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NXP Semiconductors/Freescale Semiconductor, Inc.
ADC1212D125F2/DB,598

For any questions, you can email us directly:
sales@integrated-circuit.com

Type	Related demoboard	Description
ADC1215S series	ADC1215S065/DB	ADC1215S065 demo board; both CMOS and LVDS
	ADC1215S080/DB	ADC1215S080 demo board; both CMOS and LVDS
	ADC1215S105/DB	ADC1215S105 demo board; both CMOS and LVDS
	ADC1215S125/DB	ADC1215S125 demo board; both CMOS and LVDS
ADC1410S series	ADC1410S065/DB	ADC1410S065 demo board; both CMOS and LVDS
	ADC1410S080/DB	ADC1410S080 demo board; both CMOS and LVDS
	ADC1410S105/DB	ADC1410S105 demo board; both CMOS and LVDS
	ADC1410S125/DB	ADC1410S125 demo board; both CMOS and LVDS
ADC1413D series	ADC1413D065W1/DB	ADC1413D065 demo board; VIRTEX 5 FPGA on board
	ADC1413D065W2/DB	ADC1413D065 demo board; compliant with external FPGA boards through specific connectors
	ADC1413D080W1/DB	ADC1413D080 demo board; VIRTEX 5 FPGA on board
	ADC1413D080W2/DB	ADC1413D080 demo board; compliant with external FPGA boards through specific connectors
	ADC1413D105W1/DB	ADC1413D105 demo board; VIRTEX 5 FPGA on board
	ADC1413D105W2/DB	ADC1413D105 demo board; compliant with external FPGA boards through specific connectors
	ADC1413D125W1/DB	ADC1413D125 demo board; VIRTEX 5 FPGA on board
	ADC1413D125W2/DB	ADC1413D125 demo board; compliant with external FPGA boards through specific connectors
ADC1415S series	ADC1415S065/DB	ADC1415S065 demo board; both CMOS and LVDS outputs
	ADC1415S080/DB	ADC1415S080 demo board; both CMOS and LVDS outputs
	ADC1415S105/DB	ADC1415S105 demo board; both CMOS and LVDS outputs
	ADC1415S125/DB	ADC1415S125 demo board; both CMOS and LVDS outputs
ADC1613D series	ADC1613D065W1/DB	ADC1613D065 demo board; VIRTEX 5 FPGA on board
	ADC1613D065W2/DB	ADC1613D065 demo board; compliant with external FPGA boards through specific connectors
	ADC1613D080W1/DB	ADC1613D080 demo board; VIRTEX 5 FPGA on board
	ADC1613D080W2/DB	ADC1613D080 demo board; compliant with external FPGA boards through specific connectors
	ADC1613D105W1/DB	ADC1613D105 demo board; VIRTEX 5 FPGA on board
	ADC1613D105W2/DB	ADC1613D105 demo board; compliant with external FPGA boards through specific connectors
	ADC1613D125W1/DB	ADC1613D125 demo board; VIRTEX 5 FPGA on board
	ADC1613D125W2/DB	ADC1613D125 demo board; compliant with external FPGA boards through specific connectors

DAC Demo Boards

Type	Related demoboard	Description
DAC1001D125	DAC1001D125/DB	DAC1001D125 demo board
DAC1003D160	DAC1003D160/DB	DAC1003D160 demo board
DAC1005D series	DAC1005D650/DB	DAC1005D650 demo board
	DAC1405D750/DB	DAC1405D750 demo board
DAC1201D125	DAC1201D125/DB	DAC1201D125 demo board
DAC1203D160	DAC1203D160/DB	DAC1203D160 demo board
DAC1401D125	DAC1401D125/DB	DAC1401D125 demo board
DAC1403D160	DAC1403D160/DB	DAC1403D160 demo board
DAC1405D series	DAC1405D650/DB	DAC1405D650 demo board
	DAC1405D750/DB	DAC1405D750 demo board
DAC1205D series	DAC1205D650/DB	DAC1205D650 demo board
	DAC1405D750/DB	DAC1405D750 demo board
DAC1408D series	DAC1408D650W0/DB	DAC1408D650 demo board
	DAC1408D650W1/DB	DAC1408D650 demo board with Virtex 5 FPGA
	DAC1408D750W0/DB	DAC1408D750 demo board
	DAC1408D750W1/DB	DAC1408D750 demo board with Virtex 5 FPGA
DAC1208D series	DAC1208D650W0/DB	DAC1208D650 demo board
	DAC1208D650W1/DB	DAC1208D650 demo board with Virtex 5 FPGA
	DAC1208D750W0/DB	DAC1208D750 demo board
	DAC1208D750W1/DB	DAC1208D750 demo board with Virtex 5 FPGA
DAC1008D series	DAC1008D650W0/DB	DAC1008D650 demo board
	DAC1008D650W1/DB	DAC1008D650 demo board with Virtex 5 FPGA
	DAC1008D750W0/DB	DAC1008D750 demo board
	DAC1008D750W1/DB	DAC1008D750 demo board with Virtex 5 FPGA

