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Hsueh et al.

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(54) **SYSTEM FOR DISPLAYING IMAGES**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

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(51) **Int. Cl.**
H03M 1/66 (2006.01)

(52) **U.S. Cl.** **341/145; 341/144**

(58) **Field of Classification Search** **341/135-172**
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

6,556,162 B2* 4/2003 Brownlow et al. 341/145

* cited by examiner

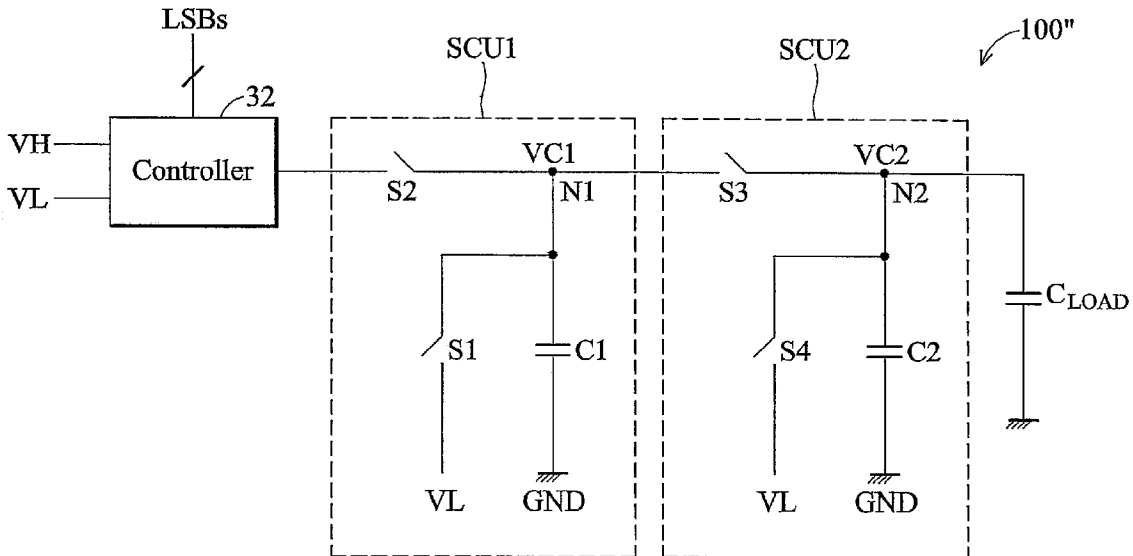
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(57) **ABSTRACT**

Systems for displaying images. The system comprises a digital-to-analog converter, in which a first conversion stage selects first and second voltages of a plurality of reference voltages according to m most significant bits of a k bit input signal; and a second conversion stage converting n least significant bits of the k bit input signal to a voltage between the first and second voltages. In the second conversion stage, according to first and second bits of the least significant bits, a first switching capacitor unit charges a first capacitor during a first period and then the second switching capacitor unit performs a first charge sharing between the first capacitor and a second capacitor, and the first switching capacitor unit charges the first capacitor again and then the second switching capacitor unit performs a second charge sharing between the first capacitor and the second capacitor.

