

SABRE

## **ES9023**

## **Premier Stereo DAC with 2Vrms Driver**

**Product Brief** 

Device	Description	DNR (dB)	Power Supply (Output Level)	No DC-blocking capacitor	Pop-Noise Free	Package
ES9023	SABRE Premier Stereo DAC with 2Vrms Op-Amp Driver	112	+3.6V (2Vrms) +3.3V (1.9Vrms)	V	V	16-SOP

The ES9023 is a 24-bit stereo audio DAC with an integrated 2Vrms op-amp driver. Powered by the industry proven *SABRE* DAC technology, the ES9023 combines best-sounding audio with lowest system cost and highest performance into the ideal D/A converter for line-level output applications such as Blu-ray players, CD/DVD players, set-top boxes, digital TVs and audio receivers.

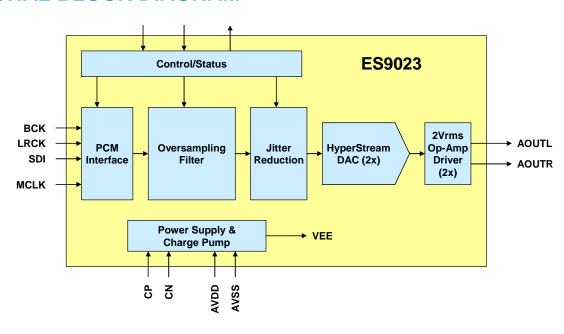
With patented Hyperstream<sup>™</sup> architecture and Time Domain Jitter Eliminator, the ES9023 delivers jitter-free studio quality audio with 112dB DNR.

Using an integrated charge pump to generate the negative supply, the ES9023 can operate from a single AVCC supply to drive a ground-referenced 2Vrms output, eliminating the need for output dc-blocking capacitors. Optionally, the output level can be adjusted by using an external resistor, allowing for output level below 2Vrms. Pop-noise is eliminated through a comprehensive suppression on power up/down, mute, reset, loss of power or clock. Dedicated control/status pins allow easy system integration without the need for microcontroller programming.

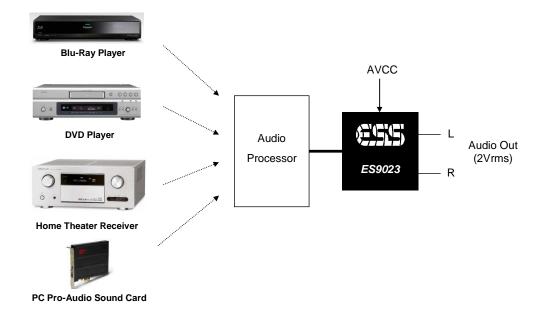
FEATURE	BENEFIT
<b>SABRE</b> DAC and 2Vrms op-amp driver integration	<ul> <li>Lowest system cost by minimizing external components</li> <li>Highest performance</li> <li>Best sounding audio – powered by SABRE DAC technology</li> </ul>
Patented HyperStream <sup>™</sup> and Jitter Elimination Architecture	<ul><li>Best dynamic range: 112dB</li><li>Jitter Immune</li></ul>
Adjustable output level	<ul> <li>Allow designer to customize output level (up to 2Vrms) based on application requirements via an external resistor</li> </ul>
Ground reference output	<ul> <li>Reduce cost by eliminating blocking capacitors</li> </ul>
Pop-noise suppression	<ul> <li>Pop-free on power up/down, mute and reset</li> </ul>
<ul> <li>Dedicated control/status pins</li> <li>I2S or left-justified select</li> <li>Soft mute enable</li> <li>Zero detect output</li> </ul>	<ul> <li>Easy to use – no programming required</li> </ul>
Charge pump for negative supply	<ul> <li>Single AVCC simplifies power supply</li> </ul>
Low power consumption in 16-SOP	<ul> <li>Simply power supply and reduce PCB size</li> </ul>



## **FUNCTIONAL BLOCK DIAGRAM**



## **APPLICATION DIAGRAM**



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