NXP high-speed
ADC/DAC selection guide

High-speed ADC/DAC solutions for wideband communication and industrial applications

Available with three different data interfaces (including JESD204A), our high-speed ADC/DAC solutions deliver best-in-class speed, size, and integration.

High-speed single/dual ADCs

- Resolution : 8 to 16 bits
- Sampling rates : 20 to 250 Msps
- Supply voltages : 1.8 / 3.3 / 5.0 V
- Serial interface, input buffer, internal V_{ref}
- JESD204A and other digital interfaces
- Low power dissipation
- Excellent SFDR and SNR ratings
- Packages: HVQFN, QFP, SSOP, LQFP, HTQFN

High-speed dual DACs

- Resolution : 10 to 14 bits
- Sampling rates : 125 to 750 Msps
- Supply voltages : 1.8 / 3.3 V
- Low power dissipation
- Excellent SFDR ratings
- Interpolation : 2x, 4x, 8x
- JESD204A and other digital interfaces
- Packages: HVQFN, HTQFP, LQFP

Many of the world's most creative innovators have benefited from our best-in-class data converters. We now offer that same industry-leading performance to the general market. These highly competitive ADCs and DACs build on NXP's long heritage of innovation in High Performance Analog, and join NXP's other leading portfolios, including RF, power management, and signal-processing technologies, for consumer and industrial applications.

The ADC family uses either a folding or pipeline architecture to provide best-in-class dynamic performance at the lowest possible power dissipation. There are options that support the high speeds and high bandwidth needed for Flash architecture, versions that provide the low bandwidth/high resolution combination required for Sigma-Delta architectures, and general-purpose options that meet the needs of Success Approximation Register architectures.

Our new single- and dual-channel ADCs portfolio comprises some fifty models with resolutions of 10, 11, 12, 14 and 16 bits, optional input buffer, input sample rates of 65, 80, 105, 125 Msps, and low-voltage CMOS, LVDS DDR and JEDEC JESD204A compliant CGV™ digital outputs. Typical performance ranges from 84 dBc SFDR at Fin = 170 MHz and Fclk = 125 Msps input sample rate.

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To illustrate, the ADC1413D125 is a 14-bit, dual channel, analog-to-digital converter with a maximum sample rate of 125 Msps, supporting an input bandwidth of 650 MHz. Its pipelined architecture and output error correction guarantees no missing codes over the full operating range. Independent programmable gain amplifiers enable the ADC1413D125 to process very small amplitude input signals. The ADC1413D125 utilizes two JESD204A compliant CGV™ transmitters to output offset binary or two's complement format data on two differential lanes, with optional digital scrambling to potentially reduce non-harmonic spurs. A compliant SPI bus interface provides full device programmability. This ADC includes power down and sleep modes to ensure comprehensive power management.

Our new portfolio of dual-channel DACs comprises a half dozen models, with resolutions of 10, 12 and 16 bits, output sample rates of 650 Msps, 750 Msps and soon 1000 Msps (1 Gsps), and low-voltage CMOS, LVDS DDR and JEDEC JESD204A digital inputs.
Typical performance is 75 dBc SFDR at Fout = 150 MHz and 100 MHz input bandwidth. Typical power consumption is 550 mW per channel. To illustrate, the DAC1408D750 is a 14-bit, dual channel, 750 Msps maximum update rate digital-to-analog converter, with x2, x4, and x8 interpolation filter options, an inverse sync filter option, four lanes of JEDEC JESD204A receiver compliant CML (Current Mode Logic) input data, with on-chip complex I and Q modulation, driven by a 32-bit NCO (Numerically Controlled Oscillator) with a 16-bit phase register, under SPI serial bus control. The DAC1408D750 includes two auxiliary DACs for external analog offset control. It also offers both power down and sleep modes in addition to other features.

