

# High Performance Sensor Solutions

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# Shaping the world with sensor solutions

## A global leader in advanced sensor solutions

ams' portfolio of industry-leading sensor technologies and sensor functionality touch a broad spectrum of high-growth applications – from smart phones, wearables, and smart spaces to industrial automation and connected vehicles. They touch every market -- from consumer, industrial, and medical to automotive.

Continuous advancements in technology make sensors accessible, widely used, and an integral part of the current and future digital ecosystems. We are global pioneer in the design and manufacture of highly-advanced sensor solutions – and we're at the heart of the growing Internet of Things (IoT). Our sensors are at the core of innovation: they are the interface that connects the analog and digital worlds, making the devices we all rely on every day smarter, safer, more intuitive, and energy efficient.

Our scalable manufacturing model combines in-house capabilities and partnerships with global contract manufactures allowing us to push the limits of analog performance, assuring our customers a dedicated supply and providing the highest quality standards.



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# Audio

## Active Noise Cancellation

Part No.	Function	Topology	Output Type	Max. Output Power	SNR, THD	ANC Performance	Supply Voltage	Package
				BTL, 1.8 V, 32 Ohm	SE, 34 mW, 32 Ohm	V	(mm)	
AS3400	Accessories	Receive Path Feedforward/ Feedback	Mono BTL	125mW	>100dB, <0.1%	>20dB	1.0 - 1.8	QFN-24 (4x4)
AS3410	Accessories	Receive Path Feedforward	Stereo SE/ Mono BTL	125mW	>100dB, <0.1%	>20dB	1.0 - 1.8	QFN-24 (4x4)
AS3412	Accessories	Receive Path Feedforward	Stereo SE/ Mono BTL	90mW	>112dB, <5%	>25dB	1.6 - 1.8	WLCSP-25 (2.2x2.2), 0.4 pitch
AS3415	Accessories	Receive Path Feedforward	Stereo SE/ Mono BTL w. Bypass	125mW	>108dB, <0.1%	>30dB	1.0 - 1.8	QFN-32 (5x5)
AS3420	BT Accessories	Receive Path Feedforward/ Feedback	Mono BTL	125mW	>100dB, <0.1%	>20dB	1.0 - 1.8	QFN-20 (4x4)
AS3421	BT Accessories	Receive Path Feedforward	Stereo SE	SE : 35mW	>100dB, <0.1%	>20dB	1.0 - 1.8	QFN-24 (4x4)
AS3422	BT Accessories	Receive Path Feedback	Stereo SE	SE : 35mW	>100dB, <0.1%	>20dB	1.0 - 1.8	QFN-32 (5x5)
AS3430	Accessories	Receive Path Feedback	Stereo SE/ Mono BTL	125mW	>100dB, <0.1%	>20dB	1.0 - 1.8	QFN-32 (5x5)
AS3435	Accessories	Receive Path Feedback	Stereo SE/ Mono BTL w. Bypass	125mW	>108dB, <0.1%	>30dB	1.0 - 1.8	QFN-36 (5x5)
AS3501	Embedded	Receive Path Feedforward	Stereo SE/ Mono BTL	125mW	>100dB, <0.1%	>20dB	1.0 - 1.8	QFN-24 (4x4)
AS3502	Embedded	Receive Path Feedback	Stereo SE/ Mono BTL	125mW	>100dB, <0.1%	>20dB	1.0 - 1.8	QFN-32 (5x5)

## Audio Amplifiers

Part No.	Topology	Power	PSRR	Output Type	Shutdown	Supply Current	Supply Voltage	Package
		mW	dB			mA	V	(mm)
AS3560	Class G	30	>90	Stereo SE	via PC	0.9	2.3 - 5.5	WL-CSP-16
AS3561	Class H	30	>90	Stereo SE	via PC	0.9	2.3 - 5.5	WL-CSP-16

## Air Quality Sensors

Part No.	Description	Interface	Supply Voltage	Power Consumption	Dimension	Ambient Temp. Range	Ambient Humidity Range	Measurement Range
			V	mW	mm	°C	% r.h.	
iAM	USB indoor air monitor	USB	5	150	57 × 19 × 10	0 to 50	5 to 95% r.h., non-condensing	450 to 2000 ppm CO <sub>2</sub> equivalents <sup>1</sup>
iAQ-core C	Indoor air quality module, I <sup>2</sup> C interface, continuous operation mode	I <sup>2</sup> C	3.3 ± 0.1, max. 20 mV ripple	67	17.78 × 15.24 × 4.3	0 to 50	5 to 95% r.h., non-condensing	450 to 2000 ppm CO <sub>2</sub> equivalents and 125 to 600 ppb TVOC equivalents <sup>1</sup>
iAQ-core P	Indoor air quality module, I <sup>2</sup> C interface, pulsed operation mode	I <sup>2</sup> C	3.3 ± 0.1, max. 20 mV ripple	9	17.78 × 15.24 × 4.3	0 to 50	5 to 95% r.h., non-condensing	450 to 2000 ppm CO <sub>2</sub> equivalents and 125 to 600 ppb TVOC equivalents <sup>1</sup>
CCS811	Ultra-low digital gas sensor for indoor air quality monitoring	I <sup>2</sup> C	1.8 - 3.6	1.3 - 46 <sup>2</sup>	2.7 × 4.0 × 1.1	-5 to 50	10 to 95% r.h., non-condensing	400 to 8000 ppm CO <sub>2</sub> equivalents and 0 to 1000ppb TVOC equivalents <sup>1</sup>

1) Values above the defined sensing range are provided as well

2) Lowest average power consumption based on a sensor measurement duty cycle of 2.5%

## Gas Sensors

Part No.	Description	Interface	Supply Voltage	Power Consumption	Dimension	Ambient Temp. Range	Ambient Humidity Range
			V	mW	mm	°C	% r.h.
AS-MLV-P2	MEMS MOS gas sensor component for VOC detection	Analog (Resistance)	2.7	34	9.1 × 9.1 × 4.5	0 to 50	5 to 95% r.h., non-condensing
CCS801	Ultra-low gas sensor for VOC detection	Analog (Resistance)	1.4	0.9 - 34 <sup>1</sup>	2 × 3 × 1	-5 to 50	10 to 95% r.h., non-condensing
CCS811	Ultra-low digital gas sensor for indoor air quality monitoring	Digital I <sup>2</sup> C (eq CO <sub>2</sub> or TVOC, Resistance)	1.8 to 3.6	1.2 - 46 <sup>1</sup>	2.7 × 4.0 × 1.1	-5 to 50	10 to 95% r.h., non-condensing

1) Lowest average power consumption based on a sensor measurement duty cycle of 2.5%

2) Based on a 20s warm-up period and a 10s measurement window performed once in a 2 min period for alcohol breath analysis

## Relative Humidity and Temperature Sensors

Part No.	Description	Interface	Supply Voltage	Power Consumption	Dimension	Ambient Temp. Range	Ambient Humidity Range
			V		mm	°C	%
ENS210	Digital pre-calibrated relative humidity and temperature sensor	I <sup>2</sup> C	1.71-3.6	-Active current: 7.1µA @ 1Hz (1.8V) -Standby current: 40nA	2.0 × 2.0 × 0.75	-40 to 100	0-100

## Temperature Sensors

Part No.	Description	Power	Accuracy	Interface	Dimension	Resolution	Supply Voltage	Temperature Range	Package
		4 sampl./sec	°C		mm	bit	V	°C	
AS6200	Calibrated digital temperature sensor	6µA	+/- 0.4	I <sup>2</sup> C	1.5 × 1.0	12	1.8 - 3.6	-40 to 125	WL-CSP-6

# Light Sensors

## Ambient Light Sensors

Part No.	Type	Operating Voltage	I <sup>2</sup> C Bus	Alternate Address Options	Programmable			Flexible Timing	Package		
		V			Gain	Integration Time	Interrupts		CL	FL	TSV
TSL25721	Light-to-Digital	2.4 - 3.6	V <sub>DD</sub>	•	•	•	•	-	•	-	
TSL25723	Light-to-Digital	2.7 - 3.6	1.8V	•	•	•	•	-	•	-	
TSL2584TSV	Light-to-Digital	2.7 - 3.6	1.8V	-	•	•	•	-	-	•	
TSL25911	Light-to-Digital	2.7 - 3.6	V <sub>DD</sub>	•	•	100 - 600ms, 100ms intervals	•	•	-	•	
TSL45311	Light-to-Digital	2.3 - 3.3	V <sub>DD</sub>	•	Automatic	100, 200, 400ms	-	•	•	-	
TSL45313	Light-to-Digital	2.3 - 3.3	1.8V	•	Automatic	100, 200, 400ms	-	•	•	-	
TSL45315	Light-to-Digital	2.3 - 3.3	V <sub>DD</sub>	•	Automatic	100, 200, 400ms	-	•	•	-	
TSL45317	Light-to-Digital	2.3 - 3.3	1.8V	•	Automatic	100, 200, 400ms	-	•	•	-	

## Ambient Light Sensors and Proximity Detection

Part No.	Type	Operating Voltage	I <sup>2</sup> C Bus	Alternate Address Options	IR LED	Recommended Operating Distance			Package
		V				Short: < 15 cm	Medium: < 46 cm	Long: > 46 cm	
TSL27721	Light-to-Digital	2.4 - 3.6	V <sub>DD</sub>	•	-	•	•	-	FN
TSL27723	Light-to-Digital	2.4 - 3.6	1.8V	•	-	•	•	-	FN

