

2024 Product Guide

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JANUARY

ANALOG AND MIXED SIGNAL ICs FOR:

Automotive

Connected Home

Consumer

Industrial

Mobile Devices

AsahiKASEI
MICRODEVICES

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While every effort has been made to ensure the accuracy of this document, AKM is not responsible for any errors or misprints contained herein. Please refer to the appropriate AKM data sheets for exact chip specifications.

All specifications and features subject to change without notice.

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Mic Audio ADC: AK5706ECB



▶ Acoustic Activity Analyzer (AAA)

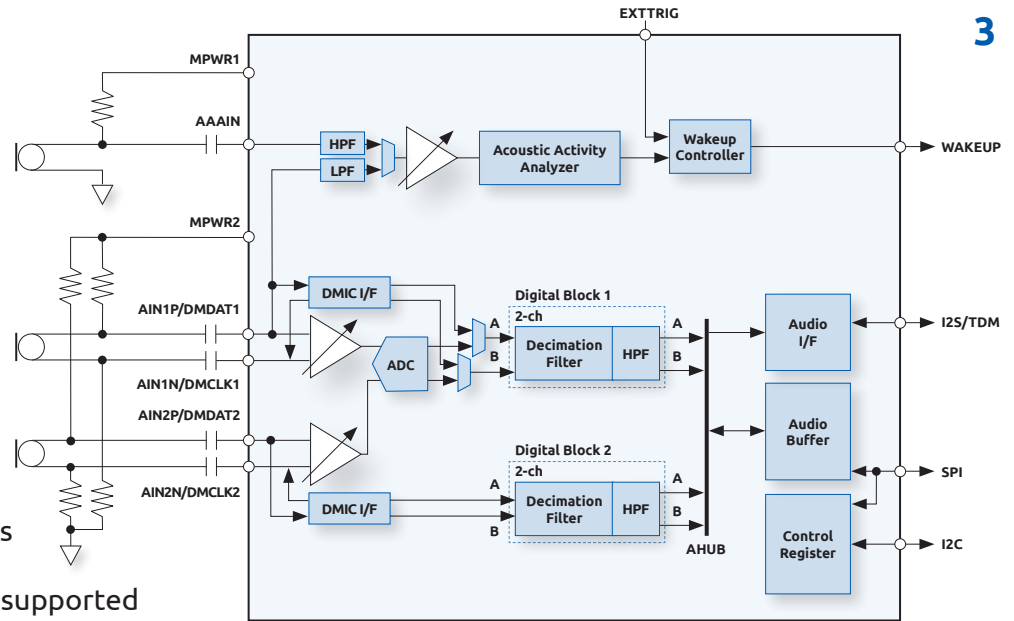
- Trigger upon specific sound categories
- Adaptive noise-level detection
- Always-on mode and EXTTRIG modes supported

▶ Audio buffer

- Records high-quality audio via 2-ch, 24-bit ADC
- Up to 105 dB in high performance mode
- 64 kB capacity: 2.0s @1-ch, 16 kHz, 16-bit
- 24/16-bit SPI access
- Begins recording upon qualified audio input
AAAIN and/or human presence detection (EXTTRIG)

▶ Intelligent SoC wakeup

- Recording begins and system sends wakeup signal to SoC
- Audio is being recorded while SoC is still booting
- SoC may then access audio buffer via SPI



- ▶ Control: I2C (400kHz) / SPI (13 MHz)
- ▶ Power supply: AVDD 1.8V or 3.3V, TVDD 1.65 ~ 3.6V
- ▶ Package: 32-pin CSP (2.668mm x 2.695mm, 0.4mm pitch)



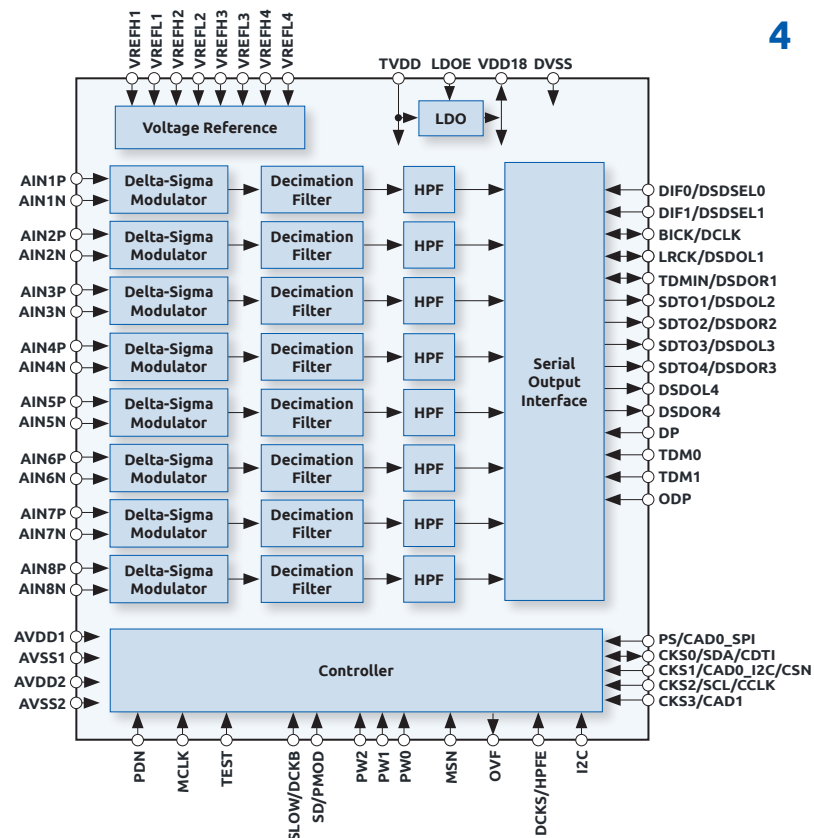
Watch AKM's series of videos on the AK5706:



	Automotive Qualified	Ch#	Analog Input	Res. (Bits)	Max fs (kHz)	THD+N (dB)	S/N, DR (dB)	Va (V)	Power Consumption (mW)	PLL	Mic Amp	Package	Notes
AK5704EN		4	Single/Diff	32	192	-90	102	1.8 ~ 3.3	17	Yes	Yes	QFN-28	ALC, VAD, TDM, Low Power, Digital Mic
AK5706ECB		2	Single/Diff	24	192	-90	105	1.8 ~ 3.3	2.3	Yes	Yes	CSP-32	AAA, Audio Buffer
AK5720VT	Yes	2	Single	24	96	-94	102	2.7 ~ 5.5	18.3 / 30.5		Yes	TSSOP-16	Cascade TDM I/F, Short Group Delay
AK5734VN	Yes	4	Single/Diff	24	192	-92	100	3.3	76mW + Mic Bias		Yes	HVQFN-48	Mic-diagnostics, Cascade TDM I/F, Automotive grade
AK5736VN	Yes	6	Single/Diff	24	192	-92	100	3.3	96mW + Mic Bias		Yes	HVQFN-48	Mic-diagnostics, Cascade TDM I/F, Automotive grade

Audio ADC: AK5578EN

- ▶ DR, SNR: 121dB (Mono Mode: 123dB)
- ▶ THD+N: -112dB
- ▶ Sampling Rate: 8kHz ~ 768kHz
- ▶ 4 types of Digital Filters Selectable
 - Sharp Roll-Off Digital Filter ($GD=19/fs$)
 - Slow Roll-Off Digital Filter ($GD=7/fs$)
 - Short Delay, Sharp Roll-Off Digital Filter ($GD=5/fs$)
 - Short Delay, Slow Roll-Off Digital Filter ($GD=5/fs$)
- ▶ Output Format
 - PCM mode: 24/32-bit MSB justified, I2S or TDM
 - DSD mode: DSD Native 64, 128, 256
- ▶ Cascaded TDM I/F: 16ch/48kHz, 8ch/96kHz, 4ch/192kHz
- ▶ Power Consumption: 536mW
- ▶ Available in 3V/5V, 2/4/8ch versions
- ▶ 64-pin QFN



	Automotive Qualified	Ch #	Analog Input	Res. (Bits)	Max fs (kHz)	THD+N (dB)	S/N, DR (dB)	Va (V)	Power Consumption (mW)	PLL	Mic Amp	Package	Notes
AK5522VN	Yes	2	Single/Diff	32	192	-98	108	3.3 or 5	76	Yes	Yes	QFN-24	LDO, PGA, High PSRR, Short Group Delay
AK5534VN	Yes	4	Diff	32	768	-103	111	3.3	89			QFN-48	Cascade TDM I/F, Short Group Delay, DSD
AK5538VN	Yes	8	Diff	32	768	-103	111	3.3	175			QFN-64	Cascade TDM I/F, Short Group Delay, DSD
AK5552VN	Yes	2	Diff	32	768	-106	115	5	67			QFN-48	Cascade TDM I/F, Short Group Delay, DSD
AK5554VN	Yes	4	Diff	32	768	-106	115	5	130			QFN-48	Cascade TDM I/F, Short Group Delay, DSD
AK5558VN	Yes	8	Diff	32	768	-106	115	5	256			QFN-64	Cascade TDM I/F, Short Group Delay, DSD
AK5572EN		2	Diff	32	768	-112	121	5	157			QFN-48	Cascade TDM I/F, Short Group Delay, DSD
AK5574EN		4	Diff	32	768	-112	121	5	305			QFN-48	Cascade TDM I/F, Short Group Delay, DSD
AK5578EN		8	Diff	32	768	-112	121	5	536			QFN-64	Cascade TDM I/F, Short Group Delay, DSD

Audio CODEC: AK4619VN

▶ 4ch ADC: 24-bit ADC with MIC Gain Amplifiers

- Sampling Frequency: $f_s = 8 \text{ kHz to } 192 \text{ kHz}$
- MIC Gain Amplifiers: $-6 \text{ to } +27 \text{ dB}$, 3 dB Step
- Supports differential, single-ended, or pseudo-differential inputs
- ADC Characteristics S/N: 106 dB
- Digital Volume Control

▶ 4ch DAC: Advanced 32-bit DAC

- Sampling Frequency: $f_s = 8 \text{ to } 192 \text{ kHz}$
- DAC Characteristics S/N: 108 dB
- Digital Volume Control

▶ Digital Audio Interface:

- Interface Data Format: 32 / 24 / 20 / 16-bit I2S/MSB, PCM Short/Long Frame
- 4-ch TDM Format Supported
- Digital loop back path
- Two 4:1 multiplexers (MUX)

▶ Control Interface:

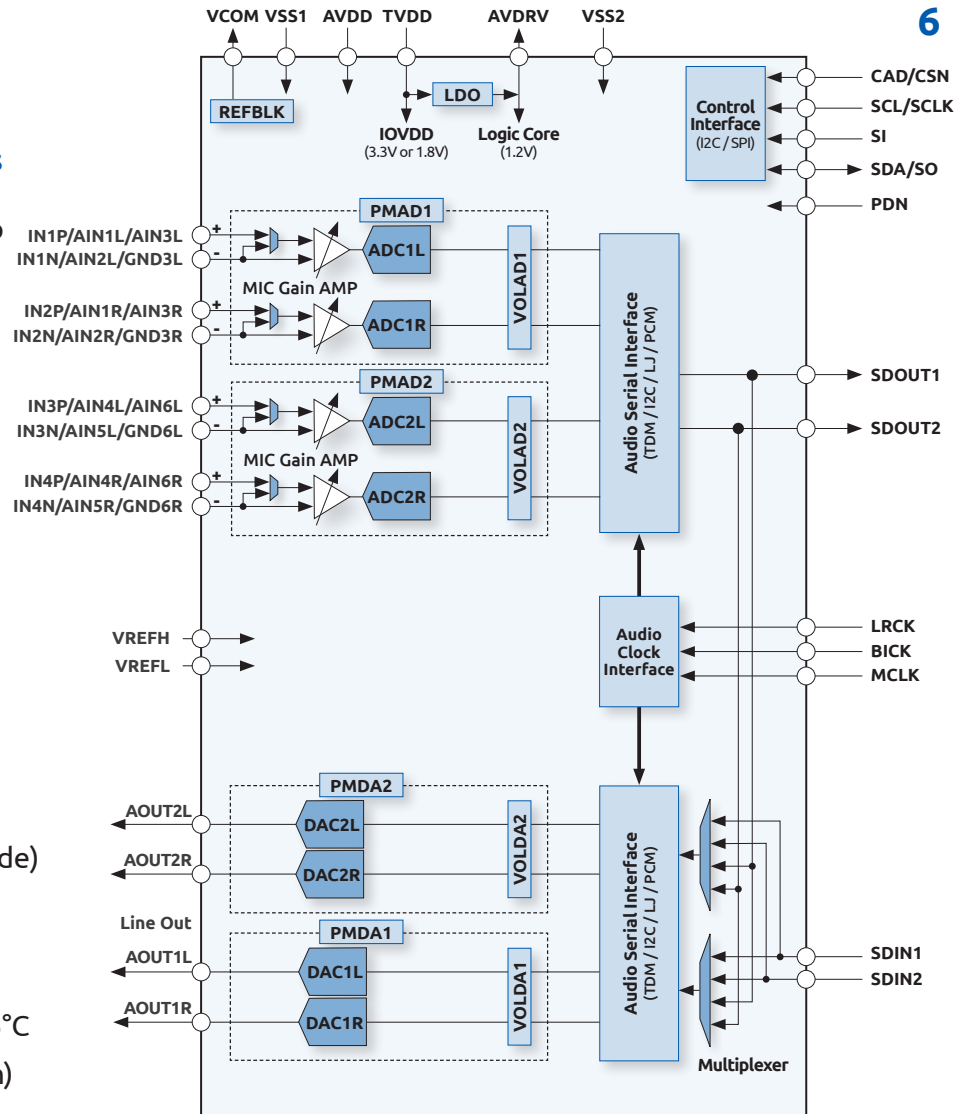
SPI (7 MHz max), I2C-bus (max 400 kHz, Fast Mode)