19 Claims, 8 Drawing Sheets



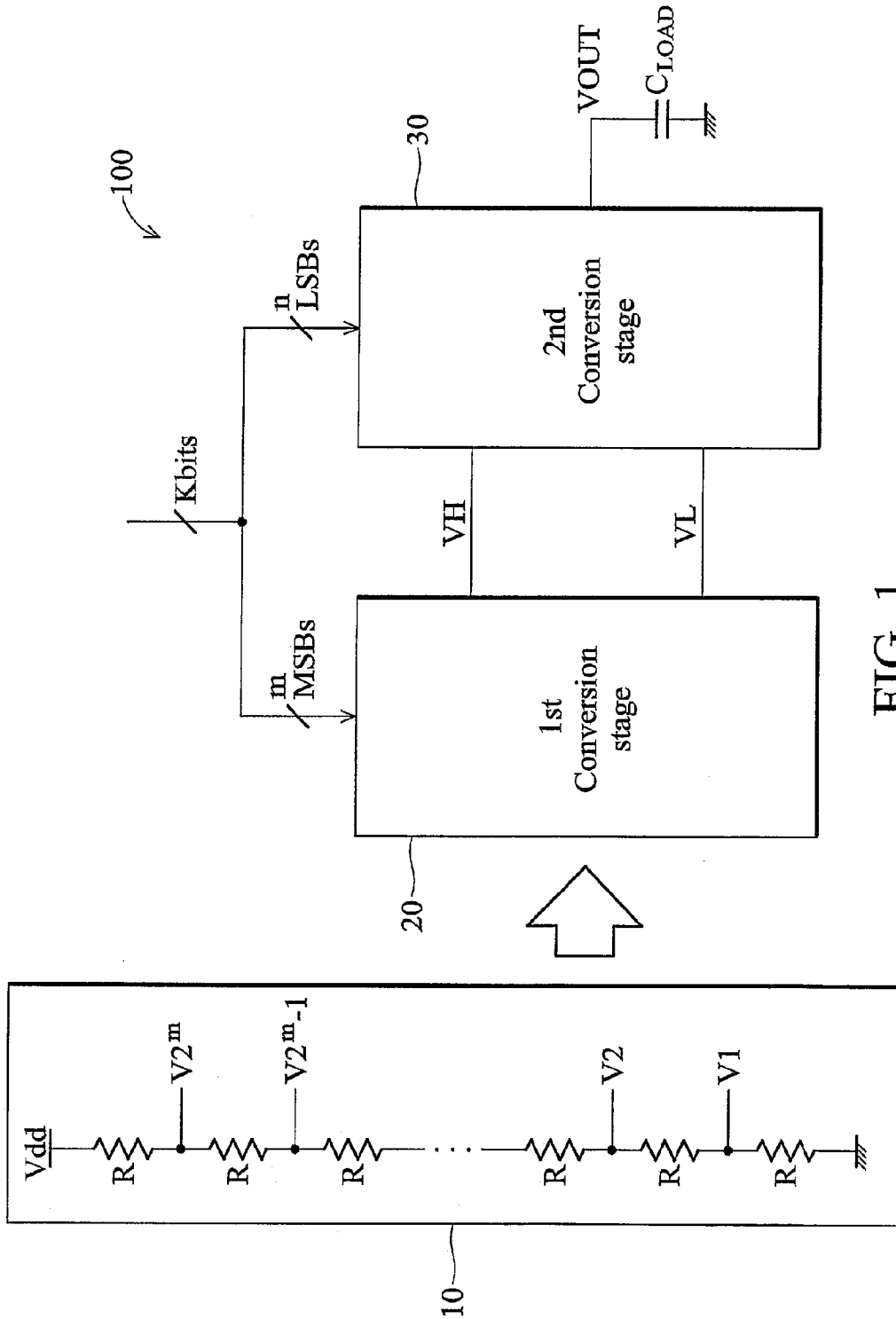


FIG. 1

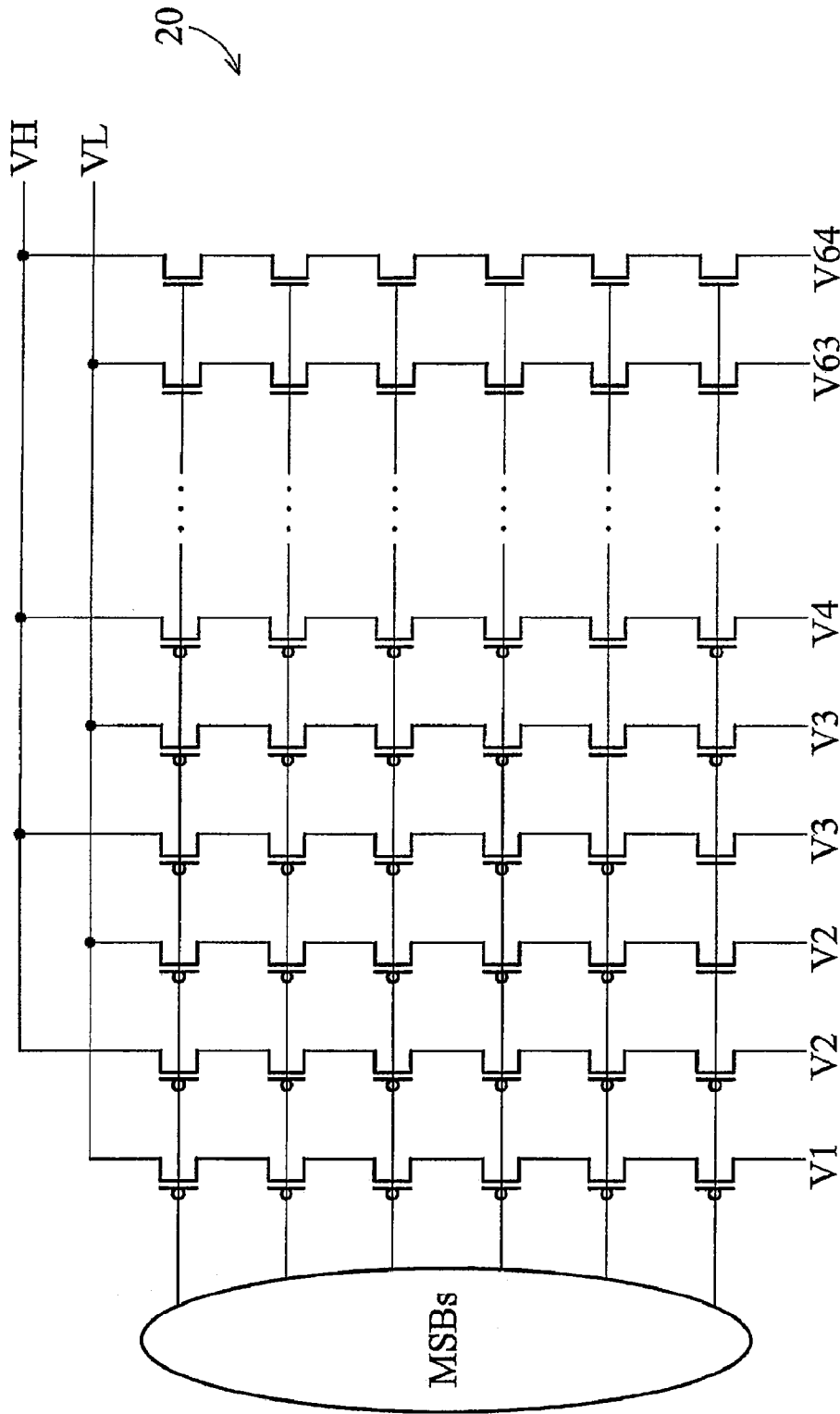


FIG. 2