## Ambient Light Sensors and Proximity Modules

Part No.	Type	Operating Voltage	I <sup>2</sup> C Bus	Alternate Address Options	IR LED	Recommended Operating Distance			Package
		V				Short: < 15 cm	Medium: < 46 cm	Long: > 46 cm	
TMD27721	Light-to-Digital	2.2 - 3.6	V <sub>DD</sub>	•	•	•	-	-	Module
TMD27721WA	Light-to-Digital	2.2 - 3.6	V <sub>DD</sub>	•	•	•	-	-	Module
TMD27723	Light-to-Digital	2.2 - 3.6	1.8V	•	•	•	-	-	Module
TMD27723WA	Light-to-Digital	2.2 - 3.6	1.8V	•	•	•	-	-	Module
TMD27253	Light-to-Digital	1.7-2.0	1.8V	•	-	•	•	-	Module

## Color Sensors

Part No.	Type	Operating Voltage	I <sup>2</sup> C Bus	Alternate Address Options	Color Sensor	IR Filter	Color Filter Array Configuration	Ambient Light Sensing	Package		
		V							FN	CS	SOIC
TCS3200	Light-to-Frequency	2.7 - 5.5	-	-	RGBC	-	8 × 8	-	-	-	•
TCS3210	Light-to-Frequency	2.7 - 5.5	-	-	RGBC	-	4 × 6	-	-	-	•
TCS34715	Light-to-Digital	2.7 - 3.3	V <sub>DD</sub>	•	RGBC	-	4 × 4	•	•	-	-
TCS34717	Light-to-Digital	2.7 - 3.3	1.8V	•	RGBC	-	4 × 4	•	•	-	-
TCS34725	Light-to-Digital	2.7 - 3.6	V <sub>DD</sub>	•	RGBC	•	4 × 4	•	•	-	-
TCS34727	Light-to-Digital	2.7 - 3.3	1.8V	•	RGBC	•	4 × 4	•	•	-	-
TCS34003	Light-to-Digital	2.7-3.6	1.8V	•	RGBC	•	Circular Segmented	•	•	-	-
TCS34303	Light-to-Digital	1.7-2.0	1.8V	•	XYZ	•	-	•	•	-	-

## Color Sensors and Proximity Detection

Part No.	Type	Operating Voltage	I <sup>2</sup> C Bus	Alternate Address Options	IR LED	Color Sensor	IR Filter	Ambient Light Sensing	Proximity Detection	Package
		V								
TCS37715	Light-to-Digital	2.7 - 3.3	V <sub>DD</sub>	•	-	RGBC	-	•	•	FN
TCS37717	Light-to-Digital	2.7 - 3.3	1.8V	•	-	RGBC	-	•	•	FN
TCS37725	Light-to-Digital	2.7 - 3.6	V <sub>DD</sub>	•	-	RGBC	•	•	•	FN
TCS37727	Light-to-Digital	2.7 - 3.3	1.8V	•	-	RGBC	•	•	•	FN

## Color Sensors and Proximity Modules

Part No.	Type	Operating Voltage	I <sup>2</sup> C Bus	Alternate Address Options	IR LED	Color Sensor	IR Filter	Ambient Light Sensing	Proximity Detection	Package
		V								
TMD49033	Light-to-Digital	1.7 - 2.0	1.8V	•	•	RGBC	•	•	•	Module
TMD37003	Light-to-Digital	1.7 - 2.0	1.8V	•	•	RGBC	•	•	•	Module



# Light Sensors

## Gesture, Color and Proximity Modules

Part No.	Operating Voltage V	I <sup>2</sup> C Bus	I <sup>2</sup> C Address	Gesture	Color Sensor	IR Filter	Ambient Light Sensing	Package
TMG49033	1.7 - 2.0	1.8V	0x39	•	•	•	•	Module
TMG39923	2.4 - 3.8	1.8V	0x39	•	•	•	•	Module

## Light-to-Frequency

Part No.	Operating Voltage	Responsivity Hz/μW/cm <sup>2</sup>	Four (Max)	IR Only	Package				
	V				Sidelooker	DIP	SOIC	T	CL
TSL230	2.7 - 5.5	790 @ 640nm	1.1 MHz	-	-	•	•	-	-
TSL235	2.7 - 5.5	625 @ 635nm	500 KHz	-	•	-	-	-	-
TSL237	2.7 - 5.5	1200 @ 640nm	1 MHz	-	•	-	-	•	-
TSL238	2.7 - 5.5	3400 @ 640nm	1 MHz	-	-	-	•	•	-
TSL245	2.7 - 5.5	500 @ 940nm	500 KHz	•	•	-	-	-	-

## Light-to-Voltage

Part No.	Operating Voltage V	Responsivity				Fast Response	Low Noise	IR Only	Package			
		Low	Medium	High	Ultra				Sidelooker	SOIC	SM	T
TSL12	2.7 - 5.5	-	-	•	-	•	-	-	•	-	•	•
TSL13	2.7 - 5.5	-	•	-	-	•	-	-	•	-	•	•
TSL14	2.7 - 5.5	•	-	-	-	•	-	-	•	-	•	-
TSL250/60	2.7 - 5.5	-	•	-	-	-	•	TSL260	•	•	•	-
TSL251/61	2.7 - 5.5	-	•	-	-	-	•	TSL261	•	•	•	-
TSL252/62	2.7 - 5.5	•	-	-	-	•	•	TSL262	•	-	•	-
TSL253	2.7 - 5.5	-	•	-	-	•	-	-	•	-	•	-
TSL254	2.7 - 5.5	•	-	-	-	•	-	-	•	-	•	-
TSL257/67	2.7 - 5.5	-	-	-	•	-	-	TSL267	•	-	•	•

## Linear Array

Part No.	Operating Voltage	DPI	Pixels	Integration	Clock MHz (Max)	Package			
	V					CS	CL	P	PCB
TSL201CL	4.5 - 5.5	200	64	Start/Stop per Pixel	5	-	•	-	-
TSL1401	3.0 - 5.5	400	128	Frame by Frame	8	•	•	-	-
TSL1401CCS	3.0-5.5V	400	128	Frame by Frame	8	•	-	-	-
TSL3301	3.0 - 5.5	300	102	Frame by Frame	10	-	•	-	-

## Proximity

Part No.	Type	Operating Voltage	I <sup>2</sup> C Bus	Alternate Address Options	IR LED	Recommended Operating Distance			Package
		V				Short: < 15 cm	Medium: < 46 cm	Long: > 46 cm	
TSL26721	Light-to-Digital	2.4 - 3.6	VDD	•	-	•	-	-	FN
TSL26723	Light-to-Digital	2.7 - 3.6	1.8V	•	-	•	-	-	FN

## Proximity Modules

Part No.	Type	Operating Voltage	I <sup>2</sup> C Bus	Alternate Address Options	IR LED	Recommended Operating Distance			Package
		V				Short: < 15 cm	Medium: < 46 cm	Long: > 46 cm	
TMD26721	Light-to-Digital	2.4 - 3.6	VDD	•	•	•	-	-	Module
TMD26723	Light-to-Digital	2.7 - 3.6	1.8V	•	•	•	-	-	Module
TMD26203	Light-to-Digital	1.7-2.0	1.8V	•	•	•	-	-	Module

## Biosensors

Part No.	Type	Operating Voltage	Integrated ARM Core	Memory	AFE Channels	SkinTemp, GSR	LEDs	Package
		V						
AS7000	SSOC	2.6 - 3.6	•	32KEE/4k RAM	1	•	G--G	Module

# Smart Light Management

## Smart Lighting

Part No.	Description	Sensor Type	Footprint	Calibrated	Inputs		Outputs		Sensor Hub	I <sup>2</sup> C	Ambient Light Sensing	Package
					UART	0-10V	0-10V	PWMs				
AS7210	Standalone smart daylighting manager	Photopic ambient	4.7 x 4.5	Lux	-	•	•	3	Partial	Select devices	•	LGA
AS7211	IoT smart daylighting manager	Photopic ambient	4.7 x 4.5	Lux	•	•	•	3	Open via I <sup>2</sup> C	Master (Open)	•	LGA
AS7221	IoT smart white color lighting manager	XYZ Chromatic	4.7 x 4.5	CCT/XYZ/u'v'	•	•	•	3	Open via I <sup>2</sup> C	Master (Open)	Add-on	LGA
AS7225	IoT white tunable director	XYZ Chromatic and Photopic Ambient	4.7 x 4.5	CCT/Lux	-	-	-	-	-	Slave	Native or add-on	LGA

# ams sensors are all around you.

We provide light sensors, color sensors, position sensors, environmental sensors, ICs for metering, wireless transmission, and many other sensor solutions that make devices smarter, more intuitive, more energy efficient, and more connected.

## For example:

**Color Sensors** provide precise color measurement, determination, and discrimination. This generates highly accurate matching and rendering of camera and display color images in mobile devices in any lighting environment. Color sensors are found in smartphones, tablets, computers and many other consumer electronic products.

**Audio and mobile communications.** Active Noise Cancelling (ANC) technology enables crystal clear sound regardless of the noise levels from the surrounding environment, increasing the listening experience of mobile communications and multimedia applications. MEMS microphones in mobile devices like smartphones rely on ams sensor interface solutions to make it sound like the people talking are standing right next to each other.