▶ Power Supply:

- AVDD (Analog): 3.0 to 3.6 V (typ. 3.3 V)
- TVDD (Digital I/F): 1.7 to 3.6 V (typ. 3.3 V)

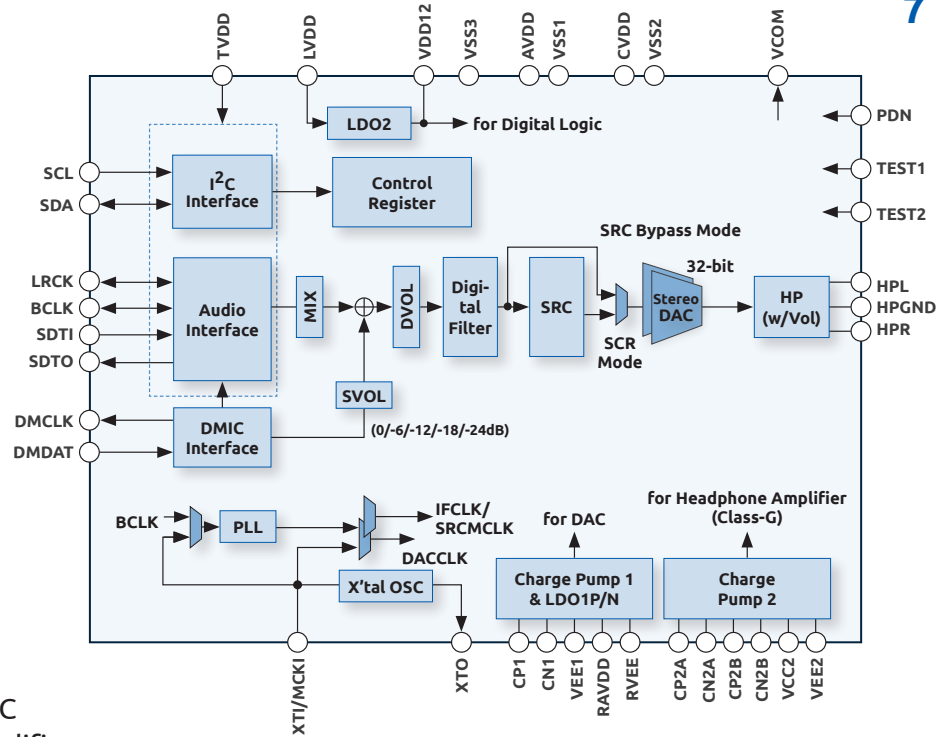
▶ Operating Temperature Range: $T_a = -40 \text{ to } 105^\circ\text{C}$

▶ Package: 32-pin QFN (5mm x 5mm, 0.5mm pitch)



	Automotive Qualified	# of ADC Channels	# of DAC Channels	Resolution (Bits)	S/N ADC (dB)	S/N DAC (dB)	THD ADC (dB)	THD DAC (dB)	V _a (V)	Mic Amp	# of SRC Channels
AK4601VQ	Yes	5	6	32	106	108	95	91	3.3	Yes	–
AK4602VQ	Yes	5	6	32	106	108	95	91	3.3	Yes	8
AK4604VQ	Yes	5	6	32	106	108	95	91	3.3	Yes	16
AK4619VN	Yes	4	4	32	106	108	95	91	3.3	Yes	–
AK4940VN	Yes	1	1	24	90	90	80	80	3.3	Yes	–

Audio DAC: AK4331ECB

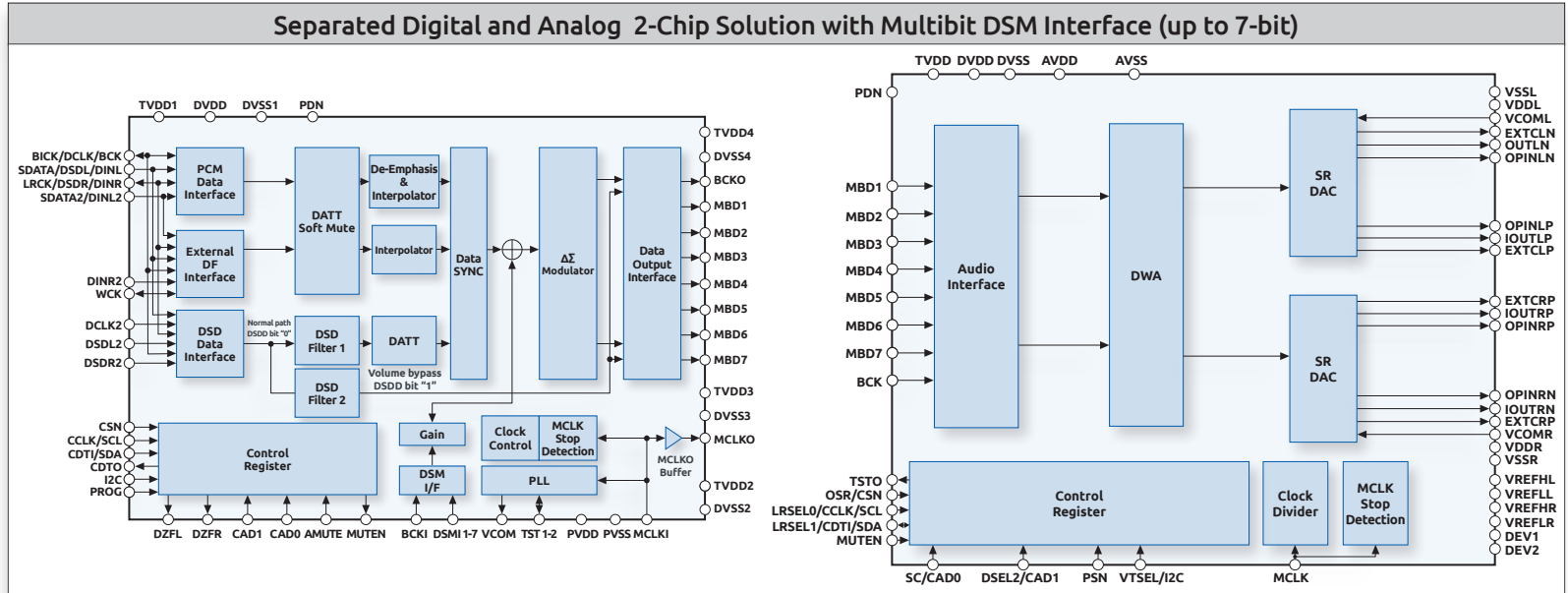


- ▶ High Sound Quality, Low Power 32-bit Stereo DAC
- ▶ Ground-referenced Class-G stereo headphone amplifier
- ▶ THD+N: -100 dB
- ▶ S/N, DR: 109dB
- ▶ Analog Volume: +4 ~ -10, 2dB steps
- ▶ Ground Loop Noise Cancellation
- ▶ Low power consumption: 4.4mW
- ▶ HP output pins comply with IEC61000-4-2 ESD Protection
- ▶ Sample Frequency: 8kHz ~ 192kHz

- ▶ Asynchronous Sample Rate Converter
- ▶ Jitter isolation with built in SRC and X'tal
- ▶ Stereo digital microphone interface
- ▶ PLL
- ▶ Power supply: 1.8V
- ▶ Package: 36-pin CSP (2.533mm x 2.371mm, 0.4mm pitch)

	Ch#	Analog Output	Res. (Bits)	THD+N (dB)	S/N (dB)	Va (V)	HP Amp	Power Consumption (mW)	Package	Notes
AK4331ECB	2	Single	32	-100	109	1.8	Yes	4.4	CSP-36	High Performance, Low Power
AK4333ECB	2	Single	32	-100	109	1.8	Yes	6.8	CSP-24	High Performance, Low Power, Impedance Detection
AK4332ECB	1	Single	32	-100	109	1.8	Yes	3.1	CSP-30	High Performance, Low Power, Mono
AK4377AECB	2	Single	32	-107	125	1.8	Yes	41	CSP-36	Performance/Power Consumption Balance
AK4377ECB	2	Single	32	-109	128	1.8	Yes	60	CSP-36	Industry Leading Portable Performance

Ultra High-Performance DAC Solution: AK4191 + AK4499EX



AK4191:

- ▶ Up to 1.536MHz PCM, DSD1024 DSD rates
- ▶ I2S/MSB/LSB (up to 32- or 64-bit dual line) and TDM
- ▶ 3-wire or I²C Control
- ▶ 3.3VD or 1.8VD, 1.2VD core
- ▶ 26 mW power consumption
- ▶ 64-pin HTQFP package
- ▶ 85°C Ambient Temperature
- ▶ MP: Now

Watch AKM's video on AK4191 + AK4499EX:



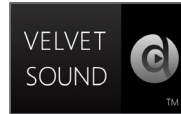
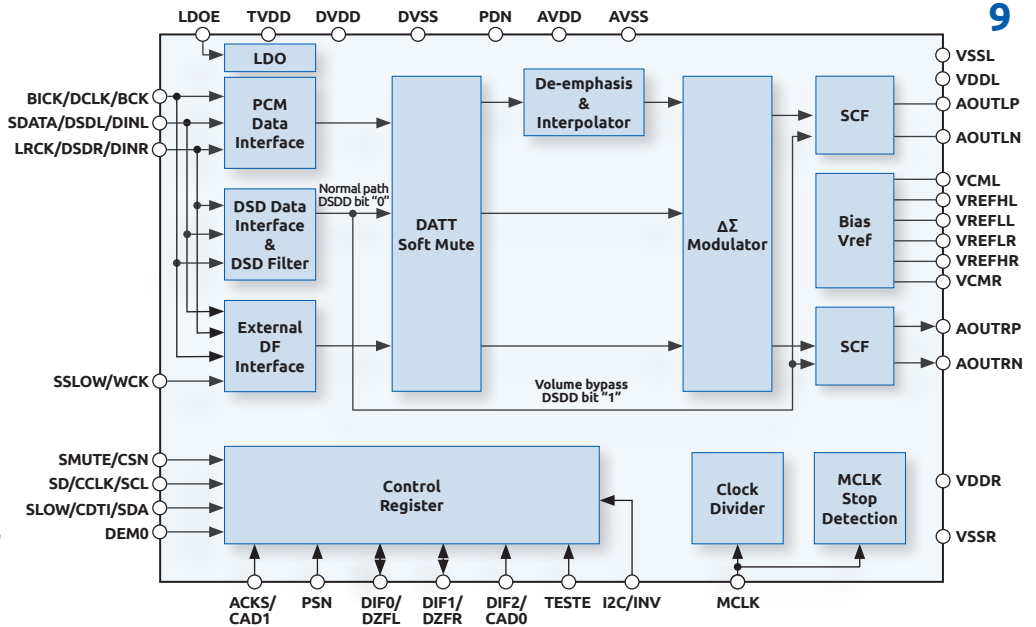
AK4499EX:

- ▶ 2-ch. Diff. Current Output
- ▶ 135dB SNR, -124dB THD+N
- ▶ 3-wire, I²C or H/W Pin Control
- ▶ 5VA, 3.3VD or 1.8VD, 1.8VD core
- ▶ 310 mW power consumption
- ▶ 64-pin HTQFP package
- ▶ 85°C Ambient Temperature
- ▶ MP: Now

	Automotive Qualified	Ch #	Analog Output	Res. (Bits)	THD+N (dB)	S/N (dB)	V _a (V)	Package	Notes
AK4191		2		32 or 64	-153	156		HTQFP-64	Six types of selectable Digital Filters
AK4499EX		2	Diff (Current)	7	-124	135	5	HTQFP-64	Industry Leading Analog Performance

Audio DAC: AK4493SEQ

- ▶ THD+N: -115dB
- ▶ DR, S/N: 123dB (± 2.8 Vpp)
125dB (± 3.75 Vpp)
128dB (± 3.75 Vpp, Mono Mode)
- ▶ Input Format:
24/32-bit MSB, LSB, I2S, TDM,
DSD, External Digital Filter
- ▶ Sampling Frequency: 8 kHz to 768 kHz
- ▶ 32-bit 8x Digital Filter Selectable
 - Short Delay Sharp Roll-off, GD = 6.0/fs,
 - Short Delay Slow Roll-off, GD = 5.0/fs
 - Sharp Roll-off
 - Slow Roll-off
 - Low Dispersion Short Delay Filter
 - Super Slow Roll-off
- ▶ DSD filter
Filter1 (fc = 39kHz, DSD64 mode)
Filter2 (fc = 76kHz, DSD64 mode)
- ▶ 3-wire, I2C-bus Register Control Interface, or Pin Control
- ▶ AK4490R pin compatible
- ▶ Package: 48-pin LQFP

