MERUS™ class D audio solutions

Cooler, smaller and lighter amplifiers for great sounding audio products

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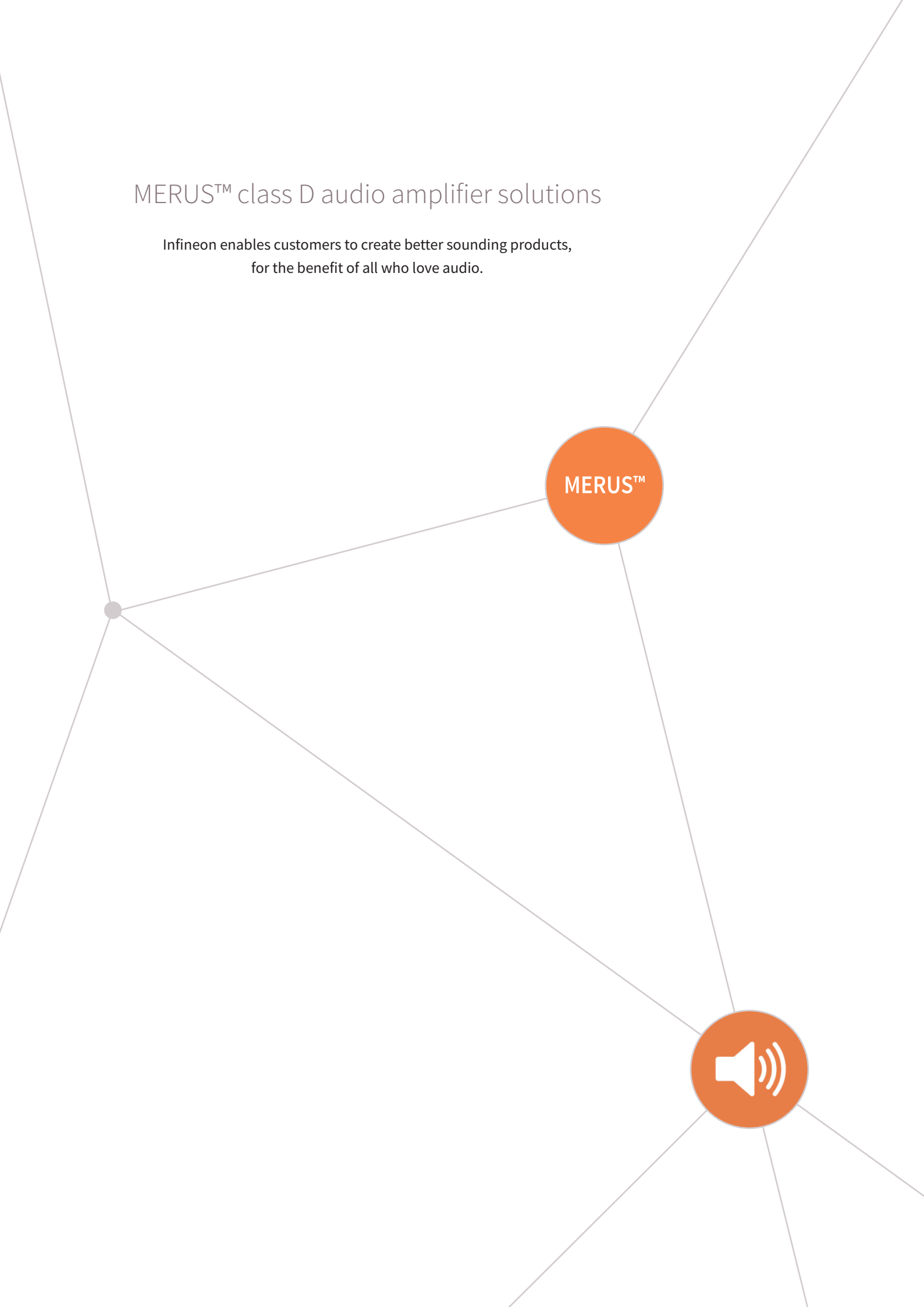
MERUS™ class D audio amplifier solutions

Infineon enables customers to create better sounding products,
for the benefit of all who love audio.



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Infineon's solutions for audio applications

No compromise on quality – products for exceptional audio performance

Hear it, feel it, experience it - it's all about clear sound. MERUS™ products are developed to enable exactly that, relying on a set of three basic principles that audio components:

› must produce sound in the speakers, not heat to its surroundings
› must be heard, not seen; smaller and lighter is better while bulky and heavy is history
› must be robust and flexible, not delicate and demanding

By combining our core principles, competencies, and leadership in groundbreaking power semiconductors with revolutionary audio technologies, such as MERUS™ multilevel class D audio amplifier ICs, we provide solutions that are smaller, lighter, more robust and flexible, running with less heat dissipation.

With patented architectures, proprietary algorithms, advanced manufacturing technologies, as well as elaborate verification and testing, we offer our expertize and partnership to manufacturers aiming to deliver progressive audio products for an unprecedented sound experience.

Design with Infineon's solutions to benefit from:

MERUS™ portfolio of advanced audio amplifier solutions ensures outstanding performance, maximum flexibility, and highest reliability.

Performance

Infineon's MERUS™ amplifier solutions are designed to maximize power efficiency and dynamic range while providing best-in-class audio performance in product form factors that make them an optimal fit for any audio application, in both low (< 40 V) and high voltage (100-600 V) ranges. Having this at hand, our customers are enabled to manufacture heatsink-free and filterless high performance audio products with fewer components, lower total system costs, and longer battery playback time. By utilizing patented IC architectures, proprietary algorithms and sophisticated manufacturing processes, our MERUS™ amplifier ICs provide unsurpassed peak-to-idle-power ratios, best-in-class audio performance and size-optimized solutions.

Flexibility

MERUS™ portfolio addresses a broad range of premium class D audio applications. It includes fully integrated monolithic audio amplifier ICs, multi-chip audio amplifier modules (MCMs) as well as discrete audio amplifier driver IC and power MOSFET solutions, scalable in the output power range from 20 watts to several kilowatts to meet the most stringent and demanding application needs.

Reliability

Thanks to enhanced design and production standards, customers can rely on the robustness of Infineon's MERUS™ amplifiers for complete system stability and reliability over their entire product lifetime. Standardized design processes used by our world-class high-voltage/mixed-signal IC design and verification teams along with extremely high manufacturing and product testing standards result in exceptional product durability and benchmark quality.*

*The MERUS™ MA12070 4–26 V ultraefficient audio amplifier was the first amplifier to receive the "WiSA endorsed" certification in the market (December, 2018)

Audio applications and use cases

Audio amplifier solutions for advanced audio products

MERUS™ audio amplifiers address a wide range of applications in the field of portable/battery powered, home and professional audio applications.

