



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)	√	√	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™ 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.

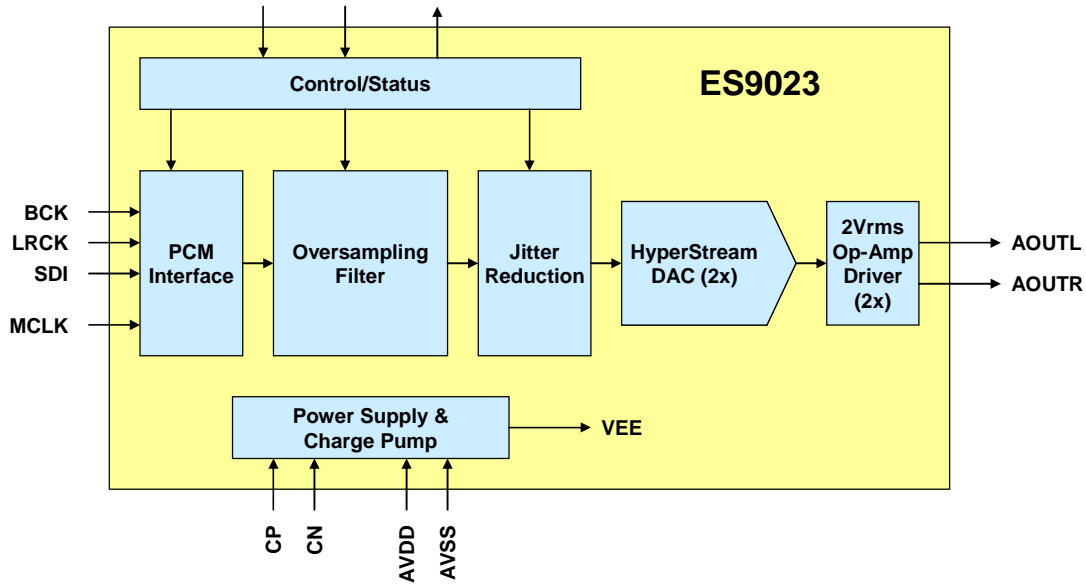
FEATURE

BENEFIT

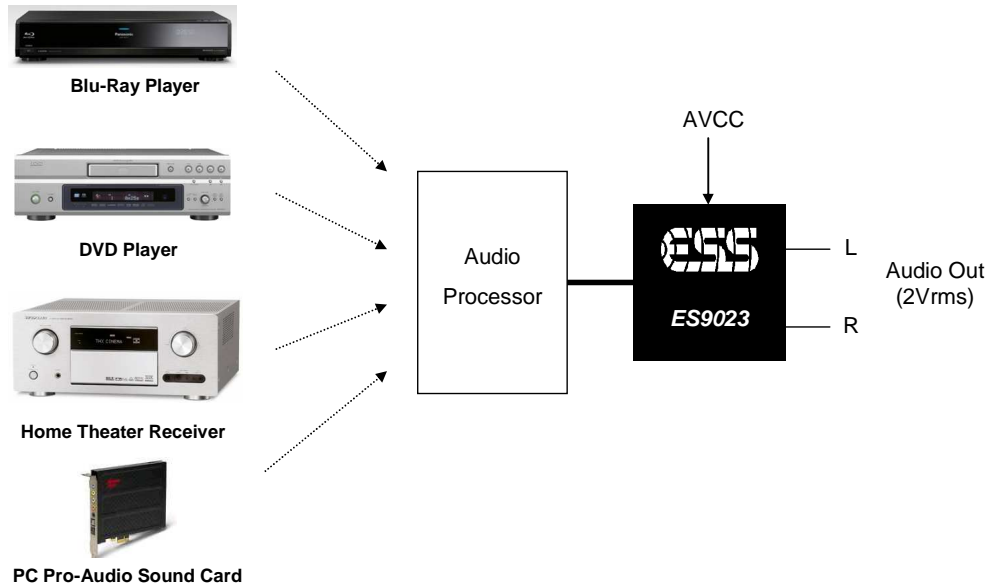
SABRE DAC and 2Vrms op-amp driver integration	<ul style="list-style-type: none"> Lowest system cost by minimizing external components Highest performance Best sounding audio – powered by SABRE DAC technology
Patented HyperStream™ and Jitter Elimination Architecture	<ul style="list-style-type: none"> Best dynamic range: 112dB Jitter Immune
Adjustable output level	<ul style="list-style-type: none"> Allow designer to customize output level (up to 2Vrms) based on application requirements via an external resistor
Ground reference output	<ul style="list-style-type: none"> Reduce cost by eliminating blocking capacitors
Pop-noise suppression	<ul style="list-style-type: none"> Pop-free on power up/down, mute and reset
Dedicated control/status pins <ul style="list-style-type: none"> I2S or left-justified select Soft mute enable Zero detect output 	<ul style="list-style-type: none"> Easy to use – no programming required
Charge pump for negative supply	<ul style="list-style-type: none"> Single AVCC simplifies power supply
Low power consumption in 16-SOP	<ul style="list-style-type: none"> Simply power supply and reduce PCB size



FUNCTIONAL BLOCK DIAGRAM



APPLICATION DIAGRAM



No part of this publication may be reproduced, stored in a retrieval system, transmitted, or translated in any form or by any means, electronic, mechanical, manual, optical, or otherwise, without the prior written permission of ESS Technology, Inc. ESS Technology, Inc. makes no representations or warranties regarding the content of this document. All specifications are subject to change without prior notice. ESS Technology, Inc. assumes no responsibility for any errors contained herein. U.S. patents pending.