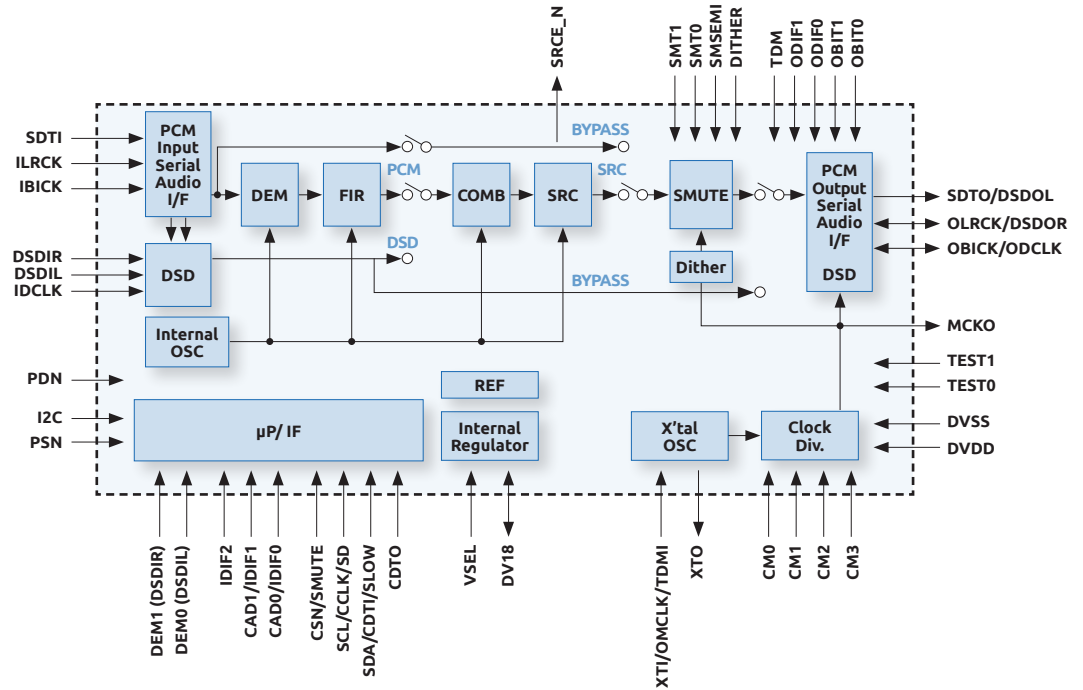


Watch AKM's video on the
AK4493S/AK4490R:



	Automotive Qualified	Ch #	Analog Output	Res. (Bits)	THD+N (dB)	S/N (dB)	Va (V)	Package	Notes
AK4432VT	Yes	2	Single	32	-91	108	3.3	TSSOP-16	Cascade TDM I/F, Short Group Delay
AK4436VN	Yes	6	Single	32	-91	108	3.3	QFN-32	Cascade TDM I/F, Short Group Delay
AK4438VN	Yes	8	Single	32	-91	108	3.3	QFN-32	Cascade TDM I/F, Short Group Delay
AK4452VN	Yes	2	Diff	32	-107	115	5	QFN-32	Cascade TDM I/F, Short Group Delay, DSD
AK4454VN	Yes	4	Diff	32	-107	115	5	QFN-32	Cascade TDM I/F, Short Group Delay, DSD
AK4456VN	Yes	6	Diff	32	-107	115	5	QFN-48	Cascade TDM I/F, Short Group Delay, DSD
AK4458VN	Yes	8	Diff	32	-107	115	5	QFN-48	Cascade TDM I/F, Short Group Delay, DSD
AK4490REQ		2	Diff	32	-112	120	5	LQFP-48	TDM I/F, Short Group Delay, DSD
AK4493SEQ		2	Diff	32	-115	123	5	LQFP-48	TDM I/F, Short Group Delay, DSD

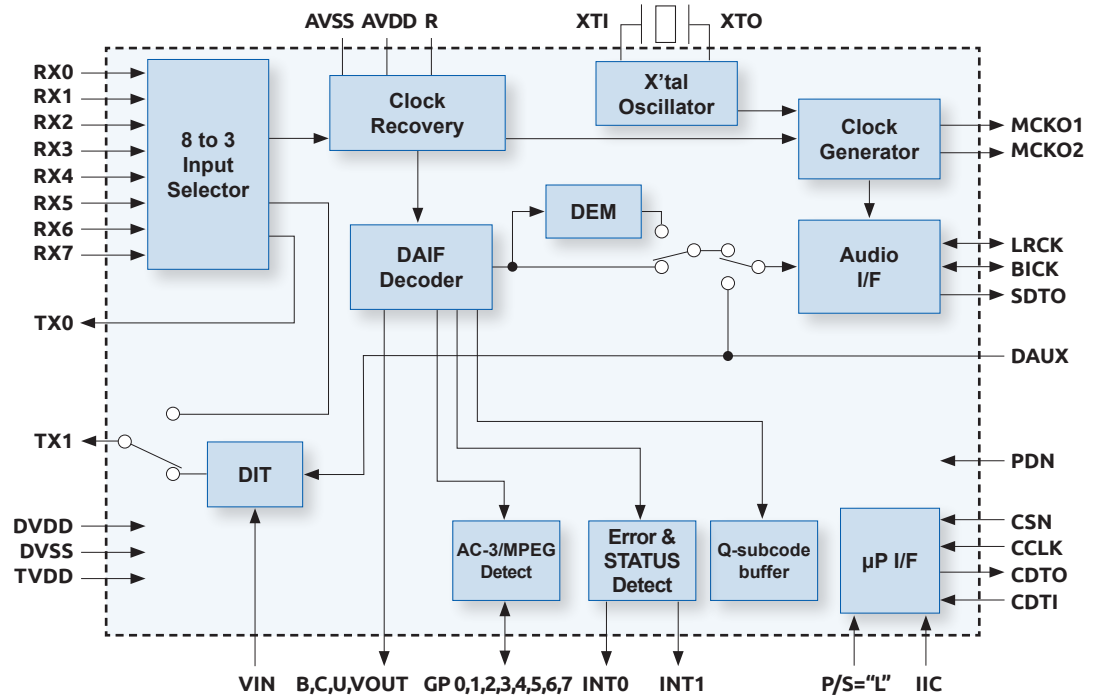
Sample Rate Converter: AK4137EQ



- ▶ THD+N: -150dB
- ▶ Dynamic Range: 186dB (A-weighted)
- ▶ Input to Output sample rate ratio: 1/6 ~ 24
- ▶ PCM
 - Input sample rate range (FSI): 8kHz ~ 768kHz
 - Output sample rate range (FSO): 8kHz ~ 768kHz
- ▶ DSD
 - Input sample rate range (FSI): 2.8224MHz ~ 11.2896MHz
 - Output sample rate range (FSO): 2.8224MHz ~ 11.2896MHz
- ▶ PCM/DSD converter
- ▶ TDM interface mode
- ▶ SRC Bypass mode, Soft mute
- ▶ 48-pin LQFP

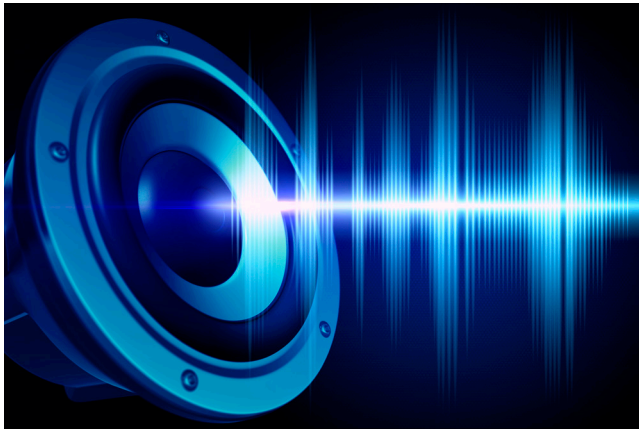
	Automotive Qualified	SRC Ch#	Res. (Bits)	Input fs (kHz)	Output fs (kHz)	DR (dB)	Vdd (V)	Control I/F	Package
AK4137EQ		2	32	8 ~ 768	8 ~ 768	186	3.3	4-wire/I2C	LQFP-48

Digital Audio Interface: AK4118AEQ



- ▶ 24-bit, 192kHz Transceiver
- ▶ Ultra-low jitter: <50ps rms
- ▶ PLL lock range: 32kHz ~ 192kHz
- ▶ 8:1 input selector
- ▶ 42-bit channel status buffer
- ▶ 8 GPIO port
- ▶ RX data input detection
- ▶ Auxiliary digital input
- ▶ Transmitter loop-through mode
- ▶ Hardware or serial control (SPI/I2C)
- ▶ 48-pin LQFP

	Automotive Qualified	DIR Ch#	DIT Ch#	Res. (Bits)	Fs (kHz)	Rx MUX	Vdd (V)	Power Consumption (mW)	Control I/F	Package
AK4118AEQ		2	2	24	32 ~ 216	8:1	3.3	106	4-wire / I2C/HW	LQFP-48



AKM digital signal processing (DSP) cores are specifically designed for audio and voice processing, utilizing floating point calculations to maximize precision.

An easy to use drag and drop GUI allows the designer to dramatically shorten development time while still taking advantage of these customized cores' advanced processing capabilities. These highly efficient DSPs are integrated with our high-performance ADC, DAC, SRC, and DITs in order to simplify system design and layout.

	Automotive Qualified	Max fs (kHz)	DSP Core Count	Instructions per sample per core @48k	Ch# AD/DA	SN (dB) AD/DA	Digital I/O (Ch)	Ch# DSP In/Out (total)	Clock Speed (MHz)	Delay + Data RAM	Vdd (V)	Package
AK4962ECB		192	1	2560	5/4	102/125	16/16	10/10	122.88	10k	3.3, 1.2, 1.8-3.3	CSP-125
AK7604VQ	Yes	192	2	4096	2/6	106/108	14/12	12/12	196.608	6k	3.3	LQFP-48
AK7735AVQ	Yes	192	2	3072	4/4	106/108	32/32	24/24	147.059	16k	3.3	LQFP-48
AK7735EQ		192	2	3072	4/4	106/108	32/32	24/24	147.059	16k	3.3	LQFP-48
AK7736BVQ	Yes	192	1	2560	--/--	--/--	8/8	16/16	123.457	20k	3.3, 1.2, 1.8-3.3	LQFP-48
AK7737VQ	Yes	192	2 + 1 sub	2560	4/0	102/108	48/48	24/24	294.912	48k	3.3, 1.2	HTQFP-64
AK7738AVQ	Yes	192	2 + 1 sub	2560	4/4	102/108	24/28	24/24	122.88	36k	3.3, 1.2, 1.8-3.3	LQFP-48
AK7739VQ	Yes	192	2 + 1 sub	6144	4/4	102/108	96/96	24/24	294.912	48k	3.3, 1.2	HTQFP-64
AK7755EN		96	1	2560	3/2	102/108	8/8	8/8	122.88	10k	3.3	QFN-36
AK7758VN	Yes	96	1 + 1 sub	3072	2/2	102/--	16/16	12/12	147.059	10k	3.3	QFN-36
AK7775EN		192	2	4096	4/2	104/108	8/8	16/16	196.608	28k	3.3	QFN-36
AK7776EQ		192	2 + 1 sub	6144	4/4	102/108	96/96	24/24	294.912	48k	3.3, 1.2	HTQFP-64

Audio/Voice DSP: AK7739VQ

▶ Integrated Dual-Core DSP with Sub DSP

- 295MHz DSP internal clock speed
- Data word: 37-bit
- 6144 steps per core at 48kHz
- Multiplier: 32 x 32 → 64bit
- ALU: 96-bit
- Coefficient RAM: 12k word x 32-bit
- Delay RAM: 36k word x 37-bit
- Data RAM: 12k word x 37-bit
- Core independent sample rate

▶ 4ch 24-bit ADC

- Single, pseudo, or differential input
- 2ch mic gain amplifier:
 - 3 ~ 30dB with 3dB steps
 - SNR: 95dB
 - Mic power output
- 2ch line input selector
 - SNR: 102dB
 - Digital volume control

▶ 4ch 32-bit DAC

- SNR: 108dB
- Digital volume control

▶ Digital mic input port (2ch x 1)