Application overview

Portable/battery powered audio applications	Home audio applications	Professional audio applications
› Battery powered speakers	› Multiroom systems	› Power-over-ethernet (PoE) audio systems
› On-the-go Bluetooth speakers	› Home hubs	› Touring amplifiers
› Docking speakers	› TVs	› Active speakers
› Boom boxes	› Sound bars	› Public announcement 70-100 V systems
› Wearable speakers	› Home theater systems	› Music instrument amplifiers
	› Smart speakers	

Let's innovate! Unleash your creativity and together we can work on your customized design.
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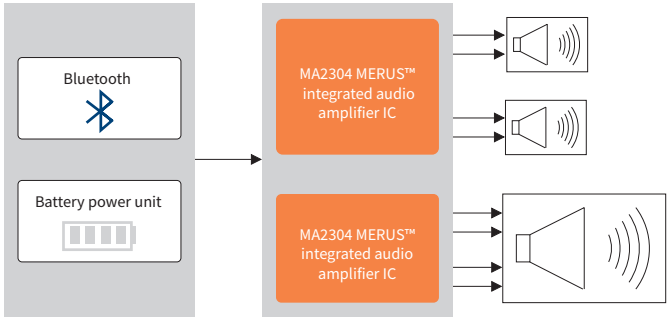
MERUS™ audio amplifiers in portable/battery powered audio

When designing portable/battery-powered audio devices, it is essential to maximize battery playback time, and at the same time, maintain excellent audio performance. Infineon's MERUS™ amplifiers provide up to twice as long battery playback time in combination with the best-in-class audio performance and unsurpassed sound quality.

Solution example: 2.1 configuration (2xBTL + 1xPBTL)



Solution specification
Number of audio channels: 2 bridge-tied load (BTL) and 1 parallel BTL channels
Peak power output: 2x37 W @ 4 Ω, 10% THD and 74 W @ 2 Ω, 10% THD
Featured audio ICs: Ultra low idle power MA2304DNS (integrated DSP) and MA2304PNS (digital volume control and limiter)

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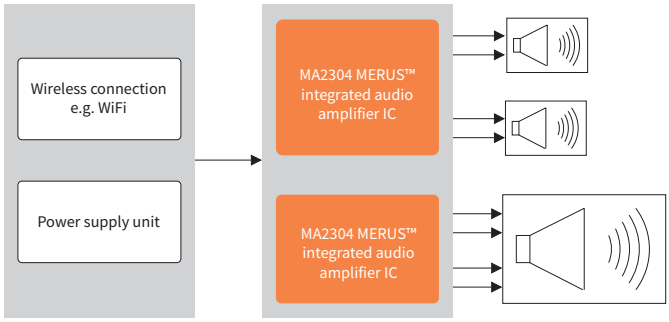
MERUS™ audio amplifiers in home audio

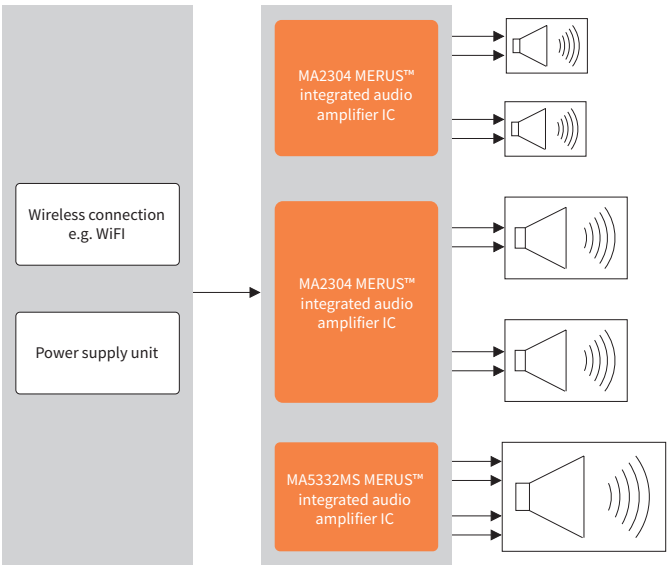
Modern home audio products vary in shapes, sizes and configurations, but common requirement is great sound in combination with outstanding industrial and acoustic design. In addition to producing exceptional sound quality, MERUS™ amplifiers from Infineon can completely eliminate the need for bulky and expensive LC output filters and heatsinks. This allows the design of new innovative and great-sounding home audio products in form factors and shapes that were previously unthinkable.

Solution example: 2.1 configuration (2xBTL + 1xPBTL)



Solution specification
Number of audio channels: 2 bridge-tied load (BTL) and 1 parallel BTL channels
Peak power output: 2x37 W @ 4 Ω, 10% THD and 74 W @ 2 Ω, 10% THD
Featured audio ICs: Ultra low idle power MA2304DNS (integrated DSP) and MA2304PNS (digital volume control and limiter)

4.1 configuration (4xBTL + 1xPBTL)



Solution specification
Number of audio channels: 5 bridge-tied load (BTL)
Peak power output:
4x37 W @ 4 Ω, 10% THD;
400 W @ 8 Ω, 10% THD
Featured audio ICs: MA2304DNS, MA2304PNS, MA5332MS

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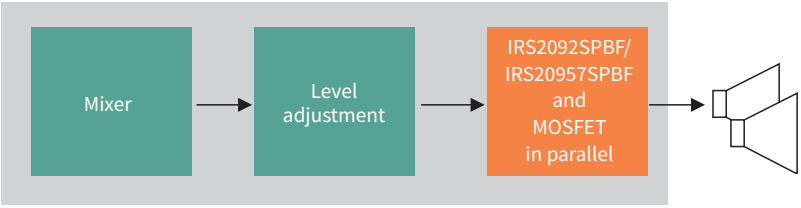
MERUS™ audio amplifiers in professional audio

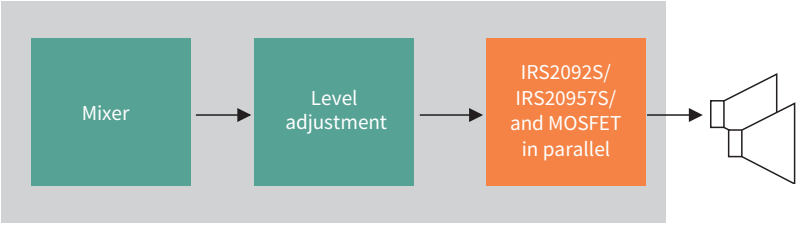
Professional audio equipment is all about maximizing output power and power density. Big, heavy, and not very much energy-efficient professional audio electronics is now history. Infineon's MERUS™ discrete audio amplifier ICs combined with a set of power MOSFETs and GaN HEMTs make it possible to develop both amplifiers and power supply units with great audio performance and high efficiency in a very compact space with smaller parts and reduced BOM count. With these combinations, Infineon is offering to its customers advantageous scalability of output power levels to achieve the sound quality of professional standard - relentlessly perfect.