**Internet-connected environmental sensors** replicate and enhance human responses by monitoring and measuring smell, pressure and temperature. By capturing the information electronically, feedback can be given automatically and data-driven decisions can be made easily and efficiently.

**Intelligent, smart vehicles** – ams breakthrough sensor technologies enable smarter, safer and more eco-friendly driving for both premium and mainstream cars. Examples include LIDAR\collision avoidance sensors, air quality sensors, and intelligent position sensors for accelerator pedal/electric power-assisted steering.



# Magnetic Position Sensors

## Angle Position On-Axis

Part No.	Description	Resolution	Interfaces	Output	Max Speed rpm	Overtoltage Protection	Redundant	Supply Voltage V	Temp. Range °C	Package	AUT qualified
AS5030	8-bit Rotary Position Sensor with Digital Angle (Interface) and PWM output	8-bit	SSI	Digital Angle (Interface) / PWM	30000	-	-	5.0	-40 to 125	TSSOP-16	-
AS5040	10-bit Rotary Position Sensor with Digital Angle (Interface), ABI, UVW and PWM output	10-bit	SSI	Digital Angle (Interface) / ABI / UVW / PWM	30000	-	-	3.3 or 5.0	-40 to 125	SSOP-16	-
AS5043	10-bit Rotary Position Sensor with Digital Angle (Interface) and Linear analog output	10-bit	SSI	Digital Angle (Interface) / Linear analog	30000	-	-	3.3 or 5.0	-40 to 125	SSOP-16	-
AS5045	12-bit Rotary Position Sensor with Digital Angle (Interface) and PWM output	12-bit	SSI	Digital Angle (Interface) / PWM	30000	-	-	3.3 or 5.0	-40 to 125	SSOP-16	-
AS5045B	12-bit Rotary Position Sensor with Digital Angle (Interface) and PWM and ABI output	12-bit	SSI	Digital Angle (Interface) / ABI / PWM	30000	-	-	3.3 or 5.0	-40 to 125	SSOP-16	-
AS5047D	Rotary Position Sensor with Digital Angle (Interface), PWM, UVW and ABI output	14-bit	SPI	Digital Angle (Interface) / ABI / PWM / UVW	14500	-	-	3.3 or 5.0	-40 to 125	TSSOP-14	-
AS5047P	14-bit Rotary Position Sensor with Digital Angle (Interface), PWM, UVW and ABI output	14-bit	SPI	Digital Angle (Interface) / ABI / PWM / UVW	28000	-	-	3.3 or 5.0	-40 to 125	TSSOP-14	-
AS5048A	14-bit Rotary Position Sensor with Digital Angle (Interface) and PWM output	14-bit	SPI	Digital Angle (Interface) / PWM	-	-	-	3.3 or 5.0	-40 to 150	TSSOP-14	-
AS5048B	14-bit Rotary Position Sensor with Digital Angle (Interface) and PWM output	14-bit	I <sup>2</sup> C	Digital Angle (Interface) / PWM	-	-	-	3.3 or 5.0	-40 to 150	TSSOP-14	-
AS5050A	10-bit Rotary Position Sensor with Digital Angle (Interface) output	10-bit	SPI	Digital Angle (Interface)	-	-	-	3.3	-40 to 85	QFN-16	-
AS5055A	12-bit Rotary Position Sensor with Digital Angle (Interface) output	12-bit	SPI	Digital Angle (Interface)	-	-	-	3.3	-40 to 85	QFN-16	-
AS5115	Rotary Position Sensor with Sin/Cos signal output	-	SSI	sin/cos	30000	-	-	5.0	-40 to 150	SSOP-16	●
AS5132	8.5-bit Rotary Position Sensor with Digital Angle (Interface), ABI, UVW (up to 6 Pole pairs) and PWM output	8.5-bit	SSI	Digital Angle (Interface) / ABI / UVW (up to 6 Pole Pairs) / PWM	72900	-	-	5.0	-40 to 150	SSOP-20	●
AS5134	8.5-bit Rotary Position Sensor with Digital Angle (Interface), ABI, UVW and PWM output	8.5-bit	SSI	Digital Angle (Interface) / ABI / UVW (up to 6 Pole Pairs) / PWM	82000	-	-	5.0	-40 to 150	SSOP-20	●
AS5145A	12-bit Rotary Position Sensor with Digital Angle (Interface), PWM and ABI output	12-bit	SSI	Digital Angle (Interface) / ABI / PWM	15000	-	-	3.3 or 5.0	-40 to 150	SSOP-16	●
AS5145B	12-bit Rotary Position Sensor with Digital Angle (Interface), PWM and ABI output	12-bit	SSI	Digital Angle (Interface) / ABI / PWM	15000	-	-	3.3 or 5.0	-40 to 150	SSOP-16	●
AS5145H	12-bit Rotary Position Sensor with Digital (Angle) Interface and PWM output	12-bit	SSI	Digital Angle (Interface) / PWM	15000	-	-	3.3 or 5.0	-40 to 150	SSOP-16	●
AS5147	14-bit Rotary Position Sensor with Digital Angle (Interface), PWM, UVW and ABI output	14-bit	SPI	Digital Angle (Interface) / ABI / PWM / UVW	14500	-	-	3.3 or 5.0	-40 to 150	TSSOP-14	●
AS5147P	14-bit Rotary Position Sensor with Digital Angle (Interface), PWM, UVW and ABI output	14-bit	SPI	Digital Angle (Interface) / ABI / PWM / UVW	28000	-	-	3.3 or 5.0	-40 to 150	TSSOP-14	●

# Magnetic Position Sensors



## Angle Position On-Axis

Part No.	Description	Resolution	Interfaces	Output	Max Speed rpm	Overtoltage Protection	Redundant	Supply Voltage V	Temp. Range °C	Package	AUT qualified
AS5161	12-bit Rotary Position Sensor with PWM output and Overtoltage Protection	12-bit	-	PWM	-	•	-	5.0	-40 to 150	SOIC-8	•
AS5162	12-bit Rotary Position Sensor with Linear Analog output and Overtoltage Protection	12-bit	-	Linear analog	-	•	-	5.0	-40 to 150	SOIC-8	•
AS5163	12-bit Rotary Position Sensor with PWM/Analog output and Overtoltage Protection	12-bit	-	PWM/Analog	-	•	-	5.0	-40 to 150	SOIC-8	•
AS5215 (dual die)	Redundant Rotary Position Sensor with Sin/Cos output	-	SSI	sin/cos	30000	-	•	5.0	-40 to 150	MLF-32	•
AS5245 (dual die)	Redundant 12-bit Rotary Position Sensor with Digital Angle (Interface) and ABI output	12-bit	SSI	Digital Angle (Interface) / ABI / PWM	15000	-	•	3.3 or 5.0	-40 to 150	QFN-32	•
AS5247 (dual die)	14-bit Rotary Position Sensor with Digital Angel (Interface), PWM, UVW and ABI output	14-bit	SPI	Digital Angle (Interface) / ABI / PWM / UVW	14500	-	-	3.3 or 5.0	-40 to 150	MLF-40	•
AS5261 (dual die)	Redundant 12-bit Rotary Position Sensor with PWM output and Overtoltage Protection	12-bit	-	PWM	-	•	•	5.0	-40 to 150	MLF-16	•
AS5262 (dual die)	Redundant 12-bit Rotary Position Sensor with Linear Analog output and Overtoltage Protection	12-bit	-	Linear analog	-	•	•	5.0	-40 to 150	MLF-16	•
AS5263 (dual die)	Redundant 12-bit Rotary Position Sensor with PWM/ Analog output and Overtoltage Protection	12-bit	-	PWM/Analog	-	•	•	5.0	-40 to 150	MLF-32	•
AS5600	12-bit Rotary Position Sensor with Digital Angel (Interface), PWM output	12-bit	I <sup>2</sup> C	PWM	-	-	-	3.3 or 5.0	-40 to 125	SOIC-8	-
AS5601	12-bit Rotary Position Sensor with Digital Angel (Interface), ABI output	12-bit	I <sup>2</sup> C	ABI	-	-	-	3.3 or 5.0	-40 to 125	SOIC-8	-
AS5170	12-bit Rotary Position Sensor with Linear Analog, PWM or SENT output and Overtoltage Protection	12-bit	-	Linear analog PWM SENT	-	•	-	5.0	-40 to 150	SOIC-8	•
AS5171	12-bit Rotary Position Sensor with Linear Analog, PWM or SENT output and Overtoltage Protection	12-bit	-	Linear analog PWM SENT	-	•	-	5.0	-40 to 150	SIP	•
AS5270 (dual die)	Redundant 12-bit Rotary Position Sensor with Linear Analog or PWM and Overtoltage Protection	12-bit	-	Linear analog PWM	-	•	•	5.0	-40 to 150	MLF16	•

# Magnetic Position Sensors

## Linear Position

Part No.	Description	Resolution	Min Pole Pair Length	Interfaces	Output	Max Speed	Supply Voltage	Temp. Range	Package	AUT Qualified	Remark
			mm			m/s	V	°C			
AS5304	160-step Linear Incremental Position Sensor with ABI output	160 step	4		ABI	20	5.0	-40 to 125	TSSOP-20	-	for linear: use magnetic strip
AS5306	160-step Linear Incremental Position Sensor with ABI output	160 step	2.4		ABI	10	5.0	-40 to 125	TSSOP-20	-	
AS5311	12-bit Linear Incremental Position Sensor with Digital Interface and PWM output	12-bit	2	SSI	PWM	0.65	3.3 or 5.0	-40 to 125	TSSOP-20	-	for off-axis: use ring magnet
AS5510	10-bit Linear Position Sensor with Digital Position (Interface) Output	10-bit		I <sup>2</sup> C	Digital position (Interface) output		2.5-3.6	-30 to 85	WL-CSP	-	standard axial magnet
AS5410	3D Position Sensor for Industrial Applications	12-bit	not applicable	SPI, PWM	SPI, PWM	not applicable	3.3	-40 to 105	TSSOP-14	-	



