Berkhout

Integrated Audio Amplifiers in BCD Technology

is the first book to describe the design at Audio Amplifiers using a Bipolar CMOS DMOS (BCD) process. It shows how the combination of the 3 processes, made available by advances in process technology, gives rise to the design of more robust and powerful audio amplifiers which can be more easily implemented in digital and mixed-signal circuits.
starts with an introduction to audio amplifiers which includes a comparison of amplifier classes, general design considerations and a list of specifications for integrated audio power amplifiers. This is followed by an extensive discussion of the properties of DMOS transistors which are the key components in BCD technologies. Then the theory and the design of chargepump circuits is considered. In most BCD technologies only n-type DMOS transistors are available. Therefore a boosted supply voltage is required to achieve rail-to-rail output capability which can be generated with a chargepump. The new solutions that are found can also be used for many applications where DC-DC conversion with low output ripple is needed. Finally the design of audio power amplifier in BCD technology is discussed. The design concentrates on a new quiescent control circuit with very high ratio between quiescent current and maximum output current and on the output stage topologies. The problem of controlling the DMOS output transistors over a wide range of currents either saturated or non saturated requires a completely new design of the driving circuits that utilize of the special properties of the DMOS transistor. is essential reading for practising analog design engineers and researchers in the field. It is also suitable as a text for an advanced course on the subject. With a foreword by

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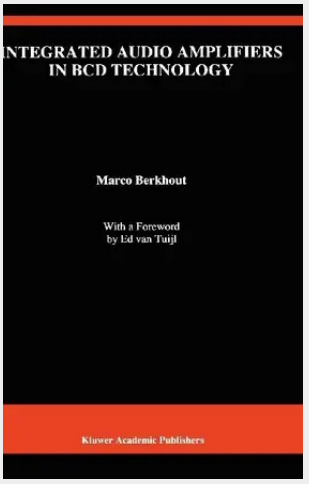

160,49 €
149,99 € (zzgl. MwSt.)

Lieferfrist: bis zu 10 Tage

Artikelnummer: 9780792380030
Medium: Buch
ISBN: 978-0-7923-8003-0
Verlag: Springer US
Erscheinungstermin: 31.10.1997
Sprache(n): Englisch
Auflage: 1. Auflage 1997
Serie: The Springer International Series in Engineering and Computer Science
Produktform: Gebunden
Gewicht: 1100 g
Seiten: 210
Format (B x H): 160 x 241 mm

Kundenservice Verlag Dr. Otto Schmidt KG
Neumannstraße 10, 40235 Düsseldorf | kundenservice@otto-schmidt.de | 0221-93738-997 (Inland)