Solution example: touring amplifiers (one channel)



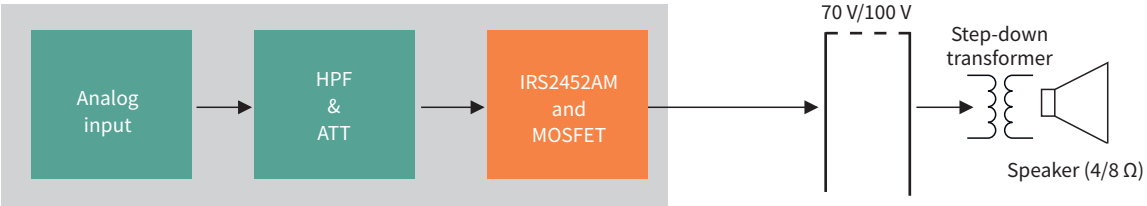
Solution specification
Number of audio channels: 2 half-bridge channels
Peak power output: 3000 W @ 4 Ω, 1% THD
Featured audio ICs: IRS2092SPBF, IRS20957SPBF

Solution example: active speakers



Solution specification
Number of audio channels: 2 half-bridge channels
Peak power output: 500 W @ 4 Ω, 1% THD
Featured audio ICs: IRS2092S, IRS20957S

Solution example: public announcement 70-100 V system



Solution specification
Number of channels: 2 half bridge channels
Peak power output: 500 W, 70 V_{rms}/100 V_{rms}, 1% THD
Featured audio ICs: IRS2452AM

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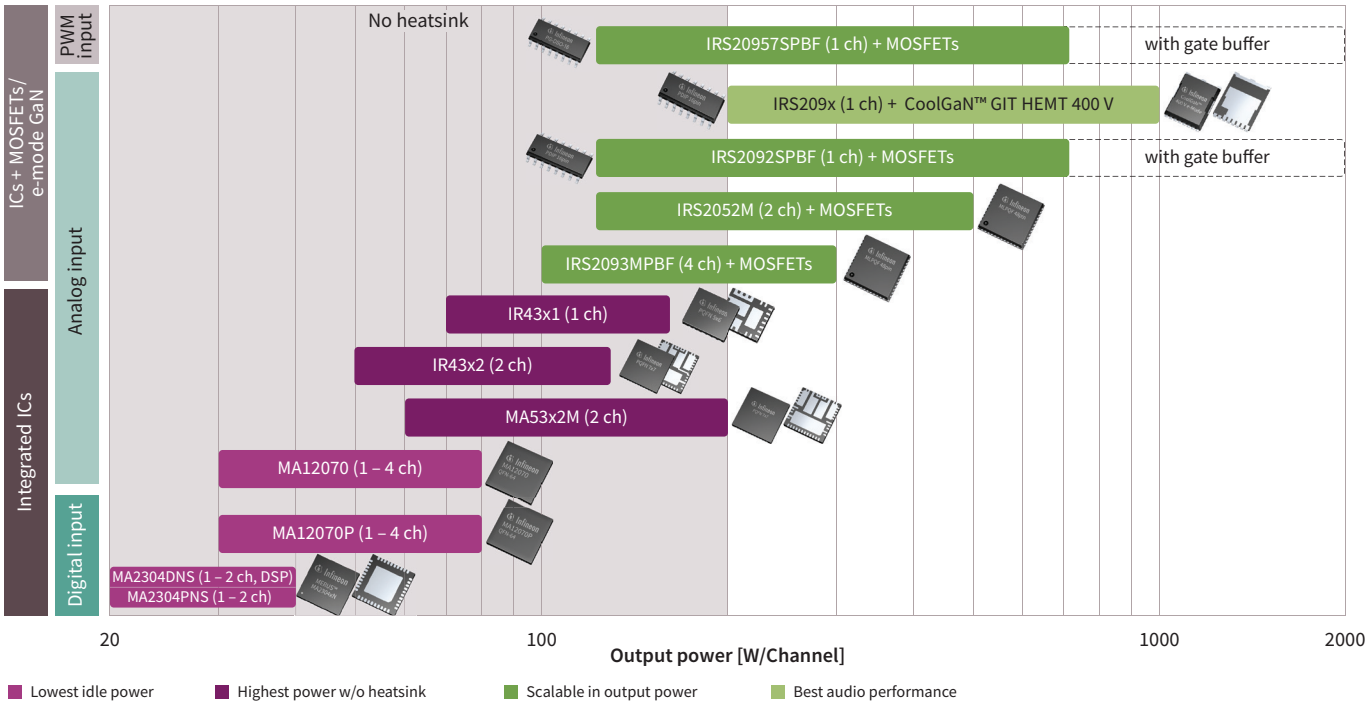
Audio amplifier solutions

Unsurpassed power efficiency and flexibility

Class D audio amplifiers have practically eliminated class A and class B amplifiers for their substantially improved energy efficiency and small form factors, even for high power amplification. In addition, since class D audio amplifiers can reach 0 percent distortion and 100 percent energy efficiency (i.e. an ideal power switch), the class D stage is ideal for providing excellent sound quality with practically negligible thermal design limitations.

MERUS™ class D audio amplifier solutions



Competitive advantage

Infineon's portfolio stretches from fully integrated single-chip audio solutions to discrete audio solutions with highly scalable audio amplifier driver IC and power MOSFET combinations. With MERUS™ as one brand for all class D audio applications, we offer compelling class D audio solutions that are ideally suited for a broad range of class D audio applications with output power levels ranging from 20 W up to over 2000 W per channel. Choose from:

Integrated audio solutions

- MERUS™ integrated multilevel audio amplifier ICs
- MERUS™ integrated audio amplifier multi-chip modules (MCMs)

Discrete audio solutions

MERUS™ discrete audio amplifier driver ICs with

- Power MOSFETs
- CoolGaN™ 400 V e-mode HEMT

MERUS™ evaluation environment

- Integrated multilevel audio amplifier IC evaluation boards
- Integrated audio amplifier multi-chip module (MCM) evaluation boards
- Discrete audio amplifier driver IC and MOSFET evaluation boards
- Discrete audio amplifier driver IC and CoolGaN™ 400 V evaluation board
- Power supply for audio evaluation boards

We help you reduce complexity. The scalability in output power level of MERUS™ products, amongst other features, helps you meet the most stringent and demanding application needs.