CGV™ (Convertisseur Grande Vitesse) designates NXP's compliant, superset implementation of the JEDEC JESD204A interface standard, with enhanced rate (4.0 Gbps typical), enhanced reach (100 cm typical), enhanced features (multiple DAC synchronization) and assured FPGA interoperability. Specifically, NXP offers enhancements in terms of transceiver rate (up to 4.0 Gbps versus the standard rate of 3.125 Gbps, a 28% increase), and transmitter reach (up to 100 cm versus the standard reach of 20 cm, a 400% increase). The enhanced CGV features include Multi Device Synchronization (MDS) for the DAC1408D series of D/A Converters, which is not specified, but informatively discussed in the JEDEC specification. NXP's implementation of MDS enables up to sixteen DACs data streams to be sample synchronized and phase coherent.

High speed ADC selection table

Type	Description	Input Buffer	Digital Interface				Supply Voltage (v)	Power Dissipation (mW)	SFDR (dBc)	SNR (dBFS)	Package
			TTL/ CMOS	LVCMOS	LVDS/ DDR	CGV™					
ADC1613D series	Dual 16-bit ADC up to 125 Msps with serial interface					•	1.8 / 3.3	635	92	73	HVQFN56 8x8
	Dual 16-bit ADC up to 105 Msps with serial interface					•	1.8 / 3.3	575	92	72.9	HVQFN56 8x8
	Dual 16-bit ADC up to 80 Msps with serial interface					•	1.8 / 3.3	495	93	73.1	HVQFN56 8x8
	Dual 16-bit ADC up to 65 Msps with serial interface					•	1.8 / 3.3	445	93	73.2	HVQFN56 8x8
ADC1610S series	Single 16-bit ADC up to 125 Msps			•	•		1.8 / 3.3	590	92	73	HVQFN40 6x6
	Single 16-bit ADC up to 105 Msps			•	•		1.8 / 3.3	490	92	72.9	HVQFN40 6x6
	Single 16-bit ADC up to 80 Msps			•	•		1.8 / 3.3	390	93	73.1	HVQFN40 6x6
	Single 16-bit ADC up to 65 Msps			•	•		1.8 / 3.3	350	93	73.2	HVQFN40 6x6
ADC1415S series	Single 14-bit ADC up to 125 Msps with input buffer	•		•	•		1.8 / 3.3 / 5	790	90	72.5	HVQFN40 6x6
	Single 14-bit ADC up to 105 Msps with input buffer	•		•	•		1.8 / 3.3 / 5	690	90	72.9	HVQFN40 6x6
	Single 14-bit ADC up to 80 Msps with input buffer	•		•	•		1.8 / 3.3 / 5	590	91	73.1	HVQFN40 6x6
	Single 14-bit ADC up to 65 Msps with input buffer	•		•	•		1.8 / 3.3 / 5	550	91	73.2	HVQFN40 6x6
ADC1413D series	Dual 14-bit ADC up to 125 Msps with serial interface					•	1.8 / 3.3	635	90	72.5	HVQFN56 8x8
	Dual 14-bit ADC up to 105 Msps with serial interface					•	1.8 / 3.3	575	90	72.9	HVQFN56 8x8
	Dual 14-bit ADC up to 80 Msps with serial interface					•	1.8 / 3.3	495	91	73.1	HVQFN56 8x8
	Dual 14-bit ADC up to 65 Msps with serial interface					•	1.8 / 3.3	445	91	73.2	HVQFN56 8x8
ADC1412D series	Dual 14-bit ADC up to 125 Msps			•	•		1.8 / 3.3	590	90	72.5	HVQFN64 9x9
	Dual 14-bit ADC up to 105 Msps			•	•		1.8 / 3.3	490	90	72.9	HVQFN64 9x9
	Dual 14-bit ADC up to 80 Msps			•	•		1.8 / 3.3	390	91	73.1	HVQFN64 9x9
	Dual 14-bit ADC up to 65 Msps			•	•		1.8 / 3.3	350	91	73.2	HVQFN64 9x9
ADC1410S series	Single 14-bit ADC up to 125 Msps			•	•		1.8 / 3.3	590	90	72.5	HVQFN40 6x6
	Single 14-bit ADC up to 105 Msps			•	•		1.8 / 3.3	490	90	72.9	HVQFN40 6x6
	Single 14-bit ADC up to 80 Msps			•	•		1.8 / 3.3	390	91	73.1	HVQFN40 6x6
	Single 14-bit ADC up to 65 Msps			•	•		1.8 / 3.3	350	91	73.2	HVQFN40 6x6
