



**DOLPHIN SEMICONDUCTOR  
EMPOWERS YOUR CREATIVITY**

Dolphin Semiconductor is a leading provider of semiconductor IP solutions, specializing in IP design targeting markets such as Automotive, Industrial, Personal electronics and IoT.

Dolphin's cutting-edge technology IPs in Power management, High-quality Audio, Power metering and Design safety/robustness, allows their thousand customers and partners to accelerate design cycles, fosters faster time-to-market and builds products/solutions that address the challenges of any industries and support a more sustainable world.



**YOUR SALES INTERFACES**

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# IP solutions catalog 2026



## SPIDER IPs: State-of-the art solution for Power Management

As a three-decade leader in Power Management IP, we've tailored solutions to fit your exact design needs, saving you time and resources while accelerating your time-to-market and boosting design productivity.

Power Management IP platform					180nm	55nm	40nm	22nm	12nm	
	V <sub>IN</sub> (V)	V <sub>OUT</sub> (V)	I <sub>OUT</sub>	I <sub>q</sub> (µA)						
DC/DC Buck	SIMO DC/DC Single Input Multiple Outputs	[1.8 - 3.63]	[0.6 - 2.2]	Up to 300 mA	0.64 to 1.5 µA				✓	0
	DC/DC - Low Quiescent (LQ)	[1.62 - 5.5]	[0.5 - 3.3]	100 mA - 1 A	0.35 to 0.37 µA			✓	✓	
		[1.62 - 3.63]	[0.5 - 2.5]		0.29 to 0.37 µA			✓	✓	0
	DC/DC - Mainstream	[1.9 - 5.5]	[0.5 - 3.3]	100 mA - 1 A	80 to 100 µA				✓	
		[2.7 - 5.5]	[0.55 - 3.3]		130 to 187 µA			✓		
DC/DC - Legacy	[1.62 - 3.63]	[0.6 - 3.3]	100 mA - 1 A	75 to 100 µA	✓	✓	✓	✓		
	[1.9 - 4.4]	[0.6 - 3.3]		100 mA - 700 mA	70 to 125 µA	✓	✓			
Combo DC/DC Mainstream DC/DC + LQ LDO	[1.9 - 5.5]	[0.5 - 3.3]	100 mA - 1 A	(sleep) = 0.25 to 0.6 µA (active) = 100 to 130 µA				✓		
	[2.7 - 5.5]	[0.55 - 3.3]		(sleep) = 0.37 µA (active) = 155 µA			✓			
LDO	LDO - High Performances (HP) Fast transient response High PSRR	[1.8 - 5.5]	[0.5 - 3.3]	100 mA - 500 mA	25 to 65 µA			✓	✓	
		[2.7 - 5.5]	[0.55 - 3.3]		40 to 125 µA	✓		✓		
		[1.44 - 1.98]	[0.6 - 1.2]		40 µA				✓	
	LDO - Low Quiescent (LQ)	[1.62 - 3.63]	[0.6 - 2.5]	up to 1 mA	23 to 200 µA			✓	✓	0
		[2.7 - 5.5]	[0.55 - 3.3]		0.37 µA			✓		
		[1.9 - 4.4]	[0.55 - 3.3]		up to 1 mA	0.075 to 0.17 µA	✓	✓		
LDO - Capacitor Less (CL)	[1.62 - 3.63]	[0.5 - 3.3]	up to 2 mA	0.14 to 0.37 µA	✓	✓	✓	✓	0	
	[0.72 - 1.8]	[0.5 - 0.9]		up to 50 mA	7.5 to 12 µA				✓	0
Combo LDO HP LDO + LQ LDO	[2.7 - 5.5]	[0.5 - 2.5]	100 mA - 500 mA	(sleep) = 0.37 µA (active) = 40 µA			✓			
	[1.62 - 3.63]	[0.55 - 2.5]		(sleep) = 0.14 to 0.16 µA (active) = 45 to 75 µA			✓	✓	0	
RTC	RTC (RTL IP)	Core voltage		Accuracy: -2.1 to 1.6 ppm Nominal freq: 32.768 kHz	✓	✓	✓	✓	✓	
Oscillators	32 kHz XTAL	[0.72 - 0.99]		I <sub>q</sub> = 97 to 165 nA - CL = 4 to 12.5 pF Accuracy = ±50 ppm				✓	✓	
		[0.81 - 1.21]		I <sub>q</sub> = 50 to 120 nA // CL = 4 to 7 pF Accuracy = ±50 ppm			✓	✓		
	32 kHz RC	[0.72 - 0.88]	Freq = 32.768 kHz	I <sub>q</sub> = 400 nA // Accuracy (full V & T ranges): ±500 ppm @ 3σ (10 sec max)				0		
		[0.54 - 0.99]		I <sub>q</sub> = 55 to 70 nA Accuracy (after trimming) = ±1.5%				✓	✓	
		[0.495 - 1.21]		I <sub>q</sub> = 70 to 420 nA Accuracy (after trimming) = ±1.5%		✓	✓			
Monitoring & Advanced Regulation	POR-BOR	[1.62 - 3.63]	Monitored (V) = [0-AVD]	13 to 15 µA (continuous operation) < 150 nA (burst operation) < 100 nA (BOR disabled)		✓	✓	✓	0	
		[1.44 - 1.98]		16 µA (continuous operation) < 150 nA (burst operation) < 100 nA (BOR disabled)				✓		
	Adaptative Body Bias	Forward ABB for IOT and Automotive tailored for FDX Ext						✓		
					Full digital IPs Platform down to 3nm					
	On-chip Timing Monitor	In-situ timing-monitor sensor tracking critical-path slack, enabling closed-loop AVS control						✓		
	Configurable Power Controller PowerStudio / Maestro	GUI-based power controller compiler (RTL & C-drivers) - Boot & power sequences						✓		
		GUI-based UPF backbone generator						✓		