▶ SRC: 4x stereo, 4x mono

▶ DIT

▶ Digital audio interface

- Max 96ch input and 96ch output

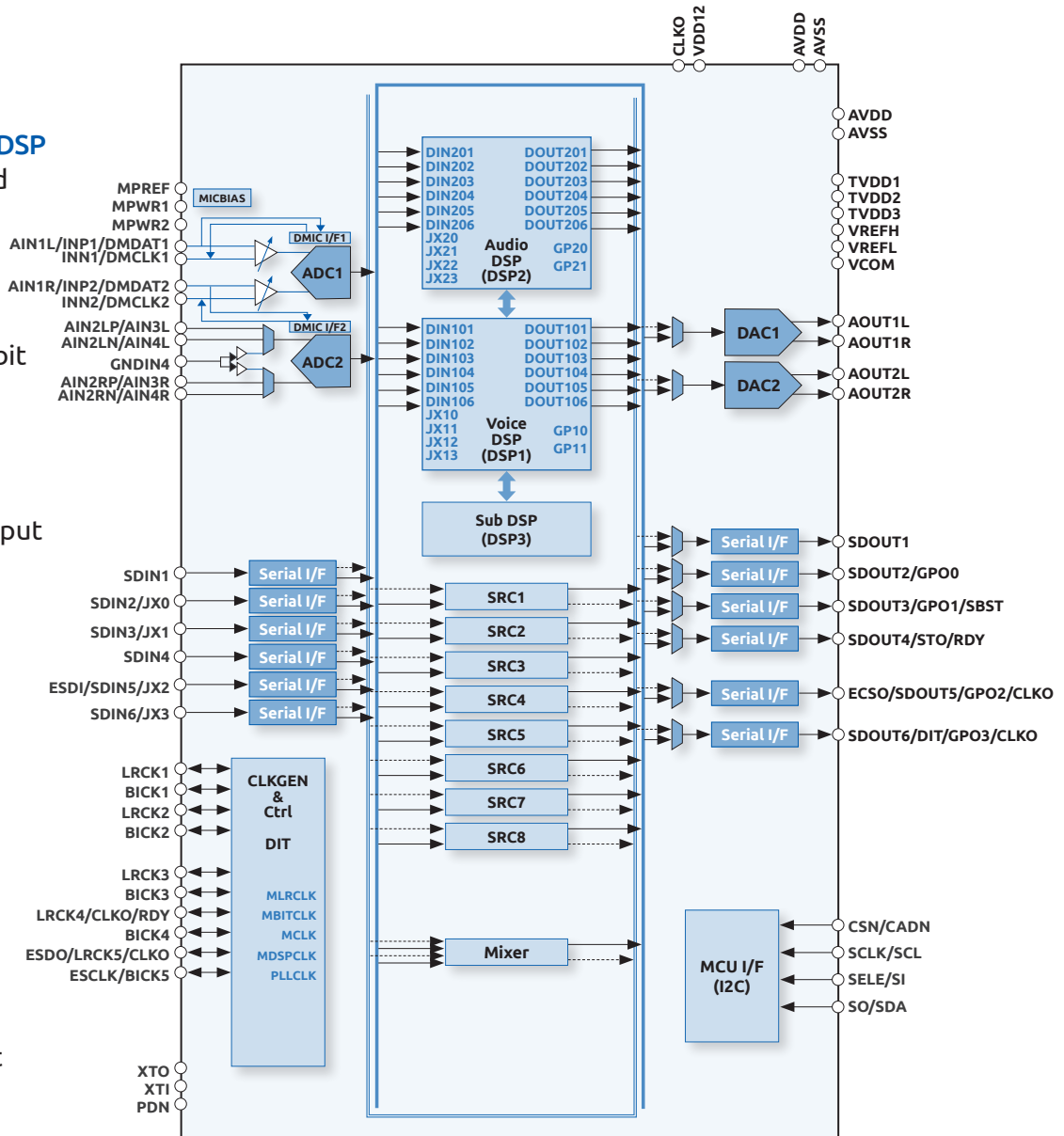
▶ SPI or I2C interface

- SPI master/slave supported

▶ Power supply: 1.2V, 3.3V

▶ Operating temperature: -40 ~ +85°C

▶ Package: 64-pin HTQFP (10mm x 10mm, 0.5mm pitch)



AKx is a GUI-based development tool for AKM's DSP products. It uses a simple drag-and-drop interface to design a DSP algorithm, allows for real-time tuning on a prototype or evaluation kit, and generates code for your microcontroller project. No knowledge of DSP programming is required to use the tool. Custom blocks can be implemented within this tool.

The screenshot displays the AK77 DSP Software Development Tool interface. The top menu bar includes File, Setup, Design, and Connect. The main workspace shows a signal flow diagram with two input channels (In-01, In-02) passing through trim blocks (Trim-01, Trim-02), followed by graphic equalizers (GEQ-01, GEQ-02), and compressors (Comp-01, Comp-02). The outputs of these channels are mixed (Mix2-01) to produce three final outputs (Out-01, Out-02, Out-03). A left sidebar contains a library of DSP blocks such as Adder, Impulse, Sine, Volume/Switch, Fader, Trim, Simple Delay, Dynamics, and EQ. The bottom right corner features a frequency response graph with a 7-band PEQ curve, showing frequency in Hz on a logarithmic scale (20 to 24k) and gain in dB (-15 to +15). The graph highlights six frequency points: F1, F2, F3, F4, F5, and F6.

Primary Elements:

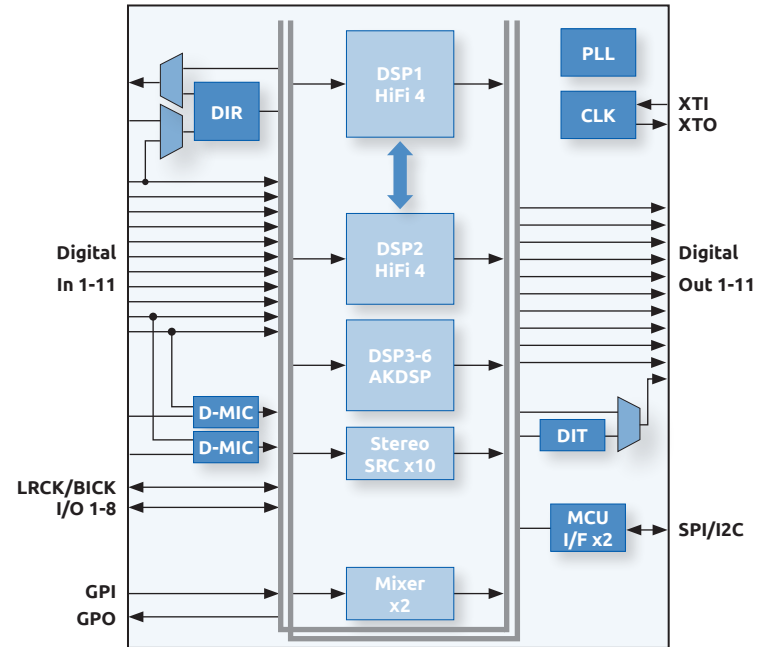
- Compressor/Limiter
- Noise Gate
- HPF/LPF
- Multi-Band EQ
- Delay
- Volume Control
- Faders
- Mixers
- FIR/IIR Filters

Watch AKM's video on the use of the DSP Development Tool



HiFi Audio/Voice DSP: AK7709VQ

- ▶ DSP1/2: Tensilica HiFi 4 DSP (492 MHz each)
 - Block-based processing
- ▶ DSP3/4/5/6: AKDSP (492 MHz each)
 - Sample-by-sample processing
- ▶ 152ch serial data inputs/outputs (TDM)
- ▶ 20ch Asynchronous Sample Rate Converter
 - FSI = 8kHz ~ 192kHz
 - FSO = 8kHz ~ 192kHz
- ▶ 4ch digital microphone I/F
- ▶ TDM I/F, S/PDIF in/out, UART I/F
- ▶ SPI (50MHz), I2C-bus (400kHz Fast-Mode)
 - Master SPI, Self-Bootup
- ▶ Supports DSP Concepts' Audio Weaver
- ▶ Supports Tensilica's audio codecs library
- ▶ Supports audio and voice libraries from Tensilica and other 3rd parties
- ▶ Package: 100-pin HLQFP (14mm x 14mm)



	Automotive Qualified	Max fs (kHz)	DIR/DIT	SRC	Ch# DSP In/Out	DSP Core	Clock Speed (MHz)	Delay RAM	Data RAM	Vdd (V)	Package
AK7709VQ	YES	192	Yes/Yes	2ch x 10	152/152	HiFi 4 x 2 + 4 x AKM	492 x 6	1152 KB + 14 kwords	64 kwords	0.9, 1.8-3.3, 3.3	HLQFP-100
AK7018VQ	Yes	192	Yes/Yes	2ch x 10	152/152	HiFi 4 x 2	492 x 2	1152KB	n/a	0.9, 1.8-3.3, 3.3	HLQFP-100
AK7017VQ	Yes	192	Yes/Yes	2ch x 10	152/152	HiFi 4	492	1024KB	n/a	0.9, 1.8-3.3, 3.3	HLQFP-100
AK7016VQ	Yes	192	Yes/Yes	2ch x 8	112/112	HiFi 4 x 2	246 x 2	768KB	n/a	1.2, 3.3	HTQFP-64
AK7707VQ	Yes	192	Yes/Yes	2ch x 6	64/64	HiFi 2 + 2 x AKM	295 + 221 x 2	384KB + 10 kwords	24 kwords	1.2, 1.8 ~ 3.3, 3.3	HTQFP-64
AK7015VQ	Yes	192	--/Yes	2ch x 4	32/32	HiFi 2	295	256KB	n/a	1.2, 1.8 ~ 3.3, 3.3	LQFP-48



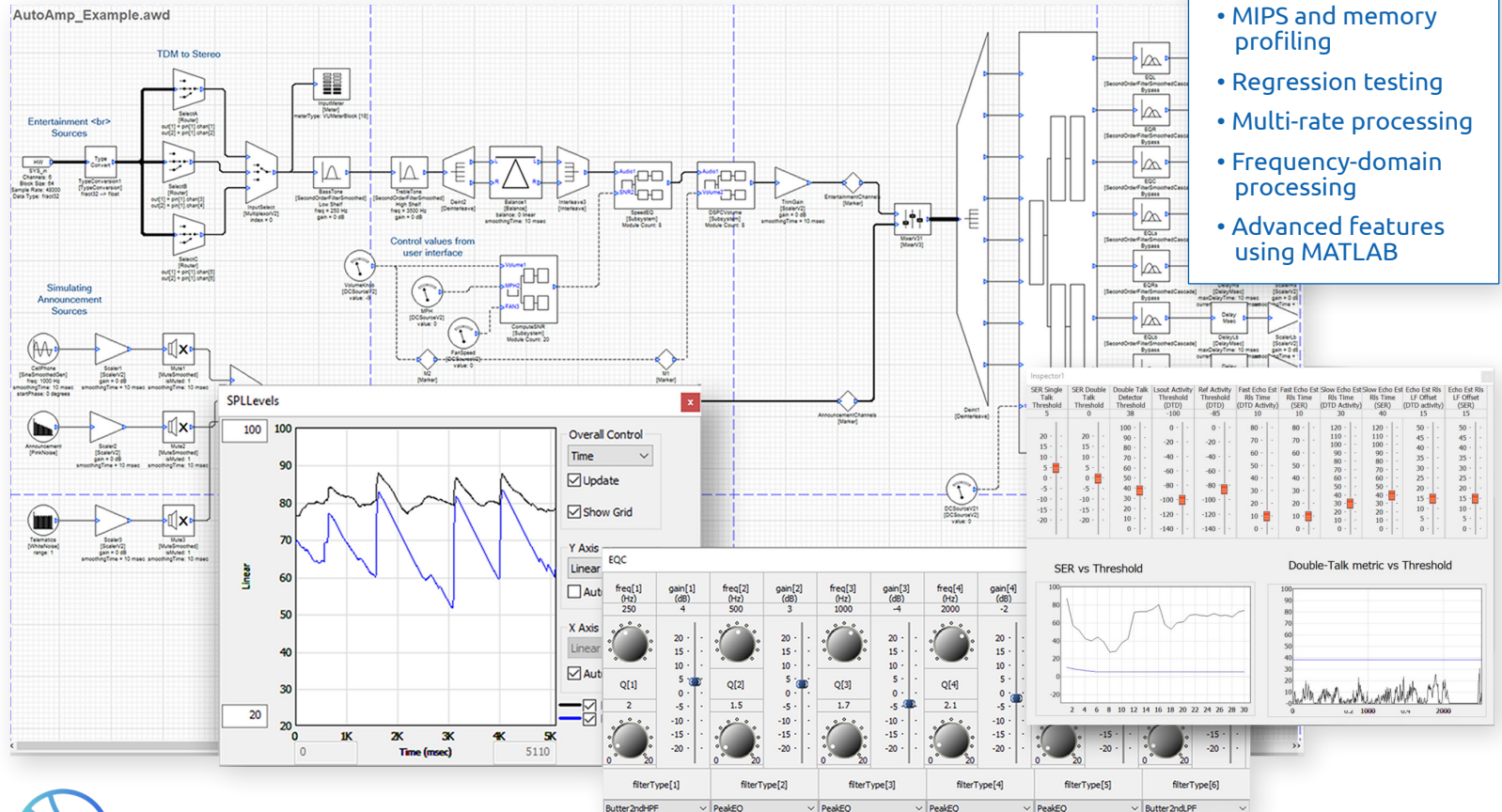
**DSP
Concepts**

Audio Weaver from DSP Concepts is an innovative design environment for developing optimized embedded audio software. It embodies years of audio product development experience and enables algorithm and product developers to more quickly and efficiently develop products and technology. Audio Weaver is suitable for the entire life cycle of an algorithm, from basic research to optimization and productization, integration into end products, and ongoing legacy support.

Audio Weaver supports most major DSP and microcontroller families, including AKM's AK7709VQ, AK7018/17/16VQ DSPs.

