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United States Patent [19] Wincn

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[54] **HIGH SPEED CMOS D/A CONVERTER FOR WAVE SYNTHESIS IN NETWORK**

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[51] Int. Cl.⁶ **H03M 1/66**

[52] U.S. Cl. **341/144; 341/135**

[58] Field of Search **341/144, 135, 341/145, 147, 153, 154**

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|-----------|---------|-------------------|---------|
| 5,254,994 | 10/1993 | Takakura et al. . | |
| 5,276,716 | 1/1994 | Wincn . | |
| 5,331,322 | 7/1994 | Cha et al. . | |
| 5,343,196 | 8/1994 | Harston | 341/136 |
| 5,357,145 | 10/1994 | Segaram . | |

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[57] ABSTRACT

A high speed digital-to-analog (D/A) converter (DAC) includes a plurality of least significant bit (LSB) cells that collectively define a total output of the DAC. Each LSB cell includes a differential current driver that has reduced capacitive loading due to a cascode structure of the current driver wherein transistors are biased to desired levels and current sources are switched on and off to control the differential output signal.

[56] References Cited

U.S. PATENT DOCUMENTS

| | | | |
|-----------|---------|----------------------|---------|
| 3,699,568 | 10/1972 | Thompson et al. | 341/144 |
| 5,148,164 | 9/1992 | Nakamura et al. . | |

4 Claims, 2 Drawing Sheets