0 = Roadmap



## BAT IPs: Amplifying Audio Excellence

For over 30 years, we are leading Audio premium IPs, catering to diverse applications including TWS, Smart speakers, Wearables, IoT, Automotive, and more. Our BAT IP family offers seamless configurability and assembly for high-fidelity, low-power audio devices, ensuring faster time-to-market with robust and advanced IPs.

Mixed signal Voice & Audio IP platform						55nm	40nm	28nm	22nm	12nm	
	Power supply	SNR	THD+N	Input noise	Power consumption						
ΔΣ 24-bit ADC (*)	(*) provided stand-alone or as part of CODEC configuration										
	Voice/audio ADC - Performance	1.8 V +/- 10%	107 dB	-96 dB	3.1 µVrms	Full perf. mode: 250 µA Low power mode: 125 µA			✓		
	Voice/audio ADC - Mainstream+	1.8 V +/- 10%	104.5 dB	-75 dB	2.6 µVrms	Full perf. mode: 550 µA Low power mode: 150 µA			✓		
	Voice/audio ADC - Mainstream	1.8 V +/- 10%	103 dB	-80 dB	3.8 µVrms	Full perf. mode: 550 µA Low power mode: 170 µA				✓	✓
		1.8 V to 3.3 V	106 dB	-80 dB	3.8 µVrms	Full perf. mode: 550 µA Low power mode: 140 µA		✓		✓	
Voice/audio ADC - Legacy	2.7 V to 3.63 V	90 dB	-90 dB	7.7 µVrms	Full perf. mode: 1.7 mA	✓	✓				
	1.8 V +/- 10%	85 dB	-80 dB	8 µVrms	Full perf. mode: 1.7 mA			✓	✓		

Mixed signal Voice & Audio IP platform						55nm	40nm	28nm	22nm	12nm	
	Power supply	SNR	THD+N	Output noise	Power consumption						
ΣΔ 24-bit DAC (*)	(*) provided stand-alone or as part of CODEC configuration										
	Audio DAC + class-D amp. - performance	1.8 V +/- 10%	115 dB	-95 dB	1.78 µVrms	690 µA without signal 800 µA at 0.1 mW			✓	✓	
	Audio DAC + class-AB amp. - Mainstream	1.8 V +/- 10%	116 dB	-90 dB	1.9 µVrms	1,175 µA without load 3.4 mA at 0.1 mW				✓	
		1.8 V to 3.3 V	119 dB	-90 dB	1.9 µVrms	1,175 µA without load 3.4 mA at 0.1 mW				✓	
Audio DAC + class-AB amp. - Legacy	2.97 V to 3.63 V	100 dB	-85 dB	6 µVrms	2,200 µA without load	✓	✓				

Smart Audio IP platform						55nm	40nm	28nm	22nm	12nm
	Input signal	Output signal	Main clock	Power consumption						
VUI	Voice Activity Detection WhisperTrigger	Analog microphone	IRQ upon voice detection	32 kHz RC or 32 kHz crystal	<8 µW @ 40 & 22nm	✓	✓		✓	
		Digital microphone	IRQ upon voice detection	From 6 MHz to 13 MHz	25 µW @ 40 nm	✓	✓	✓	✓	✓
	Audio neuromorphic front end (aMFCC) WhisperExtractor	Analog microphone	MFCC data IRQ upon voice detection	32 kHz RC or 32 kHz crystal	7 µW @ 22 nm				✓	

Digital Audio IP platform						Phase alignment	PLL less filters	Low latency filters	Asynchronous interface
	SNR	THD+N	Main clock	Number of channels					
Digital audio	PDM to PCM converter Digital microphone input	117 dB	-110 dB	12 or 11 MHz or 19.2 MHz 12.288 MHz or 11.2896 MHz	From 1 to 8	✓	✓	✓	✓
	Digital audio DAC PWM	110 dB	-95 dB	12 or 11 MHz or 19.2 MHz 12.288 MHz or 11.2896 MHz	From 1 to 8	✓	✓	✓	✓
	Asynchronous Sample Rate Converter ASRC	114 dB	-114 dB	24 or 26 MHz or 24.576 MHz	From 2 to 8	✓	✓	✓	✓

Phase alignment: Ensure 0° phase mismatch between channels for accurate beamforming.  
PLL-less: Use standard clock available in your system and save an audio PLL.  
Low latency filters: Enable µs latency for applications like ANC or RNC.  
Asynchronous interface: Enable to control your audio codec as asynchronous slave.

Power Metering Single and Tri-phase IP						130nm	40nm
	Power supply	Class	Range	Output data rate	Power and Computation Engine (PCE)		
ΣΔ 24-bit DAC	Mainstream Series	2.8 V to 3.3 V	0,1	Up to 7000	4, 8, 16, 32ksps	Yes	
	Legacy Series	2.8 V to 5.5 V	0,1	Up to 7000	4 ksps	Yes	✓