Features:

- Graphical Interface
- Large library of optimized modules
- Real-time tuning
- MIPS and memory profiling
- Regression testing
- Multi-rate processing
- Frequency-domain processing
- Advanced features using MATLAB



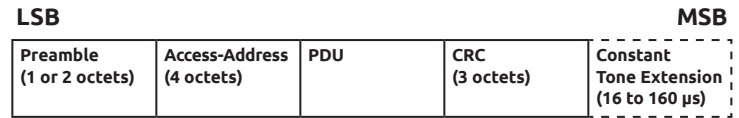
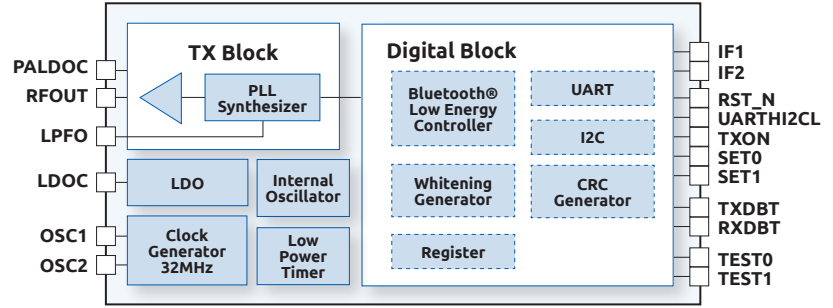
Audio Weaver

Bluetooth® Low Energy Beacon Transmitter: AK1595A

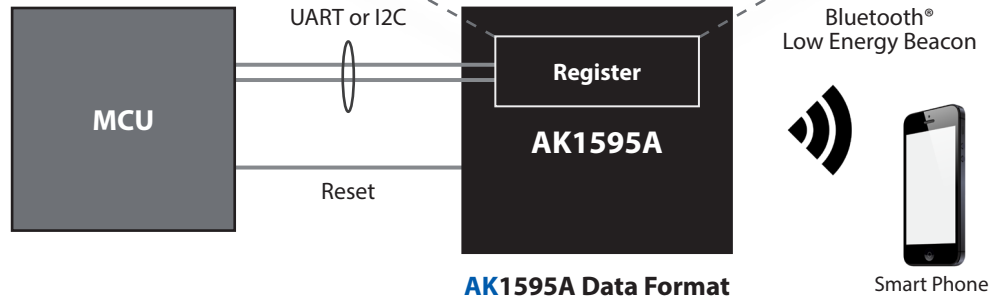
- ▶ Bluetooth® Core Spec.: V 5.3 Advertiser
- ▶ Frequency: 2402MHz, 2426MHz, 2480MHz
- ▶ Output power: -30dBm ~ 0dBm typ.
- ▶ VDD: 2.0 ~ 3.6V
- ▶ Temperature: -40 ~ +85°C
- ▶ Package: 20-pin QFN (3mm x 3mm x 0.75mm)
- ▶ Serial communication interface:
 - o UART (9600 bps or 115200 bps)
 - o I2C (100kHz or 400kHz)
- ▶ Built-in data whitening feature and CRC are compliant with Bluetooth® Low Energy
- ▶ Built-in Bluetooth® Low Energy hardware stack significantly reduces complexity of system design
- ▶ Supports constant tone extension format (AoA)

▶ Applications:

- Thermometer
- Vitals monitors
- Weight scale
- Blood pressure meter
- Water filter
- Electric toothbrush
- Electric shaver
- Bluetooth® Low Energy Beacon node



AK1595A AoA Data Format

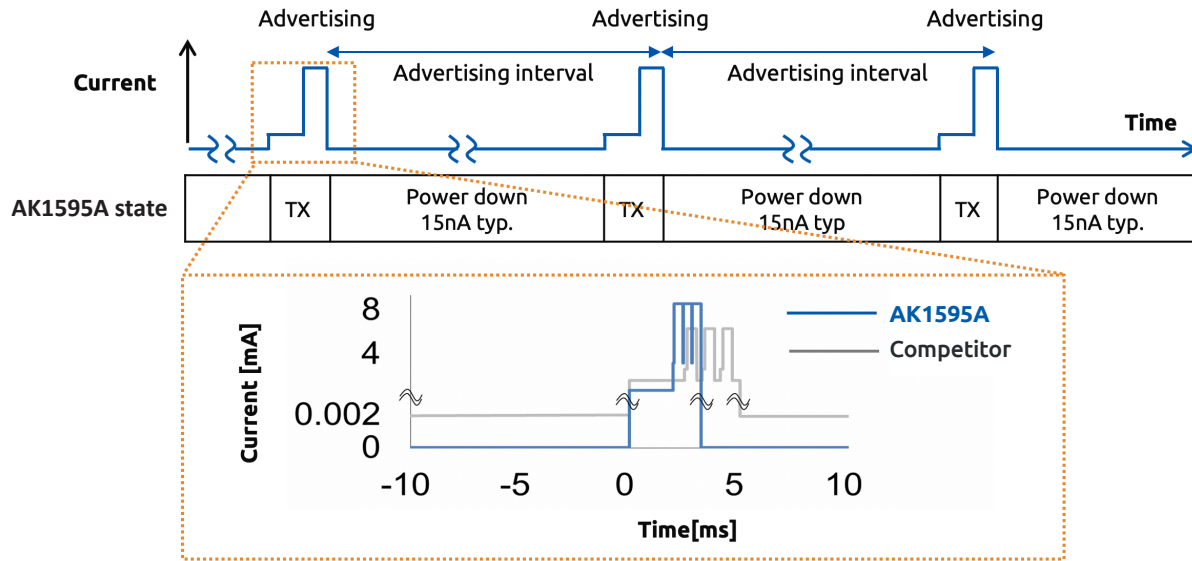


	Direction Finding	Startup Time	RF Power (Min)	RF Power (Max)	GFSK Bit Rate	Advertising Data Length	Vdd (V)	Control I/F	Package
AK1595A	AoA	<2ms	-32 dBm	0 dBm	1MBPS	31 BYTES	2.0 ~ 3.6	UART/I2C	QFN-20

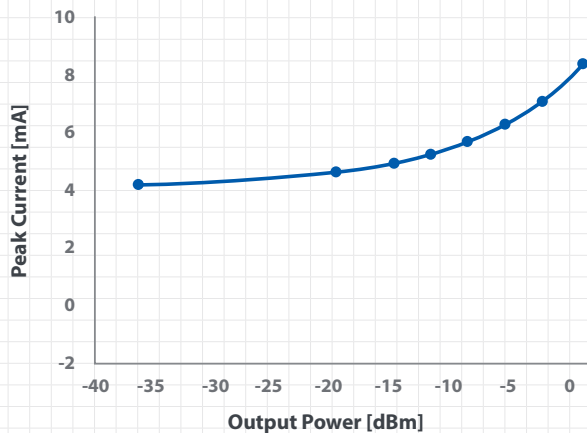
Bluetooth® Low Energy Beacon Transmitter: AK1595A

Fast Start Up for Total Power Consumption

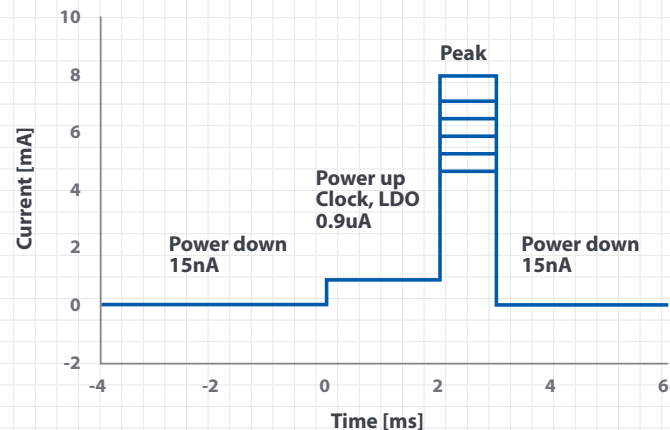
The AK1595A startup time is <2msec. This fast start-up time reduces the current consumption by quickly sending the data and returning to full power down state.



Peak Current vs Output Power



Current vs Time for Transmission



Gas Sensing Markets:

Heating, Ventilation, Air Conditioning, Refrigeration

Air quality matters to all of us, from our workforce to our family members. To that end, Senseair's sensor modules are found in residential, commercial, and industrial buildings worldwide.

It's well known that high concentrations of CO₂ can be lethal; industrial and hospitality facilities must be on the constant lookout for situations like leaks from pressurized CO₂ in gas cylinders. However, even lesser concentrations of CO₂, such as those that might occur in an office or school due to occupants' breathing, can measurably impact health and productivity.



Cost-effective and widespread measurement of CO₂ levels makes it possible to regulate ventilation to maximize a team's health, comfort, and performance under any building occupancy load. It's worth noting that adequate air turnover during occupancy also prevents the accumulation of any air pollutants, pathogens, and aerosols, reducing the transmission rate of viruses.

Refrigerant gases can be flammable or hazardous, and some must be continuously monitored to keep buildings safe. AKM's NDIR

gas sensors detect the new A2L-classified refrigerants quickly and accurately to comply with new product and safety requirements and regulations.

Life Science

Many biological processes depend upon precise concentrations of CO₂ in the air. Therefore, accurate CO₂ control is key to everything from chicken hatcheries, greenhouses, and food packaging to the transportation of perishable goods.

CO₂ measurement is also very relevant in the personal health and fitness market, where it can be used to track metabolism and lactate thresholds, and medical applications that involve breath monitoring.



Safety in the Workplace and in Traffic

A contact-less sampling of someone's breath through NDIR gas sensing is a fast, reliable, and painless way to prevent drunk driving, keep a sober workplace, or ensure hospitality guidelines. Our NDIR-based alcohol sensors are ideal for this purpose, as they can provide non-intrusive screening.

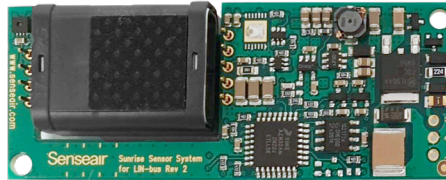
Sensor Core (SC)



Senseair Sunrise:

- ▶ Rugged optics
- ▶ Solid-state sensor
- ▶ Ultra-low power
- ▶ Factory calibrated
- ▶ Protective optical coating

Sensor onBoard (SoB)



IoT Platform:

- ▶ CO₂ / CH₄ / R32
- ▶ Temperature
- ▶ Humidity
- ▶ Barometric pressure
- ▶ tVOC/CO (option)
- ▶ Bluetooth Low-Energy

Sensor inCase (SiC)



Solutions:

- ▶ Wall transmitter for indoor residential
- ▶ Duct transmitter for light industrial
- ▶ Wireless transmitter with display
- ▶ Premium-featured monitor for outdoors

Display

PM2.5

Batteries

Power Supply





IoT Modules

ZigBee

LoRa

NB-IoT

...

	Sunlight	Sunrise	S8	K30
				
Size (L x W x H)	34 x 21 x 12mm	33 x 20.6 x 11.5mm	33.9 x 19.8 x 8.7mm	51 x 57 x 14mm
Measuring Range	400-5000ppm; extended range up to 10000ppm	400-5,000ppm (extended range up to 10,000ppm)	400-2,000ppm 0.04 ~ 2%vol 0.04 ~ 5%vol	0-5,000ppm 0 ~ 1%vol 0 ~ 3%vol 0 ~ 10%vol
Accuracy	±50ppm ±3% of reading (extended range ±10% of reading)	±30ppm +3% of reading (extended range ±10% of reading)	±30ppm ±3% of reading ±0.02%vol ±3% of reading ±0.02%vol ±10% of reading	±30ppm ±3% of reading ±0.03%vol ±3% of reading
Emitter	IR LED	IR LED	Incandescent Bulb	Incandescent Bulb
Measurement Period	Default: 16s, 8 samples (adjustable by host)	16s (default setting) From 2s to 65534s (continuous measurement mode)	2s 4s	0.5s 2s
Power Supply	3.05 ~ 5.5V	3.05-5.5V	4.5-5.25V	4.5-14.0V DC
Power Consumption	20µA average 80mA peak * see table on page 23	38µA average * 125mA peak * lower consumption possible	30mA average @ 2s 18mA average @ 4s 300mA peak	70mA average @ 0.5s 600mA peak power 40mA average @ 2s 300mA peak power
Operating Temperature	0 ~ 50 °C, 0 ~ 85% RH	0 ~ 50°C	0 ~ 50°C	0 ~ 50°C
Communication Interface	UART, I ² C	I ² C/UART	UART (w/direction control pin)	I ² C / UART (w/direction control pin)
Life Expectancy	>15 years	>15 years	>15 years	>15 years
Digi-Key® link	Sunlight Series	Sunrise	S8 Series	K30 Series

Senseair Sunlight CO2

P/N: 006-1-0100



World's most Power Efficient CO2 Sensor with NDIR Technology

Compliant with HVAC and building standards, Sunlight can be used in a wide range of applications but is optimal for battery and wireless applications or in places where you want to have a reliable, long-life sensor.

The module is designed for simple integration into products. The optical solid-state design with no moving parts make this sensor robust and resistant to vibrations.

With our automatic baseline correction, Sunlight is maintenance-free, meaning that you can mount and forget your sensor during its lifetime, and it will still be accurate.

- ▶ Ultra Low Power consumption
- ▶ Compliant with ANSI/ ASHRAE Standard 62.1-2022
- ▶ Compliant with RESET grad B
- ▶ Compliant with WELL Building Standard® (WELL v2™)
- ▶ High Precision
- ▶ Robust
- ▶ Mass Production
- ▶ Self-correcting

Measured Gas	Carbon dioxide (CO2)
Operating Principle	Non-dispersive infrared
Measurement Range	400-5000ppm; extended range up to 10000ppm
Accuracy (CO2)	±50ppm ±3% of reading ^{1,2} (extended range ±10% of reading)
Average Current	< 30µA
Measurement Period	Default: 16s, 8 samples (adjustable by host)
Steady State Current During Sampling	50mA
Peak Current	< 80mA
Power Supply	3.05 ~ 5.5V ³
Dimensions (L x W x H)	34 x 21 x 12mm
Weight	5g
Life Expectancy	> 15 years
Operating Temperature	0 ~ 50 °C, 0 ~ 85% RH
Storage Temperature	-40 ~ 70 °C
Communication Interface	UART, I ² C

Note 1: 15–35 °C, 0–80% RH, after 3 ABC (Automatic Baseline Correction) periods and default measurements settings.

Note 2: Specification is referenced to uncertainty of calibration gas mixtures (±1%).

Note 3: Unprotected against surges and reverse power supply polarity.



