

Title (en)
Digital loudspeaker

Title (de)
Digitaler Lautsprecher

Title (fr)
Haut-parleur numérique

Publication
EP 1063866 B1 20081126 (EN)

Application
EP 99401288 A 19990528

Priority
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Abstract (en)
[origin: EP1063866A1] A digital loudspeaker responsive to a binary digital audio signal received at an input (26). The digital loudspeaker is manufactured as an integrated module comprising an array of acoustic output transducers each with a diaphragm (20) including a conductive layer arranged facing a further conductive layer across a gap. The conductive layers of each transducer form a parallel plate capacitor so that a drive signal applied across the capacitor induces electrostatic force between the capacitor plates, thereby driving the diaphragm (20). The non-linear response of the diaphragms (20) is compensated for by pulse shaping circuits (22) which are arranged adjacent the associated diaphragms (20). The pulse shaping circuits (22) each receive a unary digital drive signal from an encoder circuit (24) via tracks (28). The encoder circuit (24) serves to convert the binary digital audio signal received at the input (26) into a large number of unary digital drive signals, one for each of the output transducers. Using standard silicon processing technology, the entire integrated loudspeaker module, including transducers and drive circuitry, can be integrated onto a single silicon wafer, or two wafers arranged facing each other. In this way, arrays of a thousand transducers or more can be manufactured in a single integrated module of modest total area. <IMAGE>

IPC 8 full level
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H04R 1/005 (2013.01); **H04R 19/005** (2013.01); **H04R 1/403** (2013.01)

Cited by
US10554166B2; US11139772B2; AU2002302881B2; EP1881737A3; EP1206160A1; US10520601B2; US10462579B2; WO02093973A1; WO02063919A3; US7089069B2; US7116790B2; US9391541B2; WO02063604A3; WO03017717A3; US9544691B2; US10007244B2; US10503136B2; US10642240B2; US8085964B2; US8374056B2; US9681231B2; US9735796B2; US7095863B2; US9425708B2; US9986343B2; US8457338B2; EP3101907A1; WO2016193327A1; US10484765B2; US8306244B2; US9226053B2; US9693136B2; US9880533B2; US7202101B2; US6943448B2; US8126163B2; US8780673B2; US9445170B2; US9497526B2

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