Low power audio solutions (<40 V)

Multilevel switching for ultrahigh power efficiency and filterless amplification

MERUS™ low power class D amplifier solutions are tailored for audio applications with voltage classes below 40 V. These monolithic ICs enable optimization of audio systems.

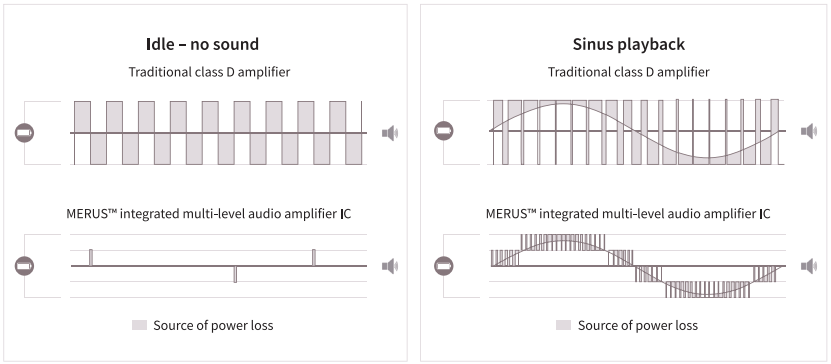
MERUS™ integrated multilevel audio amplifier ICs

With its revolutionary MERUS™ integrated multilevel class D audio amplifier ICs, Infineon is leading in efficiency and power density. Compared to traditional class D amplifier ICs, which produce only two voltage output levels, multilevel amplifier ICs use additional on-chip MOSFETs and capacitors to produce outputs with a higher signal granularity i.e. higher switching frequencies and/or multiple output signal levels - typically up to five voltage levels.

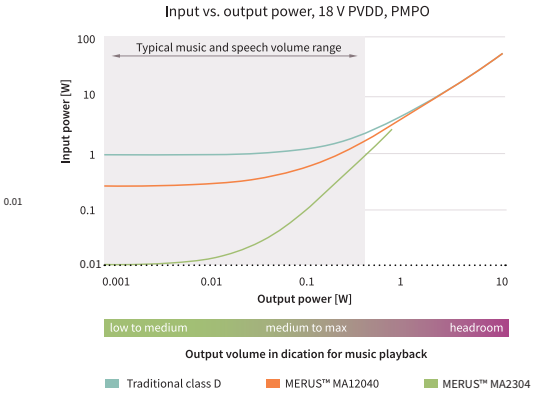
Multilevel switching - technology breakthrough with MERUS™ integrated multilevel audio amplifier ICs
Infineon is the first company to apply the multilevel switching technology to class D audio amplifier products, what positively affects the most important amplifier evaluation parameters: power consumption, solution size, audio performance, electromagnetic interference, and BOM cost. In addition to these, MERUS™ integrated multilevel audio amplifier ICs bring other advantages - such as potential LC filter removal, low THD+N, and cooler operation.

Power consumption advantage
Even in idle and near-idle mode, traditional class D amplifiers continue to have a lot of internal switching activity, which increases power consumption. MERUS™ integrated multilevel audio amplifier ICs use scalable signal "granularity" to keep the power loss extremely low. Due to the proprietary circuits architecture, there is virtually no switching loss measurable in idle mode - one of the parameters where MERUS™ integrated multilevel audio amplifier ICs excel.

Source of power loss: idle vs. playback mode



Audio amplifier efficiency



Traditional class D amplifiers are only efficient at highest music volume levels, with high THD, which renders this quality less useful in practice. In realistic audio playback situations, they consume significantly more input power (~1 W on average) than the second generation of MERUS™ integrated multilevel audio amplifier ICs (~0.06 W).

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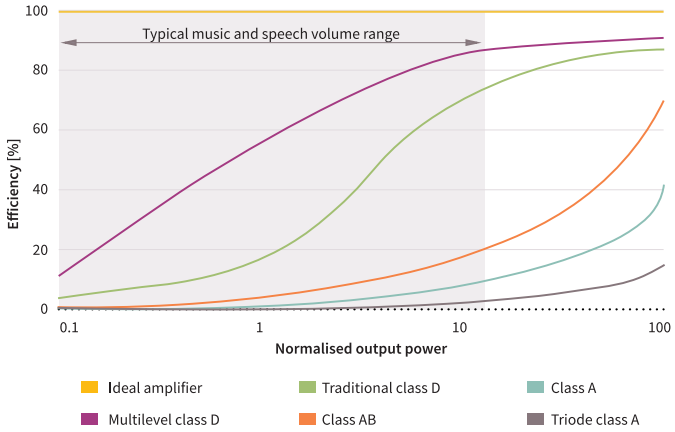
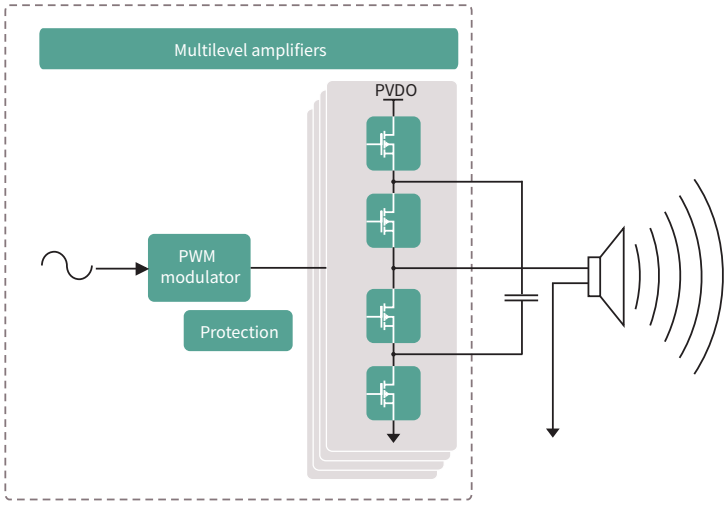
Efficiency where it matters for audio reproduction



For MERUS™ integrated multilevel audio amplifier ICs, amplifier efficiency at average output power is key. As the graph on the left shows, MERUS™ multilevel amplifier is much more effective than the traditional class D amplifier, which translates into less power consumption in AC input and in battery powered audio applications.