ADC1215S series	Single 12-bit ADC up to 125 Msps with input buffer	•		•	•		1.8 / 3.3 / 5	790	90	70.3	HVQFN40 6x6
	Single 12-bit ADC up to 105 Msps with input buffer	•		•	•		1.8 / 3.3 / 5	690	90	70.5	HVQFN40 6x6
	Single 12-bit ADC up to 80 Msps with input buffer	•		•	•		1.8 / 3.3 / 5	590	91	70.6	HVQFN40 6x6
ADC1212D series	Dual 12-bit ADC up to 125 Msps				•	•	1.8 / 3.3	590	90	70.3	HVQFN64 9x9
	Dual 12-bit ADC up to 105 Msps				•	•	1.8 / 3.3	490	90	70.5	HVQFN64 9x9
	Dual 12-bit ADC up to 80 Msps				•	•	1.8 / 3.3	390	91	70.6	HVQFN64 9x9
	Dual 12-bit ADC up to 65 Msps				•	•	1.8 / 3.3	350	91	70.7	HVQFN64 9x9
ADC1210S series	Single 12-bit ADC up to 125 Msps				•	•	1.8 / 3.3	590	90	70.3	HVQFN40 6x6
	Single 12-bit ADC up to 105 Msps				•	•	1.8 / 3.3	490	90	70.5	HVQFN40 6x6
	Single 12-bit ADC up to 80 Msps				•	•	1.8 / 3.3	390	91	70.6	HVQFN40 6x6
	Single 12-bit ADC up to 65 Msps				•	•	1.8 / 3.3	350	91	70.7	HVQFN40 6x6
ADC1207S080	Single 12-bit ADC 80 Msps					•	5	840	90	71	HTQFN48 7x7
ADC1206S series	Single 12-bit ADC 70 Msps		•				3.3 / 5.0	550	70	64	QFP44
	Single 12-bit ADC 50 Msps		•				3.3 / 5.0	550	72	64	QFP44
	Single 12-bit ADC 40 Msps		•				3.3 / 5.0	550	72	64	QFP44
ADC1115S125	Single 11-bit ADC up to 125 Msps with input buffer	•					1.8 / 3.3 / 5	790	90	66.7	HVQFN40 6x6
ADC1113D125	Dual 11-bit ADC up to 125 Msps with serial interface					•	1.8 / 3.3	635	90	66.7	HVQFN56 8x8
ADC1015S series	Single 10-bit ADC up to 125 Msps with input buffer	•		•	•		1.8 / 3.3 / 5	790	90	61.6	HVQFN40 6x6
	Single 10-bit ADC up to 105 Msps with input buffer	•		•	•		1.8 / 3.3 / 5	690	90	61.6	HVQFN40 6x6
	Single 10-bit ADC up to 80 Msps with input buffer	•		•	•		1.8 / 3.3 / 5	590	91	61.7	HVQFN40 6x6
	Single 10-bit ADC up to 65 Msps with input buffer	•		•	•		1.8 / 3.3 / 5	550	91	61.7	HVQFN40 6x6
ADC1010S series	Single 10-bit ADC up to 125 Msps			•	•		1.8 / 3.3	590	90	61.6	HVQFN40 6x6
	Single 10-bit ADC up to 105 Msps			•	•		1.8 / 3.3	490	90	61.6	HVQFN40 6x6
	Single 10-bit ADC up to 80Msps			•	•		1.8 / 3.3	390	91	61.7	HVQFN40 6x6
	Single 10-bit ADC up to 65 Msps			•	•		1.8 / 3.3	350	91	61.7	HVQFN40 6x6
ADC1006S series	Single 10-bit ADC 70 Msps		•				3.3 / 5.0	550	71	59	QFP44
	Single 10-bit ADC 50 Msps		•				3.3 / 5.0	550	71	59	QFP44
ADC1005D060	Single 10-bit ADC 60 Msps		•				5	312	72	58	SSOP28
ADC1004S series	Single 10-bit ADC 50 Msps		•				5	175	72	58	SSOP28
	Single 10-bit ADC 40 Msps		•				5	175	72	58	SSOP28
	Single 10-bit ADC 30 Msps		•				5	175	72	58	SSOP28
ADC1003S series	Single 10-bit ADC 50 Msps with internal Vref		•				5	235	70	58	SSOP28
	Single 10-bit ADC 40 Msps with internal Vref		•				5	235	70	58	SSOP28
	Single 10-bit ADC 30 Msps with internal Vref		•				5	235	70	58	SSOP28
ADC1002S020	Single 10-bit ADC 20 Msps		•				3 to 5.25	53	72	60	LQFP32
ADC0808S series	Single 8-bit ADC 250 Msps		•				1.8 / 3.3	215	56	48	HTQFN48 7x7
	Single 8-bit ADC 125 Msps		•				1.8 / 3.3	215	57	50	HTQFN48 7x7
ADC0808S series	Single 8-bit ADC 50 Msps		•				5	175	72	49	SSOP28
	Single 8-bit ADC 40 Msps		•				5	175	72	49	SSOP28
	Single 8-bit ADC 30 Msps		•				5	175	72	49	SSOP28
ADC0801S040	Single 8-bit ADC 40 Msps		•				2.7 to 5.5	30	59	47	SSOP20

