



**THE DATASHEET OF  
D2-92683-QR-T**





## D2-92683

# Intelligent Digital Amplifier and Sound Processor

## Key Features

- Advanced DAE-3™ Digital Audio Engine™ IC Family
- DAE-3™ Pin Compatible and Function/Feature Compatible with the D2Audio™ DAE-6™ Device Family
- DAE-3HT™ - Identical DAE-3 performance, in 72-QFN package
- Integrated DSP Digital Sound Processing
- Customizable audio path sound processing
- Fully configurable and routable audio signal paths and hardware function assignment
- Fully Supported with Audio Canvas™ III Design Tool
- Flexible Audio Input and Output Configurations
- 12 Independent PWM Engine Channels
- 4 Independent Asynchronous I<sup>2</sup>S Digital Inputs
- Integrated high-performance stereo ADC (DAE-3 only)
- S/PDIF™ Digital Audio Inputs supporting Linear IEC-61958 PCM or Compressed IEC-61937 Audio
- S/PDIF Digital Audio PCM Output
- Embedded 8-Channel Sample Rate Converter
- Real-Time Amplifier Control and Monitoring
- Supports Bridged, Half-Bridged, and Bridge-Tied Load (BTL) Topologies, Using Discrete or Integrated Power Stages
- Complete Fault Protection with Automatic Recovery
- D2Audio™ SoundSuite™ Enhancement and Virtualization
- Enhanced Audio Processing Decoders And Virtualization
- Dolby® Digital/AC3
- Dolby® Pro Logic IIx
- Dolby® Virtual Speaker
- SRS TruSurround HD4™ , SRS WOW HD™, SRS TruVolume™

## Description

The D2-926xx family of the DAE-3™ and DAE-3HT™ Digital Audio Engine™ devices are complete System-on Chip (SoC) multi-channel digital sound processors and Class-D amplifier controllers.

The integrated DSP provides efficient and configurable audio signal path processing including equalization, dynamic range compression, mixing, and filtering that is completely configurable via the Audio Canvas™ III high level programming interface. The integrated PWM engine supports programmable and dynamic control of audio output, enabling a variety of multi-channel output configurations and output power capacity. Internal noise shaping, an embedded asynchronous sample rate converter, dynamic level-dependent timing, and high resolution operation supports power stage audio performances with SNR >110dB and THD+N < 0.01%.

The D2-926xx devices are provided in two package and feature configurations which include the 128-pin DAE-3, and the 72-pin DAE-3HT. Both the DAE-3 and DAE-3HT provide identical performance and enable an extremely flexible platform for feature rich and cost-affordable quality audio solutions, which benefit from the addition of Class-D amplifiers and DSP audio processing.

The 12 integrated digital PWM controllers can be used in a variety of multi-channel audio system configurations, supporting powered as well as line outputs. Fully protected amplifier control provides efficient and clean Class-D power output support.

## **Applications**

- DTV and Blu-ray Soundbar
- DVD and Blu-ray Home Theater Systems
- Home Theater in a Box (HTiB)
- Audio Video Receiver (AVR)
- Multi-Channel Multi-Media (MM) Systems
- Multi-Room Distributed Audio (MRDA)
- Powered Speaker Systems
- Automotive Trunk/Amplified Solutions

| Parameters               | Alternatives   |   |  |  |
|--------------------------|--|---|--|--|
|                          | D2-92683   | <a href="#">D2-92684</a>  | <a href="#">D2-74583</a>   | <a href="#">D2-71683</a>   |
| Input Channels           | 8  | 8   | 8  | 8  |
| PWM Output Channels      | 12   | 12  | 12   | 12   |
| Signal Flow              | Configurable   | Configurable  | Configurable   | Configurable   |
| Supported Audio Inputs   | 4x I <sup>2</sup> S, 1x S/PDIF, 8x fault INT             | 4x I <sup>2</sup> S, 1x S/PDIF, 8x fault INT                                      | 4x I <sup>2</sup> S, 2x S/PDIF, HDA, ADC (opt), 8x fault INT   | 4x I <sup>2</sup> S, 2x S/PDIF, HDA, ADC (opt), 8x fault INT   |
| Supported Audio Outputs  | 12x PWM, 1x I <sup>2</sup> S, 1x S/PDIF                  | 12x PWM, 1x I <sup>2</sup> S, 1x S/PDIF   | 12x PWM, 4x I <sup>2</sup> S, 1x S/PDIF  | 12x PWM, 4x I <sup>2</sup> S, 1x S/PDIF  |
| Features                 | D2Audio PWM Engine, Graceful Fault Recovery, 147 MHz DSP | D2Audio PWM Engine, Graceful Fault Recovery, Dolby Algorithm Support, 147 MHz DSP | D2Audio PWM Engine, Graceful Fault Recovery, Dolby, DTS <sup>®</sup> Algorithms, 160 MHz DSP, 32k P-memory | D2Audio PWM Engine, Graceful Fault Recovery, Dolby, DTS <sup>®</sup> Algorithms, 147 MHz DSP, 32k P-memory |
| Audio Canvas III Support | Yes  | Yes   | Yes  | Yes  |

## Looking for pricing, stock, or lifecycle information?

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-  Shortage Management
-  Alternative Solution
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