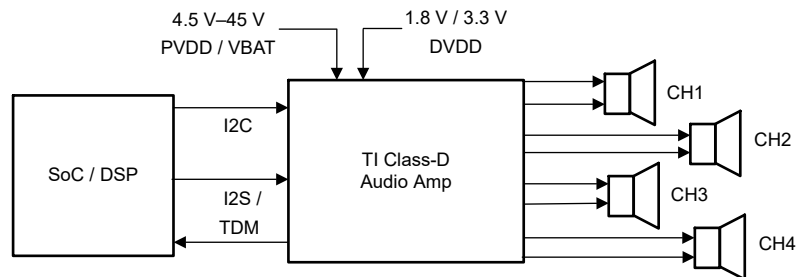


# Automotive Class-D Audio Amplifiers



Automotive audio system designers are looking for comprehensive features to meet the requirements of their next-generation audio systems. Automotive-grade Class-D audio amplifiers can be used to provide high system efficiency, scalable input-supply voltages, high output current, load diagnostics, and a complete suite of protection features to help easily meet these requirements.



**Class-D Audio Amplifier Diagram**

## Design Considerations

- Supply voltage and output current capabilities to the drive speaker load at the desired output power
- Number of speakers (channel count) and design scalability using pin-to-pin compatible devices
- Customer-requested automotive diagnostics and protection features. See the [Automotive audio diagnostics and protection](#) video series and the [Real-Time Load Diagnostics](#) application brief to learn more.
- Size constraints including Printed Circuit Board (PCB) area and heat-sink size

Input Type	Maximum Operating Voltage	Part Number <sup>(1)</sup>	Channel Count	Output Current per Channel	Features
Digital	45 V	<a href="#">TAS6584-Q1</a>	4	10 A	480 kHz or 2 MHz Fsw, Real-time Load Diagnostics, Standby AC and DC Diagnostics, Current Sense, Class-H Control, Low Latency path, advanced EMI features
	26.4 V	<a href="#">TAS6424E-Q1</a>	4	7.2 A	2 MHz Fsw, Standby AC and DC Diagnostics, advanced EMI features
		<a href="#">TAS6422E-Q1</a>	2	6.5 A	2 MHz Fsw, Standby AC and DC Diagnostics, advanced EMI features
		<a href="#">TAS6424-Q1</a>	4	6.5 A	2 MHz Fsw, Standby AC and DC Diagnostics
		<a href="#">TAS6422-Q1</a>	2	6.5 A	2 MHz Fsw, Standby AC and DC Diagnostics
		<a href="#">TAS6421-Q1</a>	1	6.5 A	2 MHz Fsw, Standby AC and DC Diagnostics
	18 V	<a href="#">TAS6424M-Q1</a>	4	6.5 A	2 MHz Fsw, Standby AC and DC Diagnostics
		<a href="#">TAS6424L-Q1</a>	4	4.8 A	2 MHz Fsw, Standby AC and DC Diagnostics
Analog	18 V	<a href="#">TPA6304-Q1</a>	4	6.5 A	2 MHz Fsw, Standby AC and DC Diagnostics, advanced EMI features
		<a href="#">TPA6404-Q1</a>	4	6.5 A	2 MHz Fsw, Standby AC and DC Diagnostics

(1) For more devices, browse through the [online parametric tool](#) where you can choose between the three types of translators.

For additional assistance, ask questions to TI audio engineers on the [TI E2E™ Audio Support Forum](#).

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