Filterless topology with “flying capacitor” of an integrated class D IC



MERUS™ Gen1 and Gen 2 integrated multilevel audio amplifier IC product portfolio

		MA2304DNS	MA2304PNS	MA12070	MA12070P
Specifications	Number of audio channels	2xBTL		2xBTL	2xBTL
	Max. peak power @ 4 ohm 10% THD	2x37 W		2x80 W	2x80 W
	Supply voltage	10-20 V		4-26 V	4-26 V
	3-level and 5-level modulation	√	√	✓	✓
	Max. PWM frequency				726 kHz
	Selectable power mode profiles	Low power consumption (LPC) or high audio performance (HAP)			
	Audio input	Digital		Analog	Digital
	HiRes audio compliant	I²S/TDM			✓
	Volume and dynamic range control	√	√		✓
	Idle power dissipation Max. output and all channels switching	52 mW (LPC mode)		<160 mW	<400 mW
	Audio performance (PMP2)	106 dB DNR 52 µVrms output noise <0.03% THD+N		>110dB SNR 45 µV output integrated 0.004% THD+N	101dB SNR 140 µV output noise 0.007% THD+N
Features	Sample rates	32, 44.1, 48, 88.2, 96, 176.4, 192 kHz			
	Comprehensive protection scheme*	√	√	✓	✓
	Configurable for SE or PBTL operation	√	√	✓	✓
	I2C communication	√	√	✓	✓
	Filterless implementation	√	√	✓	✓
	Package type	40-pin QFN package with exposed thermal pad		64-pin QFN package with exposed thermal pad	64-pin QFN package with exposed thermal pad
	Evaluation boards	EVAL_AUDIO_MA2304DNS	EVAL_AUDIO_MA2304PNS	EVAL_AUDIO_MA12070	EVAL_AUDIO_MA12070P

*All ICs carry a full protection scheme comprising undervoltage lockout, overtemperature warning/error, short circuit/overload protection, power stage pin-to-pin short circuit, error reporting through serial interface (I2C), and DC protection

High power audio solutions (100–600 V)

Integrated and discrete components for scalable output power and superb audio performance

MERUS™ high power solutions address audio applications in the voltage range from 100 V to 600 V. The offering covers both integrated audio solutions, with MERUS™ integrated multi-chip modules (MCMs), and discrete solutions, with discrete audio amplifier driver ICs, power MOSFETs and e-mode HEMTs.

MERUS™ integrated audio amplifier multi-chip modules (MCMs)

Multi-chip modules integrate PWM controller and power MOSFETs in a single package to offer a highly efficient, compact solution that reduces component count, shrinks PCB size up to 70 percent, and simplifies class D amplifier design.

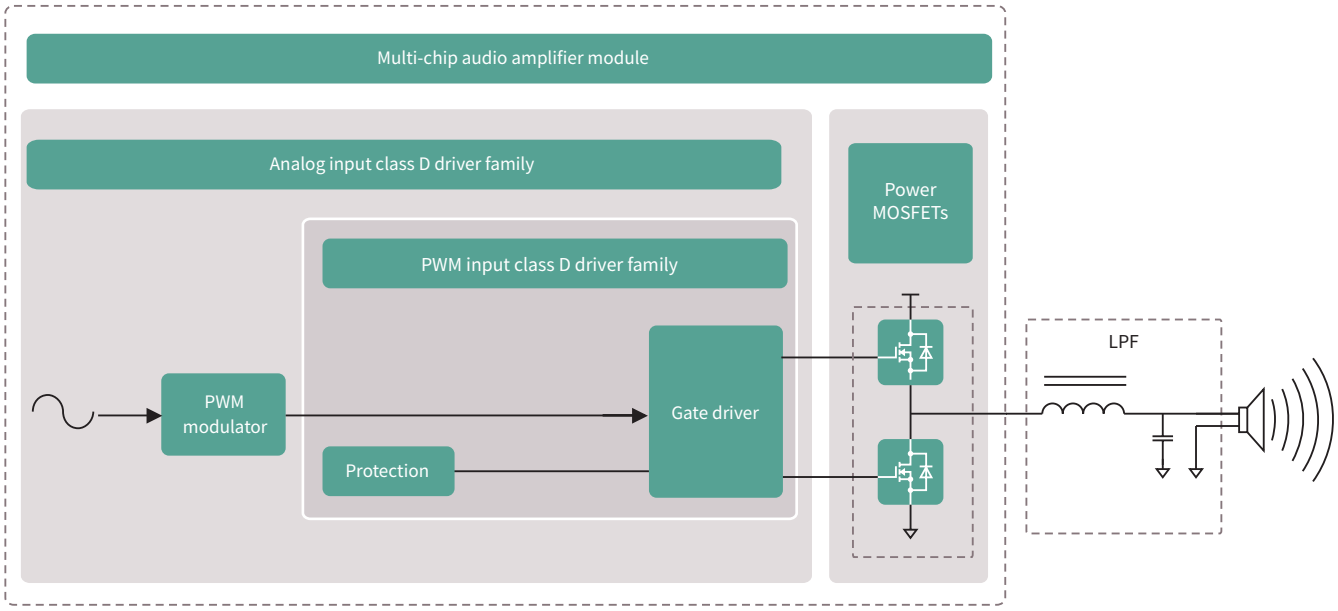
Key advantages

- Single package with integrated PWM controller and audio-performance-optimized power MOSFET
- Overcurrent protection
- Thermal shutdown
- Floating differential input
- Clip detection
- Best-in-class power efficiency and audio performance
- Lower component count, leading to design simplification
- Compatible with single supply or split rail configuration
- Click noise reduction

Key benefits

- Extended battery playback time
- Unrivalled audio performance
- Smaller solution size (BOM reduction, system level cost savings)
- Eliminated need for heatsink
- High noise immunity
- Reliable operation
- Thermal efficiency

Multi-chip audio amplifier module



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MERUS™ integrated audio amplifier multi-chip modules (MCMs)

		IR4301M	IR4321M	IR4302M	IR4322M	MA5332MS
Specifications	Number of audio channels	1	1	2	2	2
	Max. power per channel	160 W	90 W	130 W	100 W	200 W
	Supply voltage	~ ± 31 V or 62 V	~ ± 25 V or 50 V	~ ± 31 V or 62 V	~ ± 25 V or 50 V	~ ± 23 V or 40 V
	Max. PWM frequency	500 kHz	500 kHz	500 kHz	500 kHz	500 kHz
Features	Differential audio input	✓	✓	✓	✓	✓
	Overcurrent protection	✓	✓	✓	✓	✓
	Integrated power MOSFET	✓	✓	✓	✓	✓
	Voltage	80 V	60 V	80 V	60 V	100 V
	PWM controller	✓	✓	✓	✓	✓
	Thermal shutdown	✓	✓	✓	✓	✓
	Click noise reduction	✓	✓	✓	✓	✓
	Clip detection			✓	✓	✓
	Package type	5x6 mm QFN	5x6 mm QFN	7 x 7 mm QFN	7 x 7 mm QFN	7 x 7 mm QFN
	Evaluation boards	IRAUDAMP12 IRAUDAMP19	IRAUDAMP21	IRAUDAMP16 IRAUDAMP17	IRAUDAMP22	EVAL_AUDAMP25

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MERUS™ discrete audio amplifier driver ICs

Infineon's MERUS™ discrete audio amplifier driver IC portfolio and accompanying assortment of power MOSFETs and GaN HEMTs, optimized for class D audio applications, enable audio system manufacturers to more efficiently design products with superior audio performance and higher reliability in smaller footprint.