Average Current (typical), at Continuous and Single Measurement:

Measurement Period	2 Samples		8 Samples		32 Samples	
	Cont.	Single	Cont.	Single	Cont.	Single
16 sec	21µA		30µA			
1 min	18µA	7µA	20µA	16µA	30µA	22µA
5 min	16µA	1µA	17µA	3µA	19µA	4µA

Senseair Sunlight R32

P/N: 009-4-0001

A New Generation NDIR Sensor with Optical Solid-State Design

Electronics with no moving parts make Senseair Sunlight R32 robust and resistant to vibrations. The solid-state design benefits any application with a tough environment or those with explosion risk. It is also the first NDIR sensor with LED technology that truly saves power while maintaining high precision.

Senseair Sunlight R32 is designed for high-volume production with full traceability by a sensor serial number on all manufacturing processes and key components.

Every sensor is individually calibrated and is provided with UART (Modbus) and I2C interface. With the ABC-function activated, the sensor is maintenance-free. Senseair Sunlight R32 is a module designed for simple integration into products and can be used in a wide range of refrigerant applications.



Measured Gas	R32 (CH ₂ F ₂) ¹
Operating Principle	Non-dispersive infrared (NDIR)
Measurement Range	0 ~ 50% LFL
Resolution	10ppm (0.007% LFL)
Accuracy (R32)	Standard range: ±2.5% LFL ^{2,3,4} Extended range: ±5% LFL ^{2,3,4}
Measurement Period	Continuous measurement mode, 2s, 8 samples
Maintenance	Periodic Zero calibration or ABC calibration ⁵
Power Supply	3.05 ~ 5.50V DC ⁶
Dimensions (L x W x H)	34 x 21 x 12mm, max
Life Expectancy	15 years in normal commercial environments
Operating Temperature	-40 ~ 70 °C, 0 ~ 95% RH (non-condensing)
Storage Temperature	-40 ~ 85 °C
Communication Interface	UART, I ² C

Note 1: Sensor can measure molecules containing C-H bonds.

Note 2: Standard range 0 ~ 25% LFL, Extended range 25 ~ 50% LFL.

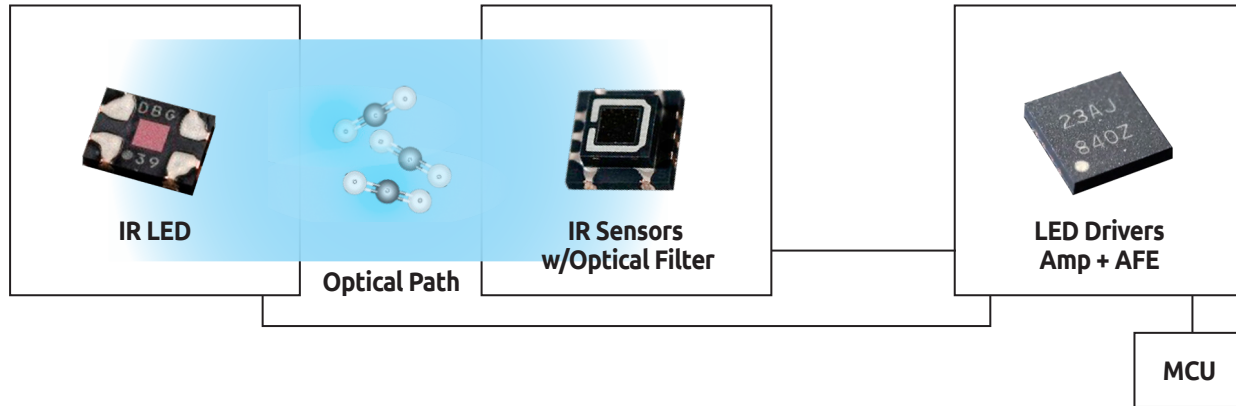
Note 3: -30 ~ 60 °C, 0 ~ 95% RH, after 3 ABC periods or 1 zero calibration and default measurements settings.

Note 4: Accuracy is specified over temperature range. Specification is referenced to certified calibration mixtures. Some industrial applications do require maintenance. Contact [Senseair](#) for further information.

Note 5: Default mode: ABC ON, ABC period 720h (30 days).

Note 6: Unprotected against surges and reverse power supply polarity.

- ▶ Complies with IEC 60079-29-1
- ▶ Complies with sensor element part at IEC and UL 60335-2-40
- ▶ Miniature size
- ▶ Fast response time
- ▶ Maintenance-free
- ▶ Long term stability
- ▶ Long lifetime
- ▶ Immunity to poisoning
- ▶ Individually calibrated
- ▶ Very low power consumption
- ▶ Mass production



IR LED

- ▶ The only ultra-small plastic package in the world: 2.6mm x 1.9mm x 0.4mm
- ▶ Short response rise time: < 10µsec
- ▶ High-reliability plastic mold package achieves high vibration resistance. Wear failure rate is 1ppm or less @15 years

IR Sensor with Optical Filter

- ▶ 150% higher sensitivity than competitors
- ▶ The only ultra-small plastic package in the world: 3.0mm x 3.0mm x 1.0mm with optical filter
- ▶ Short response rise time: < 10µsec
- ▶ 300% higher SNR than thermopile sensors
- ▶ High-reliability plastic mold package achieves high vibration resistance. Wear failure rate is 1ppm or less @15 years



ASICs

- ▶ IR-LEDs drive current setting range: 28mA ~ 121mA
- ▶ Integration time (LED's On Time) setting range: 60µs ~ 1067µs
- ▶ Dual channel AFE and an ADC for digital output

	CO2	Hydrocarbon	
Application	Consumer	Consumer	Industrial
IR-LED	AK9700AE	AK9703AJ	AK9703AJ
IR-Sensor	AK9710AEF01	AK9730AJF21	AK9730AJF21
ASIC	AK9723AJ	AK9723AJ	AK9723AJ

IR-LEDs

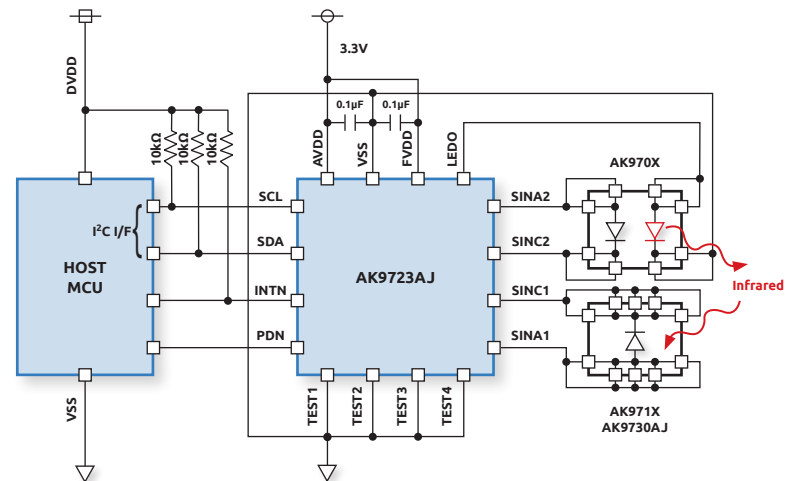
	AK9700AE	AK9703AJ	AK9703AJ
Target Gas	Carbon Dioxide	Hydrocarbon	Hydrocarbon
Peak Wavelength (μm)	4.3	3.3	3.3
Forward Current (mA)	Typ. 100, Max. 125	Typ. 100, Max. 125	Typ. 100, Max. 125
Operating Temperature (°C)	0 ~ 50°	-40 ~ 85°	-40 ~ 85°
Package Size (L x W x H) (mm)	2.6 x 1.9 x 0.4	2.6 x 1.9 x 0.4	2.6 x 1.9 x 0.4
Target Application	HVAC Carbon Dioxide detection	Methane detection, refrigerant gas leak, etc.	Methane detection, refrigerant gas leak, etc.
Quality Grade	Consumer	Consumer	Industrial

IR-Sensors with Optical Filter

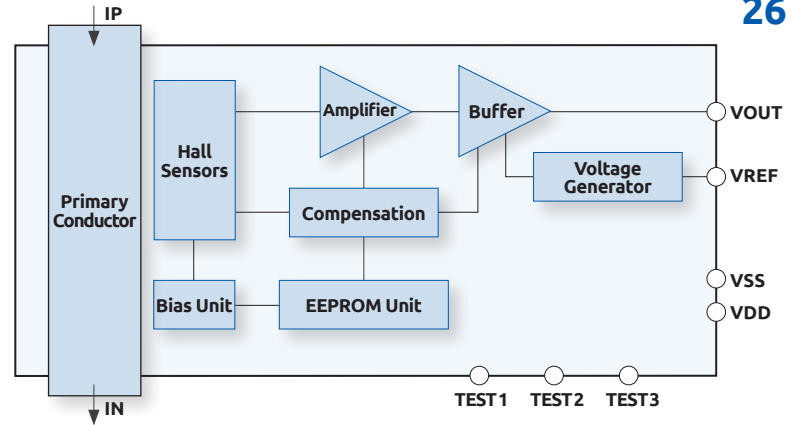
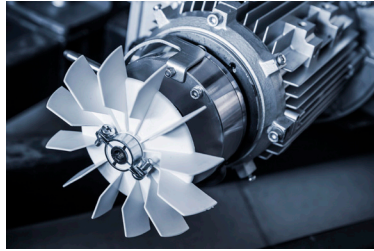
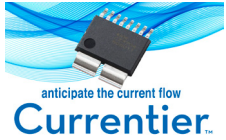
	AK9710AEF3A	AK9710AEF01	AK9730AJF21
Target Gas	No gas absorption	Carbon Dioxide	Hydrocarbon
Center Wavelength (μm)	3.9 (For ref.)	4.3	3.3
Operating Temperature (°C)	-40 ~ 85°	-40 ~ 85°	-40 ~ 85°
Package Size (L x W x H) (mm)	3.0 x 3.0 x 1.0	3.0 x 3.0 x 1.0	3.0 x 3.0 x 1.0
Target Application	-	HVAC	Methane detection, refrigerant gas leak, etc.
Quality Grade	Consumer	Consumer	Industrial

ASICs LED Driver + AFE

	AK9723AJ
LED Drive Current (mA)	28 ~ 121
Power Supply (V)	2.7 ~ 3.6
Operating Temperature (°C)	-40 ~ 85°
Package Size (L x W x H) (mm)	4.0 x 4.0 x 0.75
Quality Grade	Consumer/Industrial



Coreless Current Sensors: CZ370x/2x



- ▶ Stray magnetic field reduction
- ▶ Total accuracy: typ. 0.4% F.S., max. 0.7% F.S. @Ta=0 ~ 105°C
- ▶ Primary conductor resistance: 0.27mΩ
- ▶ Creepage Clearance ≥ 8mm
- ▶ Withstand voltage 3kV (50/60Hz, 60 sec)
- ▶ Impulse withstand voltage 8kV
- ▶ Safety Standard: UL1577, UL62368-1

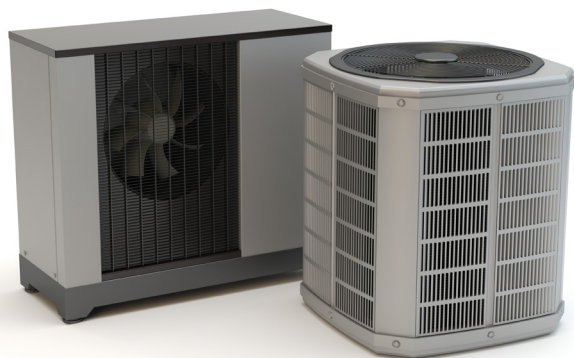
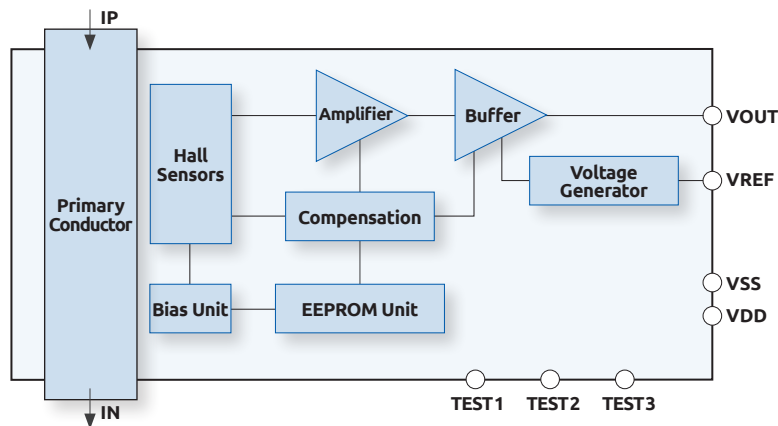


	Current Range (A)	Sensitivity (mV/A)	Supply Voltage (V)	Max. Primary Current (A-rms)	Response Time (μs)	Operational Temp (°C)	Package (mm)	Output type	Withstand Voltage (kV) 50/60Hz 60 sec	OCD
CZ3700	±5.3	400	4.5 ~ 5.5	60	1	-40 ~ 105	12.7 x 10.9 x 2.25	Ratiometric	3	N/A
CZ3701	±10.7	200								
CZ3702	±21.5	100								
CZ3703	±36	60								
CZ3704	±54	40								
CZ3705	±86.4	25								
CZ3706	±180	12								
CZ3720	-0.4 ~ 10.3	400	4.5 ~ 5.5	60	1	-40 ~ 105	12.7 x 10.9 x 2.25	Ratiometric	3	N/A
CZ3721	-0.8 ~ 20.6	200								
CZ3722	-1.7 ~ 41.3	100								
CZ3723	-2.9 ~ 68.8	60								
CZ3724	-4.4 ~ 103.4	40								
CZ3725	-7.1 ~ 165.8	25								
CZ3726	-14.9 ~ 345.2	12								