## LED Drivers

Part No.	Description	Outputs	LED Current per Output	Features	Error Detection	Read-back	LED-LED Matching	Supply Voltage	Package
		#	mA				%	V	
AS1100	8x8 Matrix LED driver	64	5	Multiplexed	-	-	3	5.0	SOIC-24
AS1104	40mA 4channel direct LED driver	4	40	Simple Drive, EN	-	-	3	2.2 - 3.6	MSOP-8
AS1105	4x8 Matrix LED driver	32	10	Multiplexed	-	-	3	5.0	SOIC-20
AS1106	8x8 Matrix LED driver	64	5	Multiplexed	-	-	3	2.7 - 5.5	SOIC-24
AS1107	8x8 Matrix LED driver with slew rate	64	5	Multiplexed	-	-	3	2.7 - 5.5	SOIC-24
AS1108	4x8 Matrix LED driver	32	10	Multiplexed	-	-	3	3.0 - 5.5	SOIC-20
AS1109	8channel 100mA direct LED driver	8	100		•	•	2	3.0 - 5.5	SOIC150-16 / SSOP150-16 / TQFN-16 (4x4)
AS1110	16channel 100mA direct LED driver	16	100		•	•	3	3.0 - 5.5	SSOP-24 / TQFN-28 (5x5)
AS1111	Low Dropout LED drivers	2-4	40-80	Simple Drive	-	-	3	0.15 - 3.6	WL-CSP-6, 0.4mm pitch (AS1111A & AS1111B)
AS1112	16channel 100mA PWM LED driver	16	100	12-bit PWM, 6-bit DOT	•	•	4.5	3.0 - 5.5	TQFN-32 (5x5)
AS1113	16channel 50mA direct LED driver	16	50		•	•	3	3.0 - 5.5	SSOP-24 / TQFN-28 (5x5)
AS1115	64LED matrix driver with 16keys	64	5	multiplexed; I <sup>2</sup> C interface	•	•	3	2.7 - 5.5	QSOP-24 / TQFN-24 (4x4)
AS1116	64LED matrix driver	64	5.5	multiplexed; SPI interface	•	•	3	2.7 - 5.5	QSOP-24 / TQFN-24 (4x4)
AS1117	64LED matrix driver with 8keys	64	5	multiplexed; I <sup>2</sup> C interface; Reset	•	•	3	2.7 - 5.5	TQFN-24 (4x4)
AS1118	64LED matrix driver	64	5.5	multiplexed; SPI interface; Reset	•	•	3	2.7 - 5.5	TQFN-24 (4x4)
AS1119	144LED full color crossplexing driver with CP	144	5.5	320mA charge pump; 6 Frames; cross-plexing	•	•	2	2.7 - 5.5	WL-CSP-36 (3x3)
AS1121	16channel 40mA 30V PWM LED driver	16	40	12-bit PWM, 6-bit DOT, low EMI	•	•	1.5	3.1 - 3.6V (Logic); 30V LED	TQFN-32 (5x5)
AS1122	12channel 40mA 30V PWM LED driver	12	40	12-bit PWM, 6-bit DOT, low EMI	•	•	1.5	2.7 - 3.6 (Logic); 30V LED	TQFN-24 (4x4)
AS1123	16channel 40mA direct LED driver	16	40		•	•	3	3 - 5.5V	QSOP-24 TQFN-24 (4x4)
AS1130	132LED full color crossplexing driver	132	2.5	8-bit PWM & analog current control, dynamic headroom control	•	•	2	2.7 - 5.5	WL-CSP-20 SSOP-28



# Power Management

## Panel Backlight

Part No.	Description	Outputs	LED Current per Output	Features	Error Detection	Read-back	LED-to-LED Matching	Supply Voltage	Package
		#	mA				%	V	(mm)
AS3691	4x400mA Precision Current Source Driving RGB and White Color LEDs for General Lighting	4	400	Slew rate contr.	-	-	0.5	Main Supply	QFN-24 ePTSSOP-24
AS3693A	16 Channel High Precision LED Driver for LCD Backlight	16	150	Slew rate contr.	•	-	0.5	Main Supply	epTQFP-64 (10x10), pitch 0.5 QFN-48 (6x6), pitch 0.4 QFN-48 (7x7), pitch 0.5
AS3693B	16 Channel High Precision LED Controller for LCD Backlight	16	limited by external FET	Slew rate contr.	•	-	0.5	Main Supply	epTQFP-64 (10x10), pitch 0.5 QFN64, (9x9), pitch 0.5
AS3693B1	16 Channel High Precision LED Controller for LCD Backlight	16	limited by external FET	Slew rate contr.	•	-	0.5	Main Supply	epTQFP-64 (10x10), pitch 0.5 QFN-64 (9x9), pitch 0.5
AS3695A	16 Channel High Precision LED Driver for LCD Backlight	16	120	2 configurable supply regulation feedback outputs	•	•	0.5	4.0 - 5.5	QFN-48 (7x7), pitch 0.5
AS3695C	16 Channel Precision LED Controller	16	limited by external FET	2 configurable supply regulation feedback outputs	•	•	0.5	4.0 - 5.5	QFN-64 (9x9), pitch 0.5 LQFP-64 (14x14), pitch 0.8
AS3696	4 channel white LED controller for General Lighting or 3D-LCD backlight	4	limited by external FET	3D mode	•	-	1	Main Supply	QFN-32 (5x5), pitch 0.5 TQFP-32 (7x7), pitch 0.8
AS3810	16 channel white LED controller for LCD backlight	16	177.5	enhanced digital feedback, 3D	•	-	0.9	4.0 - 5.5	QFN-32
AS3820	16 channel white LED controller for LCD backlight	16	limited by external FET	2 configurable supply regulation feedback outputs	•	-	0.2	4.0 - 5.5	QFN-48 (7x7), pitch 0.5 LQFP-44 (10x10), pitch 0.8
AS3821	12 channel LED controller	12	limited by external FET	2 configurable supply regulation feedback outputs	•	-	0.2	4.5 - 5.5	QFN-48 (7x7), pitch 0.5
AS3822	8 channel white LED controller for LCD backlight	8	limited by external FET	Enhanced digital feedback, 3D, DPLL	•	-	0.2	4.0 - 5.5	TQFP32 (7x7), pitch 0.5
AS3823	6 Channel White LED Controller for LCD Backlight	6	limited by external FET	Enhanced digital feedback, 3D, DPLL	•	-	0.2	4.0 - 5.5	TQFP32 (7x7), pitch 0.5
AS3824	16-channel local dimming LED backlight controller	16	limited by external FET	HDR support, minimum PWM on time, digital enhanced DCDC feedback	•	•	0.2	4.0 - 5.5	QFN-48 (7x7), pitch 0.5
AS3833	6 channel high-precision LED controller for 3D-LCD backlight with integrated step-up controller	6	300	integrated step-up, 1 PWM input with phase shift, use of inexpensive BJTs with BETA compensation, LED string voltage only limited by BJT rating	LED short/open with BJT temp. Supervision	-	0.6	12 - 50	TQFP-32 (7x7), pitch 0.8 SOIC-28, pitch 1.27
AS3834	4 channel high-precision LED controller for 3D-LCD backlight with integrated step-up controller	4	300	integrated step-up, 4 PWM inputs, use of inexpensive BJTs with BETA compensation, LED string voltage only limited by BJT rating	LED short/open with BJT temp. Supervision	-	0.6	12 - 50	SOIC-28, pitch 1.27
AS3834B	4 channel high-precision LED controller for 3D-LCD backlight with integrated step-up controller	4	300	integrated step-up, 1 PWM input with phase shift, use of inexpensive BJTs with BETA compensation, LED string voltage only limited by BJT rating	LED short/open with BJT temp. Supervision	-	0.6	12 - 50	SOIC-28, pitch 1.27