High speed DAC selection table

Type	Description	LVCMOS	CGV™	Supply Voltage (v	Power Dissipation (mW)	SFDR (dBc)	Interpolation	Package
DAC1408D series	Dual 14-bit DAC 750 Msps		•	1.8 / 3.3	850	77	2x, 4x, 8x	HVQFN64 9x9
	Dual 14-bit DAC 650 Msps		•	1.8 / 3.3	850	77	2x, 4x, 8x	HVQFN64 9x9
DAC1405D series	Dual 14-bit DAC 650 Msps	•		1.8 / 3.3	550	77	2x, 4x, 8x	HTQFP100 14x14
	Dual 14-bit DAC 650 Msps	•		1.8 / 3.3	550	77	2x, 4x, 8x	HTQFP100 14x14
DAC1403D160	Dual 14-bit DAC 160 Msps	•		3.3	210	80	2x	HTQFP80 12x12
DAC1401D125	Dual 14-bit DAC 125 Msps	•		3.3	105	88	-	LQFP48
DAC1208D series	Dual 12-bit DAC 750 Msps		•	1.8 / 3.3	850	77	2x, 4x, 8x	HVQFN64 9x9
	Dual 12-bit DAC 650 Msps		•	1.8 / 3.3	850	77	2x, 4x, 8x	HVQFN64 9x9
DAC1205D series	Dual 12-bit DAC 650 Msps	•		1.8 / 3.3	550	80	2x, 4x, 8x	HTQFP100 14x14
	Dual 12-bit DAC 650 Msps	•		1.8 / 3.3	550	80	2x, 4x, 8x	HTQFP100 14x14

Type	Description	LVCMOS	CGV™	Supply Voltage ()	Power Dissipation (mW)	SFDR (dBc)	Interpolation	Package
DAC1203D160	Dual 12-bit DAC 160 Msps	•		3.3	210	77	2x	HTQFP80 12x12
DAC1201D125	Dual 12-bit DAC 125 Msps	•		3.3	105	65	-	LQFP48
DAC1008D series	Dual 10-bit DAC 750 Msps		•	1.8 / 3.3	850	77	2x, 4x, 8x	HVQFN64 9x9
	Dual 10-bit DAC 650 Msps		•	1.8 / 3.3	850	77	2x, 4x, 8x	HVQFN64 9x9
DAC1005D series	Dual 10-bit DAC 650 Msps	•		1.8 / 3.3	550	77	2x, 4x, 8x	HTQFP100 14x14
	Dual 10-bit DAC 650 Msps	•		1.8 / 3.3	550	77	2x, 4x, 8x	HTQFP100 14x14
DAC1003D160	Dual 10-bit DAC 160 Msps	•		3.3	210	80	2x	HTQFP80 12x12
DAC1001D125	Dual 10-bit DAC 125 Msps	•		3.3	105	65	-	LQFP48

