

NAU83G60YG Smart Amplifier with **KLIPPEL** CONTROLLED SOUND

Introduction

NAU83G60YG is a stereo 2 x 30W smart amplifier with integrated low latency advanced Audio DSP running the **KCS (KLIPPEL Controlled Sound)** nonlinear adaptive speaker control algorithm. KCS provides highly accurate mechanical and thermal speaker protection, while the nonlinear control system reduces harmonic and intermodulation distortion generated by speaker nonlinearities. Thanks to active DC compensation, the voice coil can be operated at its ideal rest position for maximum bass output. NAU83G60YG voltage and current sensing enable continuous identification of speaker parameters. Hence, parameter variations caused by aging, production variances or climate changes can be compensated.

While conventional linear speaker protection algorithms perform worst when it matters the most – at high amplitudes – this is where **NAU83G60YG** truly shines. Its unique feature-set allows operating speakers safely at their physical limits. This enables increased loudness and deeper bass with higher sound quality for consistent best-in-class performance.

Key Features

Powerful Stereo Class-D Amplifier

- Stereo 30W Output Power @ 4Ω load, < 10% THD+N, 24V
- Mono 30W Output Power in PBTL mode @ 2Ω load, < 10% THD+N, 12V
- 0.125% THD+N @ 8 Ω Load, 1W Output Power
- Operating Voltage, V_{BAT} : 8V ~ 24V

High-Quality Audio

- 2 x 15-band PEQs
- Crossover and Audio Mixer for Ultrasonic Bypass Mode
- Up/ Down Sampling Converter

Battery Limiter Control

- Automatic Level Control (ALC) and Under Voltage Lockout Prevention (UVLOP)

Audio Data/Control/Clock Interface

- High Speed I2C mode (up to 1 Mbps)
- I2S/PCM/TDM (up to 8 channels & 192 KHz Sampling)

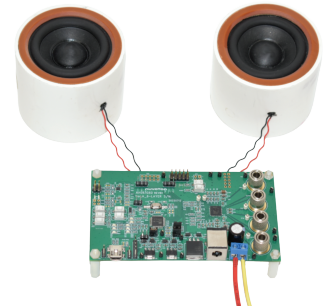
Klippel Controlled Sound (KCS) Algorithm

- Overload Protection (Mechanical and Thermal)
- Linearization (Stabilization and Speaker Distortion Compensation)
- Adaptive speaker alignment
- Output Power and Voltage Limiter
- Optimal Voice Coil Rest Position
- Real-time Speaker Diagnostic Data
- Low latency operation for active noise control
- Linearized echo cancellation reference signal

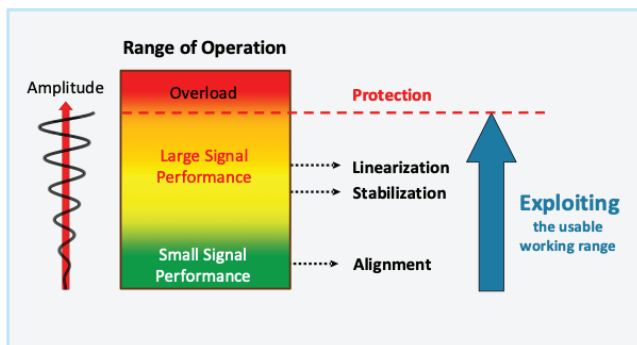
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Applications

- Automotive & ANC
- Notebooks / PC / All-in-One
- TV / Soundbar
- Wireless / Smart / Active Speakers

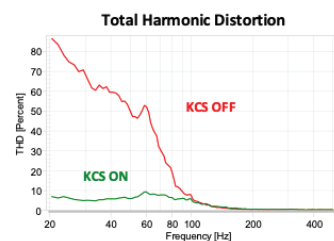


KCS Benefit



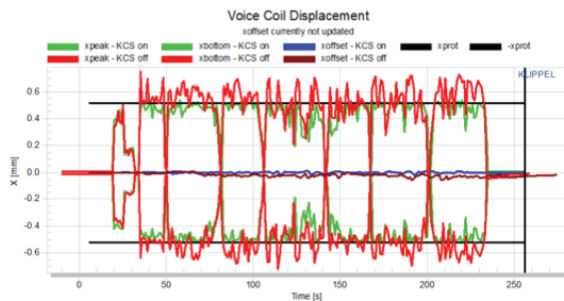
High Sound Quality

- Speaker distortion compensation



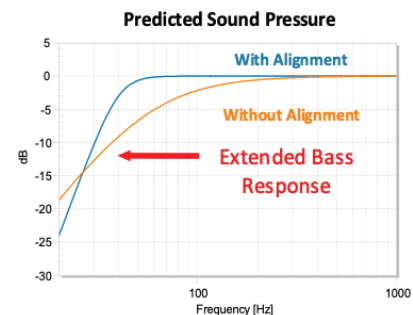
Maximum Output, High Robustness

- Overload protection and stabilization



Automatic Adaptive Alignment

- More bass
- Consistent response over product life



Benefits for active sound applications

- **Active Noise Control:** Delivers powerful low-frequency performance from compact speakers with stable acoustic response, advanced distortion compensation, and ultra-low-latency processing optimized for next-generation ANC systems.
- **Active Echo Cancellation:** Reduces loudspeaker distortion to improve AEC accuracy. Provides a linearized AEC reference signal enabling more reliable barge-in interaction, wake-word detection, and voice recognition performance.