## Flash Drivers

Part No.	Topology	DC-DC Freq. MHz	Performance		LED Channels				Interfaces		Safety Features		Package (mm)
			I <sub>LED</sub> max	V <sub>OUT</sub> max	Curr. Sinks	Curr. Source	Flash LEDs	Indicator LED	I <sup>2</sup> C	Enable	TimeOut	TXMask	
AS3630	Supercap	4	800mA	10V	1	High Side	2	1	•	•	•	•	WL-CSP-25 (2.5x2.5), pitch 0.5
AS3642	Inductive	4	500mA	5.5V	1	High Side	1	Flash LED	•	-	•	-	WL-CSP6 (1.5x1.1), pitch 0.5
AS3643	Inductive	4	1300mA	5.5V	2	Low Side	1	Flash LED	•	-	•	•	WL-CSP-13 (2.25x1.5), pitch 0.5
AS3644	Inductive	4	320mA	5.5V	1	High Side	1	Flash LED	•	-	•	-	WL-CSP6 (1.5x1.1), pitch 0.5
AS3645A	Inductive	2	800/500mA (2/1 LED)	10V	1	High Side	1 or 2	1	•	•	•	•	WL-CSP-12 (1.5x2), pitch 0.5
AS3647	Inductive	4	1600mA	5.5V	2	Low Side	1	Flash LED	•	-	•	•	WL-CSP-13 (2.25x1.5), pitch 0.5
AS3648	Inductive	4	2000mA	5.5V	2	Low Side	1 or 2	Flash LED	•	-	•	•	WL-CSP-13 (2.25x1.5), pitch 0.5
AS3649	Inductive	4	2500mA	5.5V	2	High Side	1 or 2	Flash LED	•	•	•	•	WL-CSP16 (2.06x2.02), pitch 0.5
AS3685A	Capacitive		1000mA	5.5V	1	Low Side	1	Flash LED	-	•	•	•	WL-CSP-12 (1.5x2), pitch 0.5 DFN-10 (3x3)
AS3685B	Capacitive		1000mA	5.5V	1	Low Side	1	Flash LED	-	•	•	•	DFN-10 (3x3) WL-CSP-12 (2x1.5)
AS3685C	Capacitive		1000mA	5.5V	1	Low Side	1	Flash LED	•	-	•	•	WL-CSP-12 (1.5x2), pitch 0.5

Part No.	Topology	Supply Voltage	V <sub>OUT</sub> max	IGBT Driver	IGBT Type	Interface	Safety Features	Package (mm)
		V	V					
AS3635	XENON, Flyback	2.5 - 5.5	330 (in circuit trimmable)	•	2.5V and 4V	charge, done, flash	overtemperature, overcurrent	WL-CSP-9 (1.5x1.5), pitch 0.5
AS3636	XENON, Flyback	2.5 - 5.5	330 (in circuit trimmable)	included, trimmable	2.5V and 4V	I <sup>2</sup> C, strobe, torch	one time breakable fuse in supply path, system level ESD protection	WL-CSP-16 (2.0x2.15), pitch 0.5

## Lighting Management Units

Part No.	# of Current Sinks		Max Current (mA)		Max V <sub>LED</sub> (V)	Features							Flash		Package (mm)
	HV	LV	CP	DC-DC		LDOs (#)	Auto ALS	DLS	RGB Pattern	Dimming	Audio-In	LED Test	Support	max I (mA)	
AS3490	3	0	No	100	7.8	-	-	•	-	-	-	•	-	-	WL-CSP-12 (1.7x1.4), pitch 0.5
AS3492	5	0	No	100	7.8	-	-	• (2x)	-	-	-	•	-	-	WL-CSP-12
AS3675	3	10	300	controller*	controller*	1	-	-	•	•	•	•	•	300	WL-CSP-30 (3x2.5), pitch 0.5
AS3676	3	10	300	controller*	controller*	1	•	•	•	•	•	•	•	300	WL-CSP30 (3x2.5), pitch 0.5
AS3677	3	3	50	50	25	1	•	2x	•	•	-	•	-	-	WL-CSP-25 (2.3x2.3), pitch 0.4
AS3687XM	3	3	150	controller*	controller*	-	-	-	•	•	•	•	•	320	WL-CSP-20 (2x2.5), pitch 0.5
AS3688	2	7	900	controller*	controller*	2	-	-	•	•	-	•	•	900	QFN-32 (5x5), pitch 0.5
AS3689	3	12	400	controller*	controller*	1	-	-	•	•	-	•	•	150	WL-CSP-36 (3x3), pitch 0.5

# Power Management

## Smart Notification Light

Part No.	Performance		User Memory kbit	Performance Features						Package (mm)
	# of Current Sinks	Charge Pump		RGB Pattern	Dimming	Ext. PWM	Ext. Trigger	Audio-In	LED Test	
AS3661	9	150mA	1.5	•	log & lin	-	•	-	•	WL-CSP25 (2.29x2.29), pitch 0.4
AS3665	9	150mA	1.5	•	log & lin	-	•	•	•	WL-CSP25 (2.61x2.67), pitch 0.5
AS3668	4	150mA	-	•	log & lin	•	•	•	•	WL-CSP12 (1.25x1.68), pitch 0.4

## DC-DC Buck-Boost Converters

Part No.	Description	Input Voltage V	Output Voltage V	Output Current* mA	Efficiency %	Iq μA	Architecture	fmax kHz	Enable/ SHDN	Reset/ POK	Features	Package (mm)
AS1331	300mA, DC-DC buck-boost converter	1.8 - 5.5	2.5 - 3.3	300	90	22	Synchronous	<500	•	•	Low Battery Detection	TDFN-10 (3x3)

## DC-DC Buck Converters

Part No.	Description	Input Voltage V	Output Voltage V	Output Current mA	Efficiency %	Iq μA	Architecture	fmax kHz	Enable/ SHDN	Reset/ POK	Features	Package (mm)
AS1313	DC-DC Step-down Converter	2.4 - 5.5	1.2 - 3.6	150	95	1	Hysteretic, async		•		Ultra Low Quiescent Current	WL-CSP-6 (0.4)
AS1341	HV DC-DC Step-down Converter 20V, 600mA	4.5 - 20	1.25 - Vin	650	96	12	Hysteretic, async	<250	•	•	100% Duty Cycle	TDFN-8 (3x3)
AS1349	Dual 1.2A and 1.2A Step-down Converter	2.7 - 5.5	1.2 - 3.6	1,200	95	2,000	fixed Frequency, sync.	2,000	•	•	Fixed output voltage	TSOT23-5
AS7620	HV DC-DC Step-Down Converter, 32V, with Dual Power Monitor	3.6 - 32	AS7620-A: 1.2 - Vin AS7620-B: 3.3	650	90	30	Hysteretic, async	>250	•	•	Early Power Fail Warning 100% Duty Cycle	TDFN-12 (3x3)
AS1382	1A, High Efficiency, DC-DC Step Down Converter	2.7 - 5.5	0.6 - 3.35	1000	96	95	fixed Frequency, sync.	2, 3, or 4 MHz	•		Small Foot Print, Small System Area	6-pin WL-CSP, 0.4 mm pitch

## DC-DC Charge Pumps

Part No.	Description	Input Voltage V	Output Voltage V	Output Current mA	Efficiency %	Iq µA	Architecture	fmax kHz	Enable/ SHDN	Reset/ POK	Features	Package (mm)
AS1302	Inductorless Boost Converter, Lowest Power, 5V/30mA	2.9 - 5.15	5.0	30	90	100	Charge Pump	1200	•	-	Inductorless	WL-CSP-8 (1.2x1.2) TDFN-10 (3x3)

## DC-DC Boost Converters

Part No.	Description	Input Voltage V	Output Voltage V	Output Current mA	Efficiency %	Iq µA	Architecture	fmax kHz	Enable/ SHDN	Reset/ POK	Features	Package (mm)
AS1312	Ultra Low 1µA Quiescent Current	0.7 - 5.0	2.5 - 5.0	100	94	1	Hysteretic, async		•	•	Low Battery Detection	WL-CSP-8, pitch 0.4
AS1326	DC-DC Step-Up Converter High-Current 650mA	0.7 - 5.0	2.5 - 5.0	800	96	65	Fixed Frequency, sync	1200	•	-	Synchr. to Ext. Clock, Softstart	10-pin TDFN (3x3)
AS1340	HV DC-DC Step-up Converter, 50V, Adjustable Output with Shutdown Disconnect	2.7 - 5.0	2.7 - 50	100**	90	30	Fixed Frequency, sync	1000	•	•	Output Disconnect	TDFN-8 (3x3)
AS1345A	18V, High Efficiency, 100mA coil current, DC-DC Step-Up Converter	2.9 - 5.0	5.0 - 18	4mA@18V	90	25	Hysteretic		•	•	Power Good Output, Shutdown, Output, Disconnect in Shutdown Fixed and Adjustable Output Versions	WL-CSP-8, pitch 0.4
AS1345B	18V, High Efficiency, 200mA coil current, DC-DC Step-Up Converter	2.9 - 5.0	5.0 - 18	8mA@18V	90	25	Hysteretic		•	•	Power Good Output, Shutdown, Output, Disconnect in Shutdown Fixed and Adjustable Output Versions	WL-CSP-8, pitch 0.4
AS1345C	18V, High Efficiency, 350mA coil current, DC-DC Step-Up Converter	2.9 - 5.0	5.0 - 18	14mA@18V	90	25	Hysteretic		•	•	Power Good Output, Shutdown, Output, Disconnect in Shutdown Fixed and Adjustable Output Versions	WL-CSP-8, pitch 0.4
AS1345D	18V, High Efficiency, 500mA coil current, DC-DC Step-Up Converter	2.9 - 5.0	5.0 - 18	20mA @ 18V	90	25	Hysteretic		•	•	Power Good Output, Shutdown, Output, Disconnect in Shutdown Fixed and Adjustable Output Versions	WL-CSP-8, pitch 0.4
AS1383	200mA, 3.5MHz DC-DC Step-Up Converter	2.7 - 5.5	2.7 - 5.0	200	92	25	Fixed Frequency, sync	3500	•		Ultra-compact solution for space constrained designs Automatic Power save, and load disconnect in shutdown	6-pin WL-CSP, 0.4mm pitch