Benefits

- Unified design platform
- Scalable output power up to over 2 kW per channel
- Simple yet effective - exchange of external MOSFET triggers alteration in output power level
- Best-in-class power efficiency

Key values

- Superior audio performance
- Increased reliability
- Unique audio experience

MERUS™ discrete audio amplifier driver IC product portfolio

		IRS20957SPBF	IRS2092SPBF	IRS2052M	IRS2093MPBF	IRS2452AM
Specifications	Number of audio channels					
	Max. power per channel	500 W	500 W	300 W	300 W	500 W
	Supply voltage	± 100 V	± 100 V	± 100 V	± 100 V	± 200 V
	Gate sink/source current	1.2/1.0 A	1.2/1.0 A	0.6/0.5 A	0.6/0.5 A	0.6/0.5 A
Features	Overcurrent protection	✓	✓	✓	✓	✓
	Overcurrent flag					
	PWM input	✓				
	Floating input	✓	✓	✓	✓	✓
	Dead time	✓	✓	✓	✓	✓
	Protection control logic	✓	✓	✓	✓	✓
	PWM controller		✓	✓	✓	✓
	Clip detection			✓		
	Click noise reduction		✓	✓	✓	✓
	Temperature sensor input			✓		✓
	Thermal shutdown			✓		
	Clock input			✓		✓
	Package type	16-pin SOIC narrow	16-pin SOIC narrow	MLPQ48	MLPQ48	MLPQ32
	Evaluation boards	IRAUDAMP4A IRAUDAMP6	IRAUDAMP5 IRAUDAMP7S IRAUDAMP7D IRAUDAMP9	IRAUDAMP10	IRAUDAMP8	IRAUDAMP23

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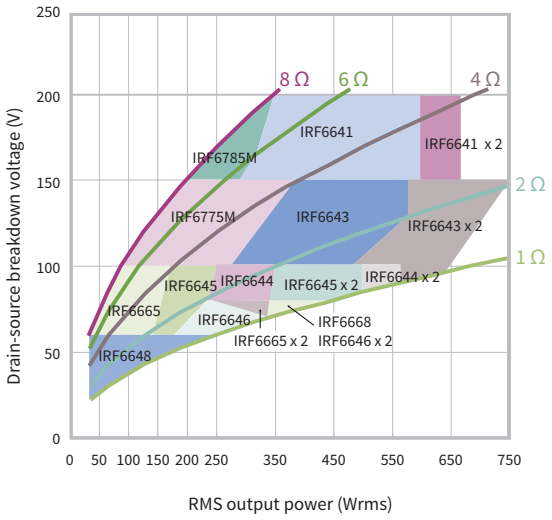
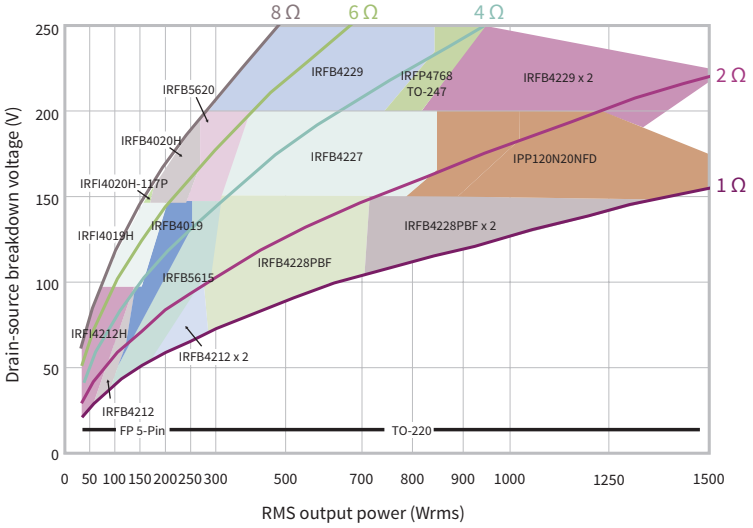
Recommended power MOSFETs

For class D audio amplifier applications, Infineon is offering power MOSFETs optimized to contribute to high efficiency and improved audio performance. The same audio amplifier driver IC can be used with a variety of MOSFETs making it scalable to various output power levels. Replacing the external MOSFET with a matching one is enough to trigger an alteration in the chipset output power level. The extensive range of MOSFETs (Through-hole, DirectFET™) addresses key parameters, such as on-state resistance ($R_{DS(on)}$), gate charge (QG), and reverse recovery charge (Q_{rr}), with the purpose of maximizing efficiency, THD, and EMI.

DirectFET™ voltage vs. audio output power



Through-hole MOSFET voltage vs. audio power



Recommended MOSFET (through-hole) product portfolio

Output power	Recommended driver IC	Speaker resistance		
		2 Ω	4 Ω	8 Ω
150 W	IRS2093MPBF	IRFB4019	IRFB4019	IRFI4020H-117P
200 W	IRS2052M	IRFB5615	IRFB4019	IRFI4020H-117P
300 W	IRS2092SPBF	IRFB4228PBF	IRFB4227	IRFB4229
500 W	IRS20957SPBF	IRFB4228PBF	IRFB4227	IRFB4229
750 W		IRFB4227	IRFB4229	
1000 W		IRFP4668	IRFB4229 x 2	

IRS2093MPBF works up to 150 W and IRS2052M works up to 300 W. IRS2092SPBF and IRS20957SPBF work with all power levels listed above.

Recommended MOSFET (DirectFET™) product portfolio

Output power	Recommended driver IC	Speaker resistance		
		2 Ω	4 Ω	8 Ω
150 W	IRS2093MPBF	IRF6645	IRF6665	IRF6775M
200 W	IRS2052M	IRF6646	IRF6775M	IRF6775
300 W	IRS2092SPBF	IRF6644	IRF6775M	IRF6785
500 W	IRS20957SPBF	IRF6643	IRF6641	

IRS2093MPBF works up to 150 W and IRS2052M works up to 300 W. IRS2092SPBF and IRS20957SPBF work with all power levels listed above.

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CoolGaN™ 400 V e-mode HEMT for audio solutions

Gallium nitride (GaN) is a material driving the next generation of power semiconductor products such as high electron mobility transistors (HEMTs). GaN has a much higher critical electrical field density allowing very low on-resistance. Very high electron mobility enables small die size, therefore, small input and output capacitances in the device, which makes GaN HEMTs great for high speed switching.

