

## High-reliability audio amplifiers for automotive infotainment, alert tones and multi-channel systems

### Product Positioning

Automotive audio amplifiers focus on wide operating voltage, load diagnostics, load-dump protection, low EMI and high reliability. They are suitable for car audio, hands-free systems, alert tones, smart cabins and in-vehicle entertainment systems.

### Core Value

- Automotive load diagnostics can detect open load, short load and no-load conditions for system protection.
- Multi-channel output covers single, dual and four-channel automotive audio architectures.
- Design focus includes load dump, EMI, protection functions and long-term stability.
- Digital-input options can connect easily with automotive SoCs, DSPs or audio processors.

### Representative Models / Directions

Model	Function / Spec Summary	Suitable Scenario
<b>ACM9631 / ACM9632</b>	Automotive audio amplifier series	Single/dual-channel alert tone...
<b>ACM9634-Q1</b>	I2S/TDM input, 4.5 V-26.4 V, supports 40 V load dump	4 x 75 W four-channel...
<b>Load Diagnostics</b>	Short-to-battery, short-to-ground, speaker open/short detection	Improves protection...
<b>Dynamic Boost</b>	Improves system efficiency and output dynamics	Suitable for higher SPL...

### Typical Applications

Car Audio

Smart Cabin

Hands-Free Audio

Alert Tones

Infotainment

Comfort-System Alerts

### Customer Visit Talking Points

- For automotive projects, first ask whether load dump, load diagnostics and low EMI are required.
- If the existing solution lacks channels, introduce four-channel or multi-channel amplifier options.
- If customers emphasize safety and reliability, highlight load diagnostics and protection functions.

### Selection Checklist

- Confirm automotive grade, qualification and PPAP / quality documentation needs
- Confirm channel count, target power and speaker impedance
- Confirm input interface: I2S / TDM / analog
- Confirm load dump, short protection and diagnostic requirements

### Recommended Sales Scenarios

- The customer project matches the typical applications in this category.
- The existing design has heat, noise, EMI, battery-life or BOM-complexity issues.
- The customer wants local alternatives, shorter debugging cycles or technical support.
- Use "model + application + pain point" to quickly narrow down a product direction.

### Customer Requirement -> Recommended Direction

Customer Pain Point	Key Questions	Recommended Approach
Insufficient output power / SPL	Speaker impedance, target THD+N, supply voltage	Select from Automotive Audio Amplifiers by power class
Heat or battery-life issue	Battery cell count, playback time, heat-dissipation area	Consider Class-H / high efficiency / boost collaboration
Design-in risk	Package, lead time, software/debug support	Recommend mature models + demo + reference design first