ADC demo boards

Type	Related demoboard	Description
ADC08015040	ADC08015040/DB	ADC08015040 demo board
ADC08045 series	ADC08045030/DB	ADC08045030 demo board
	ADC08045040/DB	ADC08045040 demo board
	ADC08045050/DB	ADC08045050 demo board
ADC08085 series	ADC08085125/DB	ADC08085125 demo board
	ADC08085250/DB	ADC08085250 demo board
ADC10025020	ADC10025020/DB	ADC10025020 demo board
ADC10035 series	ADC10035030/DB	ADC10035030 demo board
	ADC10035040/DB	ADC10035040 demo board
	ADC10035050/DB	ADC10035050 demo board
ADC10045 series	ADC10045030/DB	ADC10045030 demo board
	ADC10045040/DB	ADC10045040 demo board
	ADC10045050/DB	ADC10045050 demo board
ADC10055060	ADC10055060/DB	ADC10055060 demo board
ADC10065 series	ADC10065055/DB	ADC10065055 demo board
	ADC10065070/DB	ADC10065070 demo board
ADC10105 series	ADC10105065/DB	ADC10105065 demo board; both CMOS and LVDS outputs
	ADC10105080/DB	ADC10105080 demo board; both CMOS and LVDS outputs
	ADC10105105/DB	ADC10105105 demo board; both CMOS and LVDS outputs
	ADC10105125/DB	ADC10105125 demo board; both CMOS and LVDS outputs
ADC10155 series	ADC10155065/DB	ADC10155065 demo board; both CMOS and LVDS outputs
	ADC10155080/DB	ADC10155080 demo board; both CMOS and LVDS outputs
	ADC10155105/DB	ADC10155105 demo board; both CMOS and LVDS
	ADC10155125/DB	ADC10155125 demo board; both CMOS and LVDS
ADC1113D125	ADC1113D125W1/DB	ADC1113D125 demo board; VIRTEX 5 FPGA on board
	ADC1113D125W2/DB	ADC1113D125 demo board; compliant with external FPGA boards through specific connectors
ADC1115S125	ADC1115S125/DB	ADC1115S125 demo board; both CMOS and LVDS
ADC1206S series	ADC12065040/DB	ADC12065040 demo board
	ADC12065055/DB	ADC12065055 demo board
	ADC12065070/DB	ADC12065070 demo board
ADC12075080	ADC12075080/DB	ADC12075080 demo board
ADC12105 series	ADC12105065/DB	ADC12105065 demo board; both CMOS and LVDS
	ADC12105080/DB	ADC12105080 demo board; both CMOS and LVDS
	ADC12105105/DB	ADC12105105 demo board; both CMOS and LVDS
	ADC12105125/DB	ADC12105125 demo board; both CMOS and LVDS
ADC1212D series	ADC12125065/DB	ADC12125065 demo board; both CMOS and LVDS
	ADC12125080/DB	ADC12125080 demo board; both CMOS and LVDS
	ADC12125105/DB	ADC12125105 demo board; both CMOS and LVDS
	ADC12125125/DB	ADC12125125 demo board; both CMOS and LVDS
ADC1213D series	ADC13130065W1/DB	ADC13130065 demo board; VIRTEX 5 FPGA on board
	ADC13130065W2/DB	ADC13130065 demo board; compliant with external FPGA boards through specific connectors
	ADC13130080W1/DB	ADC13130080 demo board; VIRTEX 5 FPGA on board
	ADC13130080W2/DB	ADC13130080 demo board; compliant with external FPGA boards through specific connectors
	ADC13130105W1/DB	ADC13130105 demo board; VIRTEX 5 FPGA on board
	ADC13130105W2/DB	ADC13130105 demo board; compliant with external FPGA boards through specific connectors
	ADC13130125W1/DB	ADC13130125 demo board; VIRTEX 5 FPGA on board
	ADC13130125W2/DB	ADC13130125 demo board; compliant with external FPGA boards through specific connectors