100A-rms Coreless Current Sensors: CZ375x



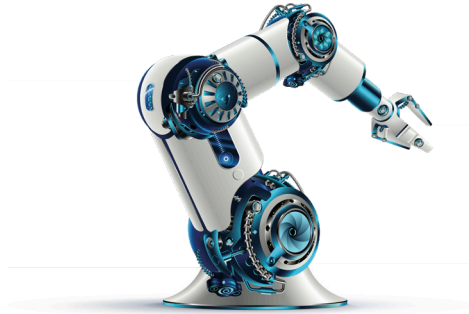
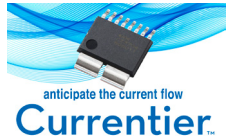
- ▶ Maximum Primary Current: 100A-rms
- ▶ Fast Response: 0.5μsec typ.
- ▶ Total accuracy: ± 0.5% F.S.typ. @Ta=0 ~ 90°C
- ▶ Primary conductor resistance: 0.27mΩ
- ▶ Stray magnetic field reduction
- ▶ Creepage Clearance ≥ 8mm
- ▶ Withstand voltage 4.2kV (50/60Hz, 60 sec)
- ▶ Impulse withstand voltage 8kV
- ▶ Safety Standard: UL1577, UL62368-1, UL61800-5-1



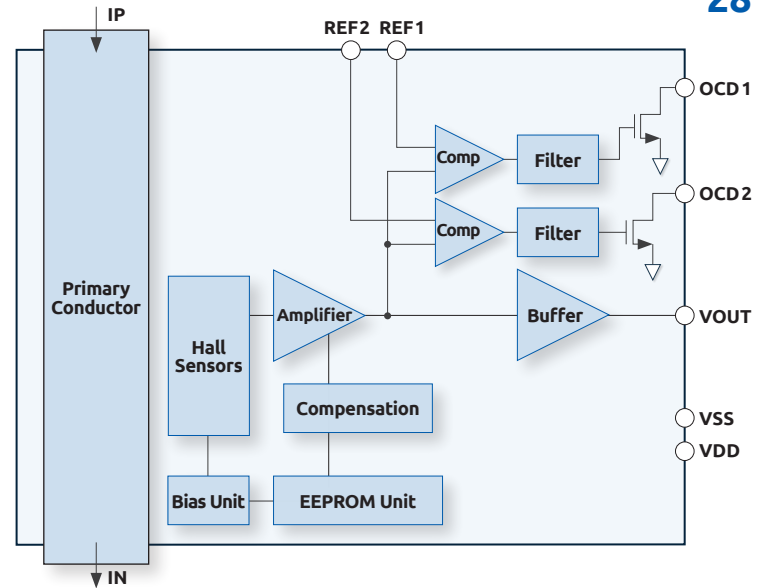
MP June/2023

	Current Range (A)	Sensitivity (mV/A)	Supply Voltage (V)	Response Time (μs)	Operational Temp (°C)	Package (mm)	Output type	Withstand Voltage (kV) 50/60Hz 60 sec	OCD
CZ375A	±115	19.5	4.5 ~ 5.5	0.5	-40 ~ 105	12.7 x 10.9 x 2.25	Ratiometric	4.2	N/A
CZ375B	±150	15							
CZ375C	±188	12							
CZ375D	±225	10							

Coreless Current Sensors: CZ3Axx

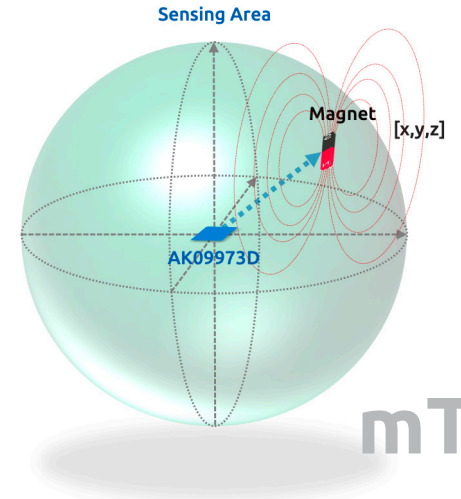
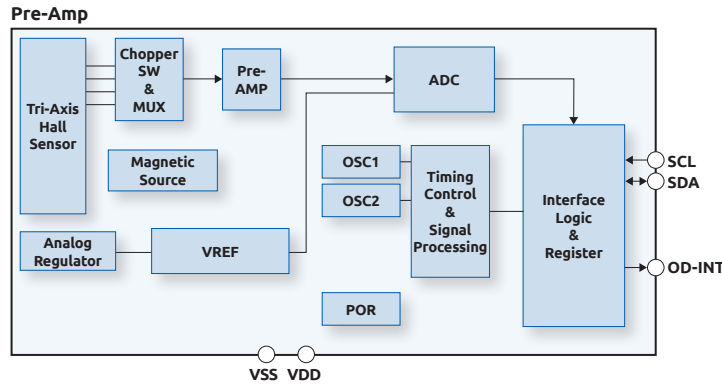


- ▶ Dual over current detection output
- ▶ Stray magnetic field reduction
- ▶ Total accuracy: typ. 0.3% F.S., max. 0.6% F.S. @Ta=35 ~ 85°C
- ▶ Primary conductor resistance: 0.27mΩ
- ▶ Creepage Clearance ≥ 8mm
- ▶ Withstand voltage 3kV (50/60Hz, 60 sec)
- ▶ Impulse withstand voltage 8kV
- ▶ Safety Standard: UL1577, UL62368-1



	Current Range (A)	Sensitivity (mV/A)	Supply Voltage (V)	Max. Primary Current (A-rms)	Response Time (μs)	Operational Temp (°C)	Package (mm)	Output type	Withstand Voltage (kV) 50/60Hz 60 sec	OCD
CZ3A01	±12.9	120	3.0 ~ 3.6	50	1	-40 ~ 85	12.7 x 10.9 x 2.25	Non-ratiometric, 3V	3	Dual
CZ3A02	±15.5	100								
CZ3A03	±22.1	70								
CZ3A04	±32.2	48								
CZ3A05	±64.5	24								
CZ3A06	±103.3	15								
CZ3A07	±129.1	12								
CZ3AG1	±11.6	120	4.5 ~ 5.5	50	3.6	-40 ~ 85	12.7 x 10.9 x 2.25	Non-ratiometric, 3V	3	Dual
CZ3AG2	±14.0	100								
CZ3AG3	±20.0	70								
CZ3AG4	±29.1	48								
CZ3AG5	±58.3	24								
CZ3AG6	±93.3	15								
CZ3AG7	±116.6	12								

Tri-Axis Magnetic Smart Switch: AK09973D



	Power Supply (V)	Current Consumption @100Hz (µA)	Power Down Current (µA)	Res. (Bits)	Sensitivity (µT/LSB)	Measurement Range (mT)	Digital Interface	Package	Package Size (L x W x H) (mm)
AK09973D	1.65 ~ 1.95	22	1	16	1.1	±100	I2C	5-pin WL-CSP	1.18 x 0.78 x 0.55

▶ **Tri-axis Si-monolithic hall effect magnetic sensor**

▶ **Programmable switch function**

- Programmable threshold for each axis (X, Y and Z)
- Low power monitoring while MCU is in stand-by
- Event-driven interrupt notification to OD-INT pin

▶ **Selectable sensor measurement range & sensitivity setting**

- High sensitivity setting:
Sensitivity: 1.1µT/LSB
Measurement range: ±36mT
- Wide range setting:
Sensitivity: 3.1µT/LSB
Measurement range: ±34.9mT (X, Y), ±100mT (Z)

▶ **Single measurement or continuous measurement**

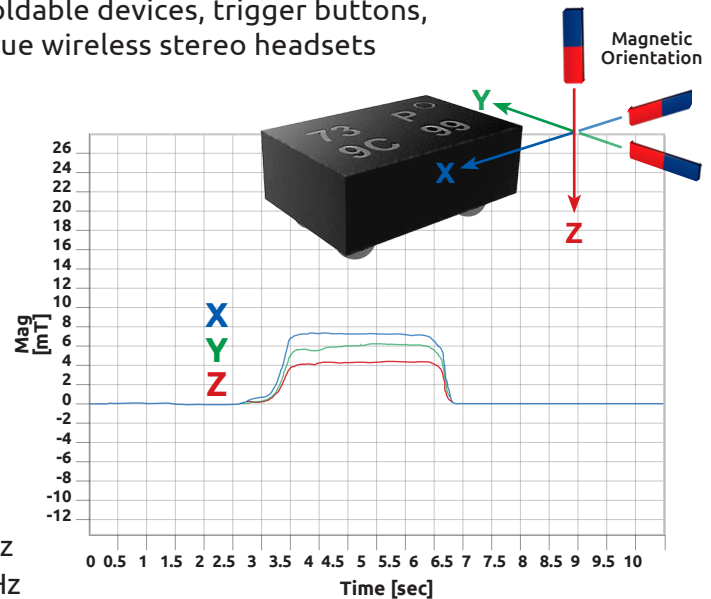
(5Hz, 10Hz, 20Hz, 50Hz, 100Hz, 500Hz, 1000Hz, 2000Hz)

▶ **Average power consumption at 10Hz/100Hz repetition rate**

- Low power drive mode: 3.5µA (typ.) @10Hz, 22µA (typ.) @100Hz
- Low noise drive mode: 11µA (typ.) @10Hz, 101µA (typ.) @100Hz

▶ **Applications:**

Door/window position sensors, popup cameras, smart enclosure technology, digital crowns, rotary buttons, foldable devices, trigger buttons, true wireless stereo headsets

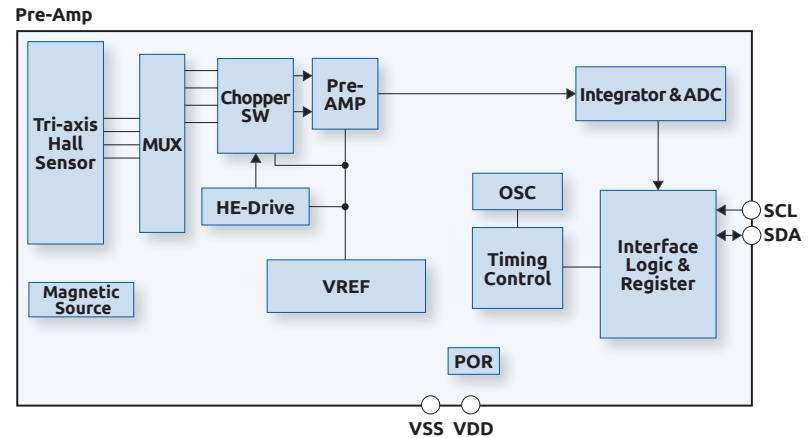
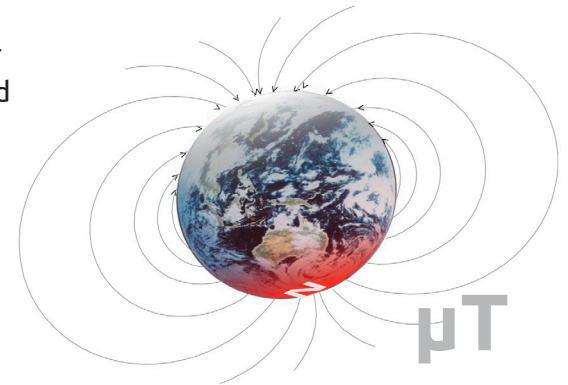


e-Compass Sensors: AK09919C

AKM has a long established history of being the largest e-Compass vendor in the world. We provide evaluation kits, as well as layout consultation, and support for magnetic simulation and software algorithm development.

