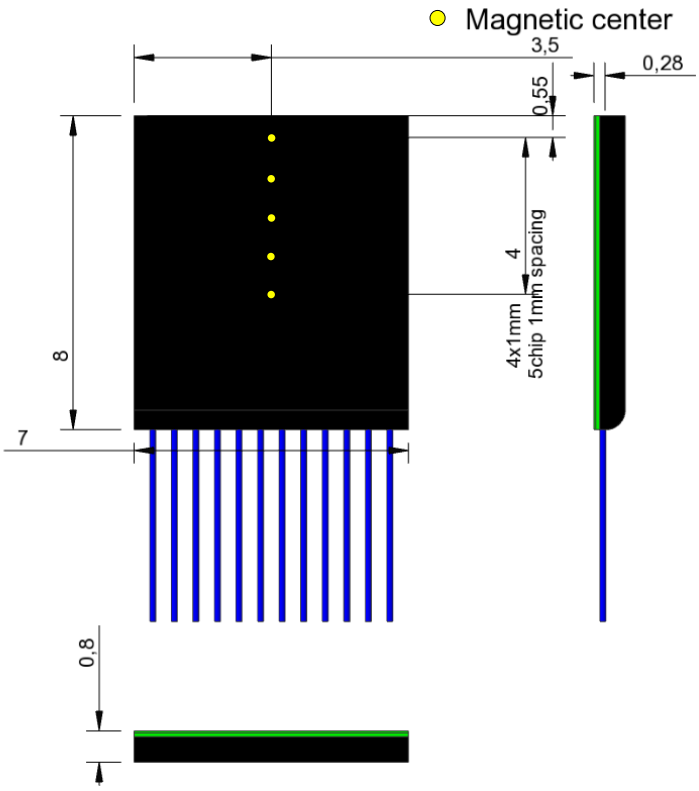


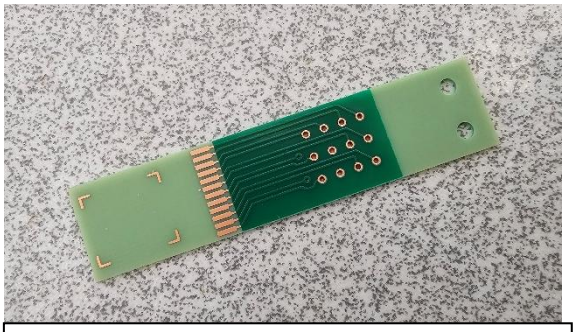


5-chip array ARK5 (144-chip or 244-chip)

Body size 7 x 8 mm, pitch 1,0 mm. Max. thickness 1 mm.
Fine pair twisted wires welded to the contacts.
Maximum temperature of 125 °C.
Standard wire length is 15 cm, other lengths deliverable on request.
A version with high temperature wires, temperatures up to 200 °C, is deliverable on request.







Extra option:
The array can be mounted on a motherboard with holes for wire mounting. Array mounted on left side of motherboard and fully encapsulated.
(Not for high temp option)

Electrical specifications		Values 144R1	244R1
Advised supply current		0,1 to 2,0 mA recommended 1 mA*	0,1 to 2,0 mA recommended 2 mA*
Open-circuit Hall voltage B=1 T @1mA		min 170 to max 360 Current batch 210 mV/T	min 170 to max 360 Current batch 180 mV/T
Temperature coefficient of open-circuit Hall voltage B=1 T, at 25°C		typical -0,015 %/K at I=1 mA min -0,02 to max 0,02	typical -0,015 %/K at I=1 mA min -0,02 to max 0,02
Ohmic offset voltage B=0 T		≤± 12 mV at I=1 mA Current batch 3.3 mV **	≤± 0,5 mV at I=1 mA
Temperature coefficient of ohmic offset voltage B=0 T		typical 40 ppm/K (6,7 µT/K) at I=1 mA	typical 5 ppm/K at I=1 mA
Linearity of Hall voltage at I=1 mA	B = ± 0 to 1 T B = ± 1 to 2,4 T	≤± 0,2 % (nom. -+0.1%) Limit not specified typical ≤± 0,2 %	≤± 0,2 % (nom. -+0.1%) Limit not specified typical ≤± 0,2 %
Supply side internal resistance B=0 T		900 to 1300 Ω Current batch 1250 Ω	700 to 1000 Ω Current batch 850 Ω
Hall side internal resistance B=0 T		900 to 1700 Ω typical 1250 Ω	700 to 1000 Ω typical 850 Ω
Thermal conductivity in air		≥ 1,5 mW/K	≥ 1,5 mW/K
Thermal conductivity soldered		≥ 2,2 mW/K	≥ 2,2 mW/K
Bandwidth		Not specified (contact us)	Not specified (contact us)

* Optimal signal to noise ratio and low power consumption

** Variations within the same production batch are very small.

Absolute maximum ratings		Values
Supply current		10 mA
Operating temperature	**Standard wire version**	-40 to +125 °C
	High temp wire version	-40 to +200 °C

For very low (cryogenic down to a few Kelvin) or very high (over 200 °C) temperature applications, contact us for more information.