# Power Management

## DC-DC Controllers

Part No.	Description	Input Voltage	Output Voltage Boost Controller	Output Current Boost	Output Buck Converter	Overshoot Protection	Overcurrent Protection	Overtemp. Protection	3D Features	Package
		V	V							
AS1390A	High Power Boost Controller for LED Backlight	10 - 30	100	3A	5V/100mA	•	•	•	•	QFN-20
AS1390B	High Power Boost Controller for LED Backlight	10 - 30	100	3A	5V/100mA	•	•	•	-	SOIC-16

## LDOs

Part No.	Description	Outputs	Accuracy	Output Current**	Feature	Output Voltage	Dropout Voltage @ max Current	Supply Current	Supply Voltage	Package
		#	%	mA		V	mV	μA	V	(mm)
AS1355	300mA triple low drop out regulator	3	± 1.0	300	OTP*	1.25 - 3.6	100 @ 200mA	160	2.3 - 5.5	QFN-16 (3x3)
AS1364	1A ultra-low dropout linear regulator	1	± 0.75	1000	Ultra Low Dropout, Ultra Low Noise	1.2 - 5.3	140	35	2.0 - 5.5	TDFN-8 (3x3)
AS1369	200mA micro-sized ultra-low-dropout regulator	1	± 0.7	200	Micro-Sized	1.2 - 5.0	80	25	2.0 - 5.5	WL-CSP-4
AS1374	200mA, ultra-low-noise, high-PSRR, dual low dropout regulators	2	± 1.0	200	Ultra Low Noise, High PSRR	1.2 - 3.6	120	30	2 - 5.5	WL-CSP-6
AS1376	1A, Low Input Voltage, Low quiescent current LDO	1	± 1.5	1000	Ultra Low Dropout, Very Low Input/ Output Voltage range	0.5 - 3.3	105	6.5 (Vin), 60 (Vbias)	0.7 - 3.6 (Vin), 2.5 - 5.5 (Vbias)	WL-CSP-6

\*) One Time Programmable: The Output Voltage of each Output port can be programmed, one time, on a PCB board, (\*\*) per output

# Power Management



## Power Management Units

Part No.	DC-DC Step Up Converters	DC-DC Step Down Converters	Special LDOs	Digital LDOs	Current Sinks	Charge Pump	Audio DAC	Audio ADC	Audio Features	General Purpose ADC	Charger	Customizable Startup Sequences	Package
			mA	mA	mA	V/mA							
AS3606	1x General Purpose (Voltage or Current Output) (30V)	3x0.7A or 1.4A+0.7A	1x100, 3x250	-	2x38 (HV)	-	-	-	-	10-bit	Linear	Programmable	QFN-32 (5x5)
AS3607	1x General Purpose (Voltage or Current Output) (30V)	3x0.7A or 1.4A+0.7A	1x100, 4x250	-	2x38 (HV)	-	-	-	-	10-bit	Linear	Programmable	QFN-36 (6x6)
AS3608	1x General Purpose (Voltage or Current Output) (30V)	3x1A or 2A+1A	1x100, 4x250	-	2x38 (HV)	-	-	-	-	10-bit	Linear	Programmable	QFN-36 (6x6)
AS3658	2x General Purpose (Voltage or Current Output)	3x0.5A or 1.6A + 2x0.5A or 1.6A + 1A	1x400, 2x150	4x200	4x40, 3x40 (HV)	5/100	96dB SNR	84dB SNR	2x Headphone, 1x Line Out, 1x Line In, Mic Input, Audio Mixer, Equalizer	10-bit	Step-Down/Linear + Linear	8x + Programmable	BGA-124 (8x8)
AS3701	1 buck DCDC, 2 LDOs, 500mA power path management linear charger, programmable startup	1 x 500mA		2x200	2x40					-	Linear 500mA	Programmable	CSP-20 0.4pitch
AS3709	5 buck DCDCs, 2 LDOs, programmable startup	5 x 1A, 2A configurable, 3A configurable			-					-	-	Programmable	QFN-32 (4x4) CSP-36 0.4pitch
AS3710	3x General Purpose (Voltage or Current Output)	1.5A + 2x1A or 2A + 1.5A	2x250	6x300	3x40 (HV)	-	-	-	-	10-bit	Step-Down/Linear	Programmable	QFN-56 (7x7) CSP-64 0.4pitch
AS3711	2x General Purpose (Voltage or Current Output)	1x3A + 1.5A + 2x1A or 3A + 2A + 1.5A	2x250	6x300	3x40 (HV)	-	-	-	-	10-bit	Step-Down/Linear	Programmable	QFN-56 (7x7) CSP-64 0.4pitch
AS3712	3x General Purpose (Voltage or Current Output)	1.5A + 2x1A or 2A + 1.5A	2x250	6x300	3x40 (HV)	-	-	-	-	10-bit	-	Programmable	QFN-56 (7x7) CSP-64 0.4pitch
AS3713	2x General Purpose (Voltage or Current Output)	1x3A + 1.5A + 2x1A or 3A + 2A + 1.5A	2x250	6x300	3x40 (HV)	-	-	-	-	10-bit	-	Programmable	QFN-56 (7x7) CSP-64 0.4pitch
AS3715	3 buck DCDC, buck controller, 8 LDOs, 2 Boost convrters, Genral Purpose ADC	2 x 1A, 1 x 2A, 4A configurable	2x250	6x300	3x40 (HV)					10-bit	DCDC / Linear 1.5A	Programmable	CSP-81 0.4pitch
AS3721	4 buck DC-DC, 24A DC-DC controller, 12 LDOs, general purpose ADC	8phase + 2phase + 2phase + 4A + 2A + 2x1.5A	-	12x300	-	-	-	-	-	10-bit	-	Programmable	BGA-124 (8x8)
AS3722	4 buck DC-DC, 24A DC-DC controller, 12 LDOs, general purpose ADC	8phase + 2phase + 2phase + 5A + 2A + 2x1.5A		11x300	-					10-bit	-	Programmable	BGA-124 (8x8)
AS3728	8A HV dual-phase power stage (2 x 4A)	2-phase power stage with 2x4A											WL-CSP24 (2.415x 1.615)
AS3729	6A dual-phase power stage (2 x 3A)	2phase power stage with 2x3A	-	-	-	-	-	-	-	-	-	-	WL-CSP-16
AS3729B	8A dual-phase power stage (2 x 4A)	2phase power stage with 2x4A	-	-	-	-	-	-	-	-	-	-	WL-CSP-16

# Power Management

## Supervisors

Part No.	Description	Supervised Voltages				Inputs	Push/Pull Active Low	Push/Pull Active High	Open-Drain	Watch-dog	Man. Reset	Supply Current	Supply Voltage	Package
		V (IN1)	V (IN2)	V (IN3)	V (IN4)							μA	V	
AS1917	Microprocessor Supervisory Circuits with Manual Reset and Watchdog	1.58 - 3.6				1	-	•	-	•	•	5.5	1.0 - 3.6	SOT23-5

## Analog Switch

Part No.	Lines	Type	RON	RON Flatness	RON Matching	On/Off Time	Supply Voltage	Package
	#		Ohm	Ohm	Ohm		V	
AS1747	2	SPDT	0.4	0.25	0.03	200/50	1.8 - 5.5	TDFN-10 (3×3)

## Operational Amplifiers

Part No.	Description	Amplifiers	Slew Rate	Gain Bandwidth	PSRR	CMRR	Shutdown	Supply Current	Supply Voltage	Package
		#	V/μs	MHz	dB	dB		mA	V	
AS1712	Quad Rail to rail Op Amp with shutdown	4	10	10	-85	-70	•	6.4	2.7 - 5.5	TQFN -16 (3×3)

# Technology is enhancing our lives by becoming more aware to the world around us. Our products are crucial for this responsiveness.