- ▶ **Tri-axis Si-monolithic hall effect magnetic sensor**
- ▶ **Single measurement or continuous measurement**
(5Hz, 10Hz, 20Hz, 50Hz, 100Hz)
- ▶ **Average power consumption at 100Hz output data rate**
 - Low power drive mode: 1.1mA
 - Low noise drive mode: 1.1mA
- ▶ **Applications:**
 - Cell phones
 - AR/VR/MR/XR
 - Wearables
 - IoT
 - Connected home
 - Asset tracking

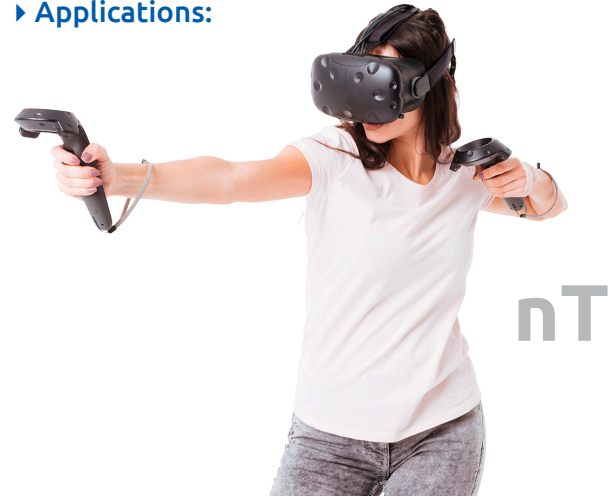
Watch AKM's video on the AK09919, our ultra-small e-compass for intelligent head tracking:



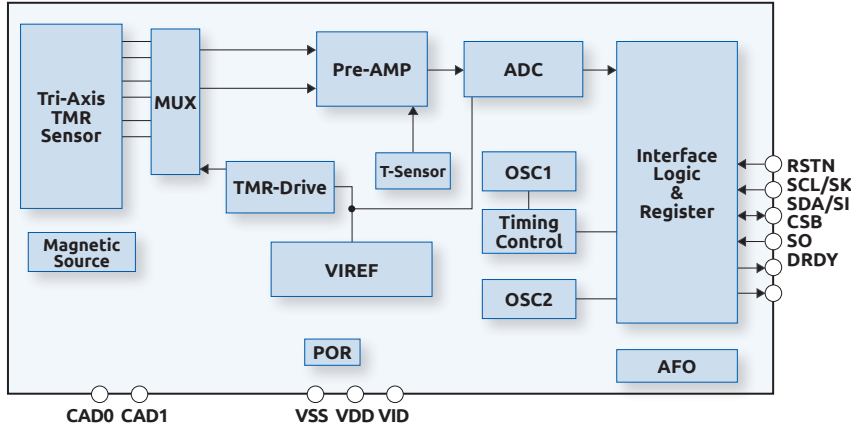
	Power Supply (V)	Interface Voltage (V)	Current Consumption (mA)		Power Down Current (μA)	Res. (Bits)	Sensitivity (μT/LSB)	Measurement Range (μT)	Digital Interface	Package	Package Size (L x W x H) (mm)	FIFO (set)	Open drain INT
			@100Hz	@10Hz									
AK09915C	1.7 ~ 3.6	1.65 ~ Vdd	1.8/0.9	0.2/0.1	3	16	0.15	±4900	I2C/SPI	WLCSP-14	1.6 x 1.6 x 0.5	32	N/A
AK09917D	1.65 ~ 1.95	1.65 ~ Vdd	1.1/0.6	0.15/0.1	1	16	0.15	±4900	I3C/I2C	WLCSP-5	1.2 x 0.8 x 0.5	32	✓
AK09918C			1.1	0.15					I2C	WLCSP-4	0.8 x 0.8 x 0.5	N/A	N/A
AK09919C	1.65 ~ 1.95	1.1 ~ Vdd	1.1	0.11/0.46	1	16	0.15	±4900	I3C/I2C	WLCSP-4	0.8 x 0.8 x 0.5	16	N/A

Tri-Axis Magnetic Sensor: AK09940A

► Applications:

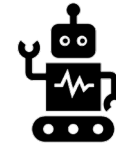


Wearable or IoT Devices



- Tri-axis TMR magnetic sensor
- Ultra low noise: 40nT-rms
- Ultra low current consumption:
 - 16µA@100Hz, ultra low power drive mode
- Small package: 1.6 x 1.6 x 0.58mm
- High sampling rate: 2.5kHz max.
- 18-bit data for each axis (X, Y, Z)
- Sensitivity: 10nT/LSB
- Built-in temperature sensor
- Single measurement or continuous measurement
 - (10Hz, 20Hz, 50Hz, 100Hz, 200Hz, 400Hz)

Magnetostriction



Strain/Torque Detection

Magnetic Flux Leakage



Foreign Metal Inspection



Non-destructive Inspection

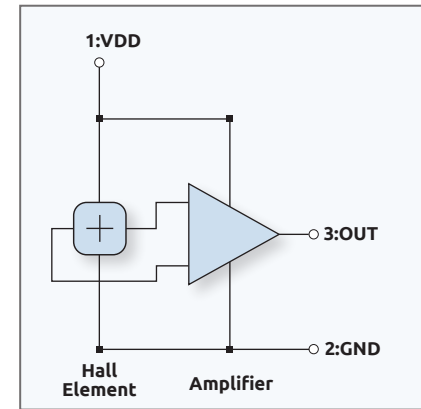
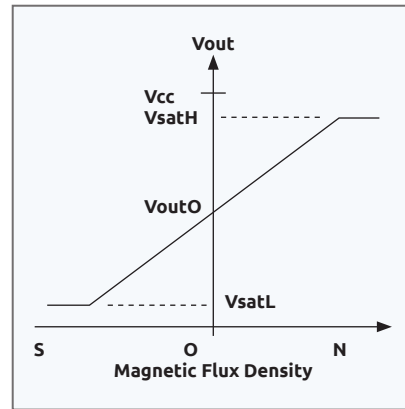
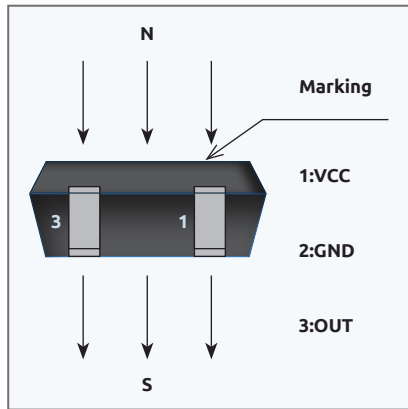
AC Magnetic Field



Position Tracking for XR, Capsule Endoscope

	Analog Power Supply (V)	Current Consumption @100Hz (µA)	Power Down Current (µA)	Res. (Bits)	Sensitivity (µT/LSB)	Measurement Range (µT)	Digital Interface	Package	Package Size (L x W x H) (mm)	MP Schedule: In Production Now
AK09940A	1.7 ~ 1.98	16	2	18	0.01	± 1200	I2C/SPI	LGA	1.6 x 1.6 x 0.58	Request a demo kit or samples for your evaluation

Linear Hall ICs: EQ433L



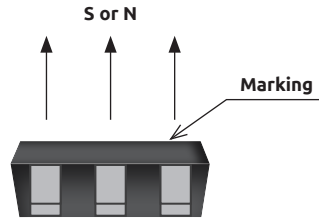
- ▶ Analog output proportional to the magnetic field strength and pole
- ▶ Magnetic sensitivity 20mV/mT (typ.)
- ▶ Single supply voltage from 3.0V ~ 5.5V
- ▶ Operating temperature range: -40 ~ 100°C
- ▶ Ratiometric analog output
- ▶ 3-pin surface mount plastic package
- ▶ Quick response: 2μs
- ▶ Low output noise voltage 2mVp-p
- ▶ Applications:

- Console controllers
- Game pads
 - Joysticks
 - Sliders

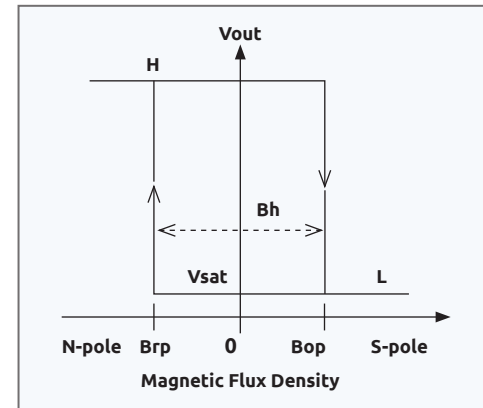


	Package	Power Supply (V)	Operational Temperature (°C)	Sensitivity (mV/mT)	Output	Response Time (μs)
EQ430L	SOP-3	3.0 ~ 5.5	-40 ~ 100	130	Analog	4
EQ431L	SOP-3	3.0 ~ 5.5	-40 ~ 100	65	Analog	3
EQ432L	SOP-3	3.0 ~ 5.5	-40 ~ 100	40	Analog	3
EQ433L	SOP-3	3.0 ~ 5.5	-40 ~ 100	20	Analog	2
EQ730L	SIP-3	3.0 ~ 5.5	-40 ~ 100	130	Analog	2
EQ731L	SIP-3	3.0 ~ 5.5	-40 ~ 100	65	Analog	1
EQ732L	SIP-3	3.0 ~ 5.5	-40 ~ 100	40	Analog	1
EQ733L	SIP-3	3.0 ~ 5.5	-40 ~ 100	20	Analog	1

Hall ICs–Latches: EW632



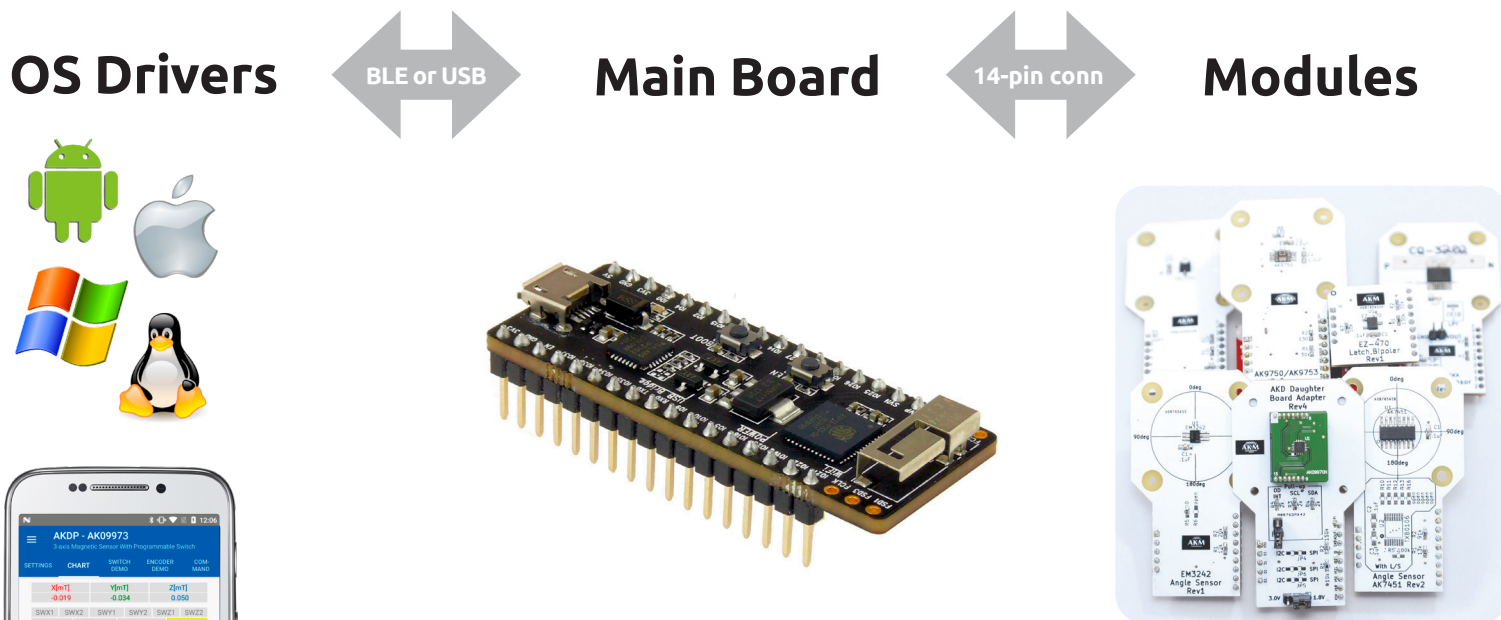
- ▶ Magnetic pole detection for DC brushless motor
- ▶ High-sensitivity (Typ. $\pm 2\text{mT}$) symmetrical latch operation
- ▶ Operating temperature range: $-40 \sim 150^\circ\text{C}$
- ▶ Over-current protection by thermal shutdown at OUT pin
- ▶ Dynamic offset cancellation
- ▶ Reverse-voltage protection at VDD pin
- ▶ N-MOS open drain output



	Automotive Qualified	Type	Power Supply (V)	Sensitivity Bop (mT)	Sensitivity Brp (mT)	Operational Temperature ($^\circ\text{C}$)	Package	Output Stage	Current Consumption (mA)	Drive System
EW400		Latch	4.5 ~ 18	10.0	-10.0	-20 ~ 115	SOP-3	Open Collector	8	Continuous
EW500		Latch	4.5 ~ 18	10.0	-10.0	-20 ~ 115	SIP-3	Open Collector	8	Continuous
EZ410	Yes	Latch	3.8 ~ 24	4.2	-4.2	-40 ~ 125	SOP-3	Open Collector	9	Continuous
EW610B		Latch	3.0 ~ 26.4	3.0	-3.0	-40 ~ 115	SOP-3	Open Collector	6	Continuous
EW612B		Latch	3.0 ~ 26.4	3.0	-3.0	-40 ~ 115	SOP-3	w/Pullup Resistor	6	Continuous
EW710B		Latch	3.0 ~ 26.4	3.0	-3.0	-40 ~ 115	SIP-3	Open Collector	6	Continuous
EW712B		Latch	3.0 ~ 26.4	3.0	-3.0	-40 ~ 115	SIP-3	w/Pullup Resistor	6	Continuous
EW632		Latch	2.2 ~ 18	3.0	-3.0	-30 ~ 115	SOP-3	w/Pullup Resistor	8	Continuous
EW732		Latch	2.2 ~ 18	3.0	-3.0	-30 ~ 115	SIP-3	w/Pullup Resistor	8	Continuous

AKM Development Platform (AKDP)

AKM's San Jose office has created a completely open source development platform that allows potential customers to rapidly build a proof of concept utilizing AKM's technology. This platform includes schematics, layout, C/C++ drivers, and downloadable Android & iOS apps.



Main Board Version	ESP-32	
Firmware Version	Beta	
Android App Version	Beta	
iOS App Version	Beta	
AKD Mini Board Adapter	e-Compass, Smart Switch	
Sensors	e-Compass	AK09915C AK09917 AK09918 AK09919
	Smart Switch	AK09973
	Latch	EW-432 EZ-470 EZ-471 EW-612B EW-632
	Linear Sensors	EQ-430L EQ-431L EQ-432L EQ-433L
	Gas Sensors	AK9710

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