The CoolGaN™ 400 V enhancement-mode (e-mode) HEMT offering is built around class D audio requirements in a high performing SMD package to fully exploit the benefits of GaN. Class D audio amplifiers offer 0 percent distortion and 100 percent efficiency. The decrease of the actual number depends on how close the PWM is to an ideal waveform shape and how great power loss is in the device. The zero reverse recovery charge in the body diode and very small linear input and output capacitances from Infineon's CoolGaN™ technology allow switching waveforms to be close to an ideal switch device.

CoolGaN™ 400 V e-mode HEMT benefits in class D amplifiers

› Efficient - best FOM of 400 V power devices
› Very low noise - zero reverse recovery charge enables quiet hard switching
› Small and linear C_{oss} narrows deadtime window for better THD
› Easy-to-use - compatible with class D audio control ICs

Recommended CoolGaN™ 400 V e-mode HEMT product offering

	CoolGaN™ 400 V e-mode HEMT	Recommended discrete audio amplifier driver IC
Package	HSOF-8-3 (TO-leadless)	IRS20957SPBF
$P_{max.}$	Up to 200 W	
$R_{DS(on)\ max.}$	70 mΩ	
OPN	IGT40R070D1 E8220	

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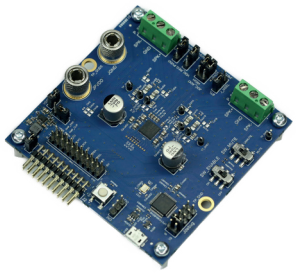
Amplifier

Recommended audio evaluation boards

Enabling fast time to market and device performance evaluation

MERUS™ portfolio of advanced class D audio amplifiers is accompanied with a variety of evaluation boards, for both integrated and discrete solutions, at both low and high power levels. These boards allow designers to evaluate the performance of the amplifier ICs within their system. Via our evaluation environment, products are developed faster, resulting in shorter time to market.

MERUS™ integrated multilevel audio amplifier IC evaluation boards

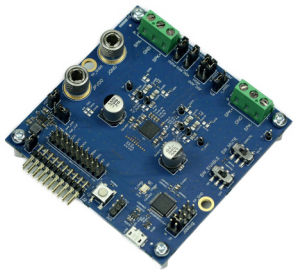


EVAL_AUDIO_MA2304DNS

The demonstration board EVAL_AUDIO_MA2304DNS is an evaluation and demonstration board for MERUS™ audio MA2304DNS. It contains a digital input and a variety of output and setup/selection features. It also contains an on-board power supply generator (selectable 1.8 or 3.3 V buck-converted) so only one external power supply (PVDD) is necessary. It can be controlled and programmed with its software GUI.

The board can be used for evaluating or demonstrating key features/advantages of the MERUS™ technology:

- Energy efficiency: power losses at typical audio listening levels/ultralow idle power consumption
- Adaptive power management system
- Minimum output filter components: significant cost and size reduction
- THD performance and audio quality
- Integrated MERUS™ DSP



EVAL_AUDIO_MA2304PNS

The demonstration board EVAL_AUDIO_MA2304PNS is an evaluation and demonstration board for MERUS™ audio MA2304PNS. It contains a digital input and a variety of output and setup/selection features. It also contains an on-board power supply generator (selectable 1.8 or 3.3 V buck-converted) so only one external power supply (PVDD) is necessary. It can be controlled and programmed with its software GUI.

The board can be used for evaluating or demonstrating key features/advantages of the MERUS™ technology:

- Energy efficiency: power losses at typical audio listening levels/ultralow idle power consumption
- Adaptive power management system
- Minimum output filter components: significant cost and size reduction
- THD performance and audio quality
- Integrated volume and limiter processors

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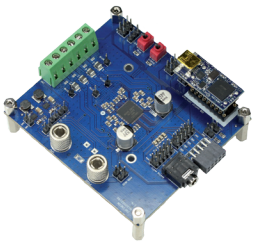
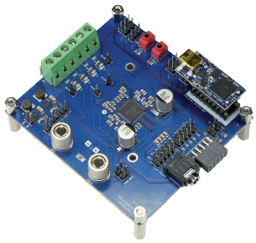


EVAL_AUDIO_MA12070_B
Number of audio channels:
2 channels BTL or
1 channel PBTL or
2 channels SE + 1 BTL or
4 channels SE
Output power per channel (2xBTL, Peak, 10% THD, 4 Ω):
2x 80 W
Featured module IC: MA12070
Input: Analog
OPN:
EVAL_AUDIO_MA12070_B



EVAL_AUDIO_MA12070P_B
Number of audio channels:
2 channels BTL or
1 channel PBTL or
2 channels SE + 1 BTL or
4 channels SE
Output power per channel (2xBTL, Peak, 10% THD, 4 Ω):
2x 80 W
Featured module IC: MA12070P
Input: Digital
OPN:
EVAL_AUDIO_MA12070P_B

KIT_ARDMKR_AMP_40W

Kit board MA12070P audio amplifier - compatible with Arduino MKR boards

Summary of features

- Equipped with MERUS™ MA12070P proprietary multilevel amplifier
- Power input: 5 V/2.5 A - sourced from the same single USB-C power supply or battery pack
- No need for external or extra power supplies
- Up to 40 W instantaneous peak output power with a USB-C power supply or battery pack

Benefits

- Compatible with Arduino MKRZERO and MKR1000 WIFI
- Full hardware control and customization
- Error monitoring through Arduino programming framework

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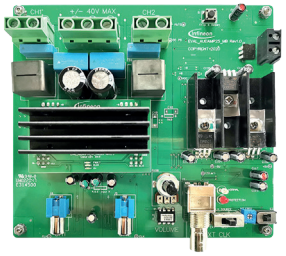


EVAL_AUDAMP25

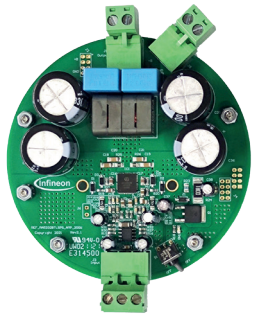
Number of audio channels: 2
Output power per channel [RMS]: 200 W
Featured class D IC: MA5332MS
Input: analog
OPN: EVALAUDAMP25TOBO1

Summary of features

- Output power: 200 W x 2 channels (10 percent THD+N, 4 Ω at ±36.5 V)
- Multiple protection features:
  - Over-Current Protection (OCP), high-side and low-side
  - Over-Voltage Protection (OVP)
  - Under-Voltage Protection (UVP), high-side and low-side
  - DC Protection(DCP)
  - Over-Temperature Protection (OTP)
- PWM modulator:
  - Self-oscillating half-bridge topology with optional clock synchronization