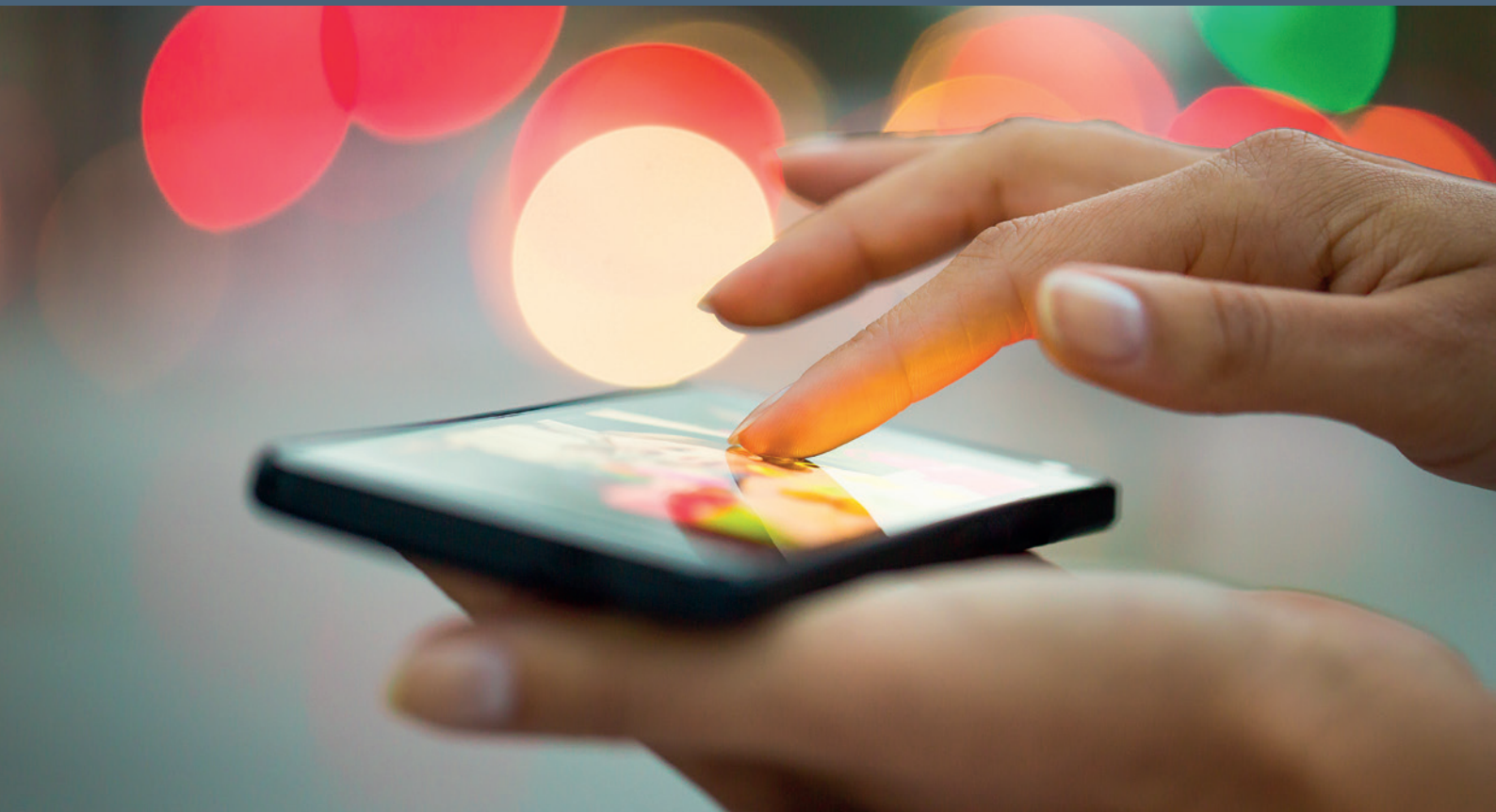
## For example:

**Magnetic Position Sensors** from ams can measure the slightest movements of the arms and fingers of a surgical robot, enabling doctors to “take surgery beyond the limits of the human hand.”

**Biosensors** provide a highly integrated solution which deliver highest accuracy vital sign measurements for use in smartphones and wearable products such as fitness bands and sports/smart watches. These low-power sensors are ideally suited for health and fitness mobile devices which require 24/7 operation.

**Sensor Integrated Smart lighting.** ams offers a ready-made platform for sensor hubs in our homes/ commercial spaces enabling smart spaces to respond and adapt to deliver efficiency and broad user benefits.

**ams' ultra-low power, highly integrated power management ICs (PMICs)** are used in high-resolution imaging applications and mobile devices including netbooks, fitness wearables and action cameras.





# Battery Management

## Battery Chargers

Part No.	Description	Chemistry	# of Cells	Charger Current A	Switchmode	OVP V	Power Path Management	USB OTG/ Host Boost	NTC	I <sup>2</sup> C	Package (mm)
AS3610	USB Compliant Step Down Charger for Li-Ion Portable Devices	Li-Ion	1	1.25	•	22	-	•	10/100	•	MLPD-14 (3×3)
AS3611	USB Compliant Step Down Charger for Li-Ion Portable Devices	Li-Ion	1	1.25	•	22	-	•	10/100		MLPD-14 (3×3)

## Battery Sensor Interfaces

Part No.	Description	Channels #	Resolution bit	Sampling Rate ksps	Supply Current mA @ max speed	Supply Current mA	Supply Voltage V	Package (mm)
AS8510	Data Acquisition IC, Dual ADC	1 + 3 mux	16	4	5	4	3.3	SSOP-20

## Ultrasonic Flow Converters

Part No.	Description	Analog Front End	Amplitude Measurement	TDC Resolution	CPU	NVRAM	Interfaces	Temperature Range	Package
		No. of hits		ps				°C	
TDC-GP21	Time-to-Digital Converter with integrated analog frontend	3	-	22	-	-	SPI	-40 to 125	QFN-32
TDC-GP22	Time-to-Digital Converter with integrated analog frontend	3	-	22	-	-	SPI	-40 to 125	QFN-32
TDC-GP30	System-on-Chip solution for ultrasonic flow metering	31	•	11	32-bit	4k	SPI, UART, Pulse	-40 to 125	QFN-32 QFN-40
TDC-GP30-F01	System-on-Chip solution for ultrasonic flow metering WITH FIRMWARE	31	•	11	32-bit	4k	SPI, UART, Pulse	-40 to 125	QFN-32 QFN-40

# Precision Time Measurement

## Time-to-Digital Converters

Part No.	Description	Channels	Inputs	Resolution	Pulse-Pair Resolution	Measure Rate	Multihits	Temperature Range	Package
				ps	ns	Ms		°C	
TDC-GP21	2-Channel Time-to-Digital Converter	2	CMOS	22	20	0.5	3	-40 to 125	QFN-32
TDC-GP22	2-Channel Time-to-Digital Converter	2	CMOS	22	20	0.1	4	-40 to 125	QFN-32
TDC-GPX*	High-performance 8-Channel Time-to-Digital Converter	8	TTL/LVPECL	10	6	200 peak	unlimited	-40 to 125	TQFP-100
TDC-GPX2	High-performance 4-Channel Time-to-Digital Converter	4	LVDS	12	10	70	unlimited	-40 to 125	QFN-64

\*) not recommended for new designs

# Wireless Connectivity

## Sensor Tags & Interfaces

Part No.	Description	Frequency	Protocol	Supply Voltage	Temp. Range	Interface	EEPROM	Features	Data Rate	Package
		MHz		V	°C		kbit		kbit/s	(mm)
AS3953	NFC to SPI interface chip	13.56	ISO14443A up to level 4 NFCIP-1 target at 106 kbit/s NFC forum tag 4 type emulation	RF field or ext. 1.65 to 3.6	-40 to 85	ISO14443A 4-wire SPI (slave) up to 5Mbit/s	1	Wake-up interrupt, energy harvest 5mA	up to 848	Die; MLPD-10; WL-CSP
AS3955	NFC to SPI/I2C interface NFC	13.56	NFC Forum compliance and ISO 14443A compliance up to Level 4	Passive by RF field or ext. 1.65 to 5.5	-40 to 125	ISO14443A 3/4-wire SPI (slave) up to 5Mbit/s PC (slave) up to 1Mbit/s	2 or 4	Wake-up interrupt, energy harvest	up to 106	Die; MLPD-10; WL-CSP
SL13A*	RFID sensor tag and data logger IC	13.56	ISO15693/NFC-V	RF field or 1.2 to 3.3	-40 to 110	SPI (slave), analog input	8	Energy harvest 5mA, temperature sensor	up 26.48	QFN-16 (5x5), die or Au-bumped die

\*) not recommended for new designs

Part No.	Description	Frequency	Protocol	Supply Voltage	Temp. Range	Interface	EEPROM	Sensor Type	Package
		MHz		V	°C		kbits	integrated	(mm)
SL900A	EPC sensor tag and data logger IC	860 - 960	EPC Gen2	RF field or 1.2 to 3.6	-40 to 125	SPI (slave), analog inputs	9	Temperature	QFN-16 (5x5) or DoW

## Wireless Sensor Connectivity

Part No.	Description	Channels	Wake-Up Sensitivity	LF Carrier Freq. Range	Data Rate (Manch.)	Dynamic Range	RSSI Step	Package
		#	µVpp	kHz / mHz	kbit/s	dB	dB	(mm)
AS3930	Programmable 1D LF Wake-up Receiver	1	282	110 - 150 kHz	0.5 - 4	64	2	TSSOP-16, QFN-16 (4x4)
AS3932	Programmable 3D LF Wake-up Receiver	3	282	110 - 150 kHz	0.5 - 4	64	2	TSSOP-16, QFN-16 (4x4)
AS3933	Programmable 3D LF Wake-up Receiver	3	225	15 - 150 kHz	0.5 - 4	64	2	TSSOP-16, QFN-16 (4x4)

Part No.	Description	Features	Supply	Current Consumption	Interface	Temp. Range	Package
			V	(PD/Listening/Active) µA		°C	(mm)
AS3935	Franklin Lightning Sensor™ IC	Distance estimation up to 40 km in 14 steps, embedded Disturber rejection algorithm & auto antenna tuning	2.4 - 5.5	1 / 60 / 350	SPI or I <sup>2</sup> C	-40 to 85	MLPQ-16 (4x4)

## PICOCAP Capacitive Sensing

Part No.	Description	Channels	Noise	Measure Rate	GPIO	CPU	Memory	Temperature Range	Package
			aF (@10pF)	Maximum				°C	
PCap01*	Low-power CDC with integrated signal processor	8	8	500k	6	48-bit	4k OTP	-40 to 125 (90)	QFN-32
PCap02	Low-power CDC with integrated signal processor	8	15	500k	6	48-bit	4k OTP	-40 to 125 (90)	QFN-32, dice
PCap04	Low-power CDC with integrated signal processor	6	8	50k	8	48-bit	1k NVRAM 3k ROM	-40 to 125	QFN-24, dice

\*) not recommended for new designs

## PICOSTRAIN Resistive Sensing

Part No.	Description	Channels	Noise	Measure Rate	GPIO	CPU	Memory	Temperature Range	Package
		Half bridges	nV (@5Hz)	maximum				°C	
PS081	System-on-chip for strain gage applications	4	11.5	1000	21	24-bit	2k EEPROM	-40 to 125	QFN-56
PS09	System-on-chip for strain gage applications	4	19	10000	24	24-bit	8k OTP	-40 to 125	QFN-40

# CMOS Imaging Sensors

## Area Scan Sensors

Part No.	Description	Resolution	Frame rate	Optical Format	Shutter type	Pixel size	Color	Package	DR
			FPS			µm			dB
CMV300	VGA resolution global shutter CMOS Image Sensor	0.3MP 640 (H) × 480 (V)	480	1/3"	global	7,4	mono / color	CSP	60
CMV2000	2.2MP (HD) resolution global shutter CMOS Image Sensor	2.2MP 2048 (H) × 1088 (V)	340	2/3"	global	5,5	mono / color / NIR+	UPGA/LGA/LCC	60
CMV4000	4MP resolution global shutter CMOS Image Sensor	4MP 2048 (H) × 2048 (V)	180	1"	global	5,5	mono / color / NIR+	UPGA/LGA/LCC	60
CMV8000	8MP resolution global shutter CMOS Image Sensor	8MP 3360 (H) × 2496 (V)	100	4/3"	global	5,5	mono / color	µPGA	60
CMV12000	12MP (4k) resolution global shutter CMOS Image Sensor	12MP 4096 (H) × 3072 (V)	300	APS-c	global	5,5	mono / color / NIR+	µPGA	60
CMV20000	20MP resolution global shutter CMOS Image Sensor	20MP 5120 (H) × 3840 (V)	30	35mm	global	6,4	mono / color	PGA	66
CMV50000	48MP (8K/4K) resolution global shutter CMOS Image Sensor	48MP 7920 (H) × 6004 (V)	30	35mm	global	4,6	mono / color	PGA	64
CHR70M	71MP resolution rolling shutter CMOS Image Sensor	71MP 10000 (H) × 7096 (V)	3	35mm	rolling	3,1	mono / color	PGA	63

## Miniature Camera Modules

Part No.	Description	Resolution	Frame rate	Optical Format	Shutter type	Pixel size	Color	Package	DR
		mpx	FPS	mm		µm			dB
Naneye	miniature camera module, 250 x 250 resolution	0,06	50	1 × 1	rolling	3	mono / color	wafer level, lens + cable integrated	58
Naneye Stereo	miniature stereo vision camera module, 500 x 250 resolution	0,12	50	2.2 × 1	rolling	3	mono / color	wafer level, lens + cable integrated	58

## Line Scan Sensors

Part No.	Description	Line width	Frame rate	Lines	Full Well	Pixel size	Color	Package	DR
		Pixels	FPS	#	ke-	µm			dB
Dragster	High speed machine vision line scan sensor	2K to 16K	80000	1 or 2	30 - 46 - 65	3.5 × 7 or 7 × 7	mono / color	Invar / Ceramic	68
Orion	High speed scientific line scan sensor	2K	70000	1	Configurable: 33 to 374	configurable: 10 × 10 or 10 × 200	mono	BGA / Ceramic	59
4LS	High speed, high color accuracy line scan sensor	2.5K to 15K	160000	4	20 or 40	5,6 × 5,6	mono / color	Invar / Ceramic	58

# Watch our videos online



## **Shaping the world with sensor solutions**

This new corporate video brings to life ams' mission of shaping the world with sensor solutions



## **ANC - Active Noise Cancellation**

This video explains ams' highly optimized ANC technology, a noise cancellation solution for headphones and headsets.



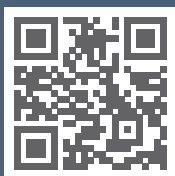
## **Gesture Sensors**

ams' TMG399x family of IR Touchless Gesture sensors delivers an innovative user interface and a richer end user experience!



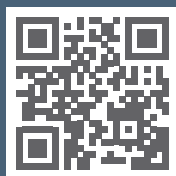
## **ams Biosensors**

The AS7000's low-power design is particularly well suited to application in fitness bands, smart watches, sports watches and other mobile devices.



## **Magnetic Stray Field Immunity**

ams' position sensors offer immunity to ('stray') magnetic fields, deliver reliability and safety for a broad range of automotive and industrial applications.



## **ams AS6200 Temperature Sensor**

This video explains ams' best-in-class digital temperature sensor family – easy to integrate, cost-effective and ideally suited for the multiple needs of today's smart home environments.



# Full Service Foundry Offering More than Silicon®

## We are the specialty analog foundry

- Innovative analog specialty foundry services to customers across all markets for the most challenging applications in sensor, MEMS and power management solutions.
- Leading edge High-Voltage CMOS, EEPROM, SiGe-BiCMOS and Opto processes as well as 3D-integration (TSV)

## We go the extra mile for our customers

- Superior service in process design, engineering and backend
- The ams' hitkit outperforms other PDKs by accuracy, completeness and usability. It provides a proven route to first-time-right silicon.

## We provide multiple sourcing via partnerships

- TSMC for 0.35µm CMOS
- GlobalFoundries (former IBM) for 0.18µm CMOS and High-Voltage CMOS

## We provide long-term supply

- Process availability more than 15 years in average

## We offer a Full Service Foundry approach

- A One-Stop-Shop for turn-key high performance analog IC solutions
- Our customers can focus on their markets while fully relying on ams' supply chain management.
- By ordering Known-Good-Dies (KGD) from ams they benefit from reduced lead times and improved cash flow.

## We offer More Than Silicon®

- With 3D ICs based on our proprietary TSV technology, our opto-electronic solutions, advanced packages & IP-blocks as well as the knowhow of our ecosystem partners our service portfolio goes beyond any other analog and mixed-signal pure-play foundry.

## We have medical and automotive certified operation

- Regularly audited by the certification authorities and our respective customer base
- ISO 16949:2002, ISO 13485, CECC 90000



# Full Service Foundry Technology Overview



## Leading Edge Technology

Feature Size	ams Process Technology	Process Name	# Masks	# Metal	5V Module	High Res Poly	Poly Caps	MIM Caps	Thick Metal	Additional Information
0.18µm	CMOS Mixed-Signal 1.8/5V	aC18	22-38	3-6	•	•	•	•	•	- High Density (150kGates/mm <sup>2</sup> ) and Low Leakage libraries - Memory compiler, NVM and OTPs
0.18µm	High-Voltage CMOS 1.8/5/20/50V	aH18	28-41	4-6	•	•	•	•	•	- High Density (150kGates/mm <sup>2</sup> ), High-VT and Low Leakage libraries - Memory compiler, NVM and OTPs - Modularity with CMOS base process allowing IP reuse
0.30µm	CMOS High Performance Analog Low Noise 3.3/50V	A30	21-26	3-4	•	•	•	•	•	- Optical shrink by a factor of 0.9 from industry proven H35 process - Superior noise performance, ideally suited for ultra-low noise applications - Super low noise transistor, low VT transistors, HV thin GOX transistor
0.35µm	CMOS Mixed-Signal 3.3/5V	C35	13-23	3-4	•	•	•	•	•	- Fully qualified for MED and AUT markets - High density digital library: 23kGates/mm <sup>2</sup> - Extensive IP block portfolio
0.35µm	Opto-CMOS 3.3/5V	C350	16-19	4	•	•	•	•	•	- PN and PIN photo diodes - Customized ARC and BARC (Bottom-ARC) - Interference Filters and Adhesive Color Coating
0.35µm	CMOS Embedded Flash 3.3/5V	C35EE	22-29	3-4	•	•	•	•	•	- Silicon qualified EEPROM blocks - Very high reliability (data retention, endurance) - High temperature capability up to 170°C
0.35µm	High-Voltage CMOS 3.3/5/20/50/120V	H35	16-32	3-4	•	•	•	•	•	- Modularity with CMOS base process allowing IP reuse - Voltage Scalable Transistors - ESD protection up to 8kV (HBM)
0.35µm	High-Voltage CMOS embedded Flash 3.3/5/20/50/120V	H35EE	26-34	3-4	•	•	•	•	•	- Silicon qualified EEPROM blocks - Very high reliability (data retention, endurance) - High temperature capability up to 170°C
0.35µm	SiGe-BiCMOS 3.3/5/12V	S35	23-32	3-4	•	•	•	•	•	- Lowest noise figures - High Speed and High Voltage transistors - Fully characterized set of high quality passive RF devices

## Fast Prototyping Service (MPW)

Full Service Foundry offers a fast IC prototyping service (Multi Project Wafer service), which combines several designs from different customers onto a single wafer.

### Advantages

- Frequent schedules for all offered process technologies
- Fast and cost-effective prototyping service
- Additional dies, multiple placements, delivery of bare dies or packaged parts (ceramic, plastic, WLCSP)

## Multi Layer Reticles (MLR)

Using MLR, multiple mask levels are placed on a single reticle. This approach reduces the number of masks and results in reduced NRE costs during product development phase as well as mitigated development risks/costs as project funding often depends on 1st prototypes' performance

### Advantages

- Individual start dates
- Moderate NRE due to reduced number of masks
- Increased number of dies (from 6 wafers)
- Optional manufacturing stop prior POLY1 (allows mask redesign)
- Fast manufacturing lead times





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<b>Ижевск</b> (3412)26-03-58	<b>Нижний Новгород</b> (831)429-08-12	<b>Симферополь</b> (3652)67-13-56	<b>Ярославль</b> (4852)69-52-93
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