Benefits

- Split power supply
- SE/BTL/PSE output
- High audio quality
- Low noise
- High efficiency



REF_MA5332BTLSPS

Number of audio channels: 1
Output power per channel [RMS]: 200 W
Featured class D IC: MA5332MS
Input: analog
OPN: REFMA5332BTLSPSTOBO1

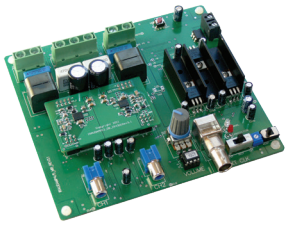
Summary of features

- Output power:
  - 200 W x 1 channels (10 percent THD+N, 4 Ω at 40 V)
- Multiple protection features:
  - Over-Current Protection (OCP), high-side and low-side
  - Over-Temperature Protection (OTP)
- PWM modulator:
  - Self-oscillating half-bridge topology with optional clock synchronization

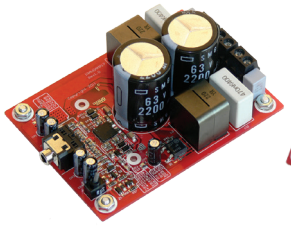
Benefits

- Single power supply
- Full-bridge output
- High audio quality
- Low noise
- High efficiency

MERUS™ integrated audio amplifier multi-chip module (MCM) evaluation boards

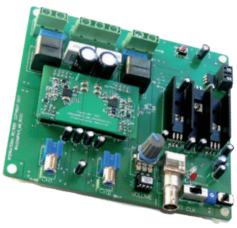


IRAUDAMP12
Number of audio channels: 2
Output power per channel [RMS]: 130 W
Featured class D IC: IR4301M
Input: Analog
OPN:

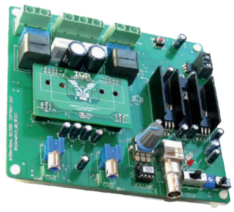


IRAUDAMP17
Number of audio channels: 2
Output power per channel [RMS]: 100 W
Featured class D IC: IR4302M
Input: Analog
OPN:

IRAUDAMP19
Number of audio channels: 2
Output power per channel [RMS]: 100 W
Featured class D IC: IR4301M
Input: Analog
OPN:

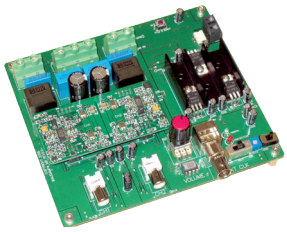


IRAUDAMP21
Number of audio channels: 2
Output power per channel [RMS]: 135 W
Featured class D IC: IR4321M
Input: Analog
OPN:



IRAUDAMP22
Number of audio channels: 2
Output power per channel [RMS]: 100 W
Featured class D IC: IR4322M
Input: Analog
OPN:

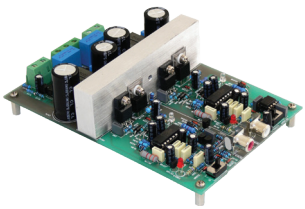
Discrete MERUS™ audio amplifier driver IC and MOSFET evaluation boards



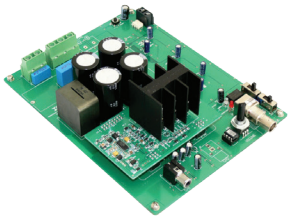
IRAUDAMP4A
Number of audio channels: 2
Output power per channel [RMS]: 120 W
Featured driver IC: IRS20957S
Featured MOSFET: IRF6645TRPbF
OPN:

IRAUDAMP5
Number of audio channels: 2
Output power per channel [RMS]: 120 W
Featured driver IC: IRS2092S
Featured MOSFET: IRF6645TRPbF
OPN:

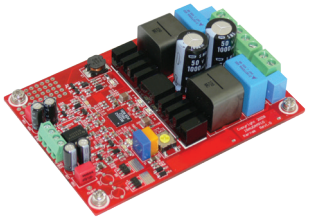
IRAUDAMP6
Number of audio channels: 2
Output power per channel [RMS]: 250 W
Featured driver IC: IRS20957S
Featured MOSFET: IRF6785MTRPbF
OPN:



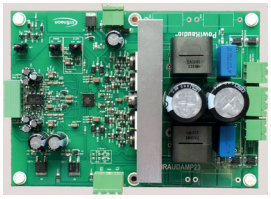
IRAUDAMP7S
Number of audio channels: 2
Output power per channel [RMS]: 500 W
Featured driver IC: IR-S2452AM
Featured MOSFET: IRFI4019H-117P
OPN:



IRAUDAMP9
Number of audio channels: 1
Output power per channel [RMS]: 1700 W
Featured driver IC: IRS2092S
Featured MOSFET: IRFB4227PbF
OPN:



IRAUDAMP10
Number of audio channels: 2
Output power per channel [RMS]: 370 W
Featured driver IC: IRS2052M
Featured MOSFET: IRF6775MTRPbF
OPN:



IRAUDAMP23
Number of audio channels: 2
Output power per channel [RMS]: 500 W
Featured driver IC: IRS2452AM
Featured MOSFET: IPP60R180C7
OPN:

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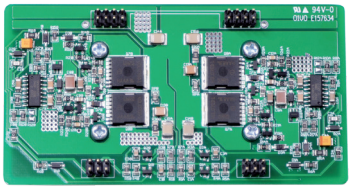
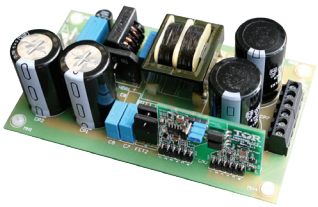
Discrete audio amplifier driver IC and CoolGaN™ 400 V evaluation board



EVAL_AUDAMP24
Number of audio channels: 2
Output power per channel [RMS]: 200 W
Featured driver IC: IRS20957SPBF
Featured HEMT: IGT40R070D1 E8220
OPN: EVAL_AUDAMP24

Power supply units for audio evaluation boards

IRAUDPS1
Input voltage: 12 V_{DC}
Output voltage: ± 35 V
Output power per channel [RMS]: 100 W
Featured driver IC: IR2085S
Description: 250-1000 W scalable audio power supply
OPN: IRAUDPS1



IRAUDPS3
Input voltage: 110/220 V_{AC}
Output voltage: ± 30 V
Output power per channel [RMS]: 200 W
Featured driver IC: IRS27952
Description: Power supply for class D audio amplifier
OPN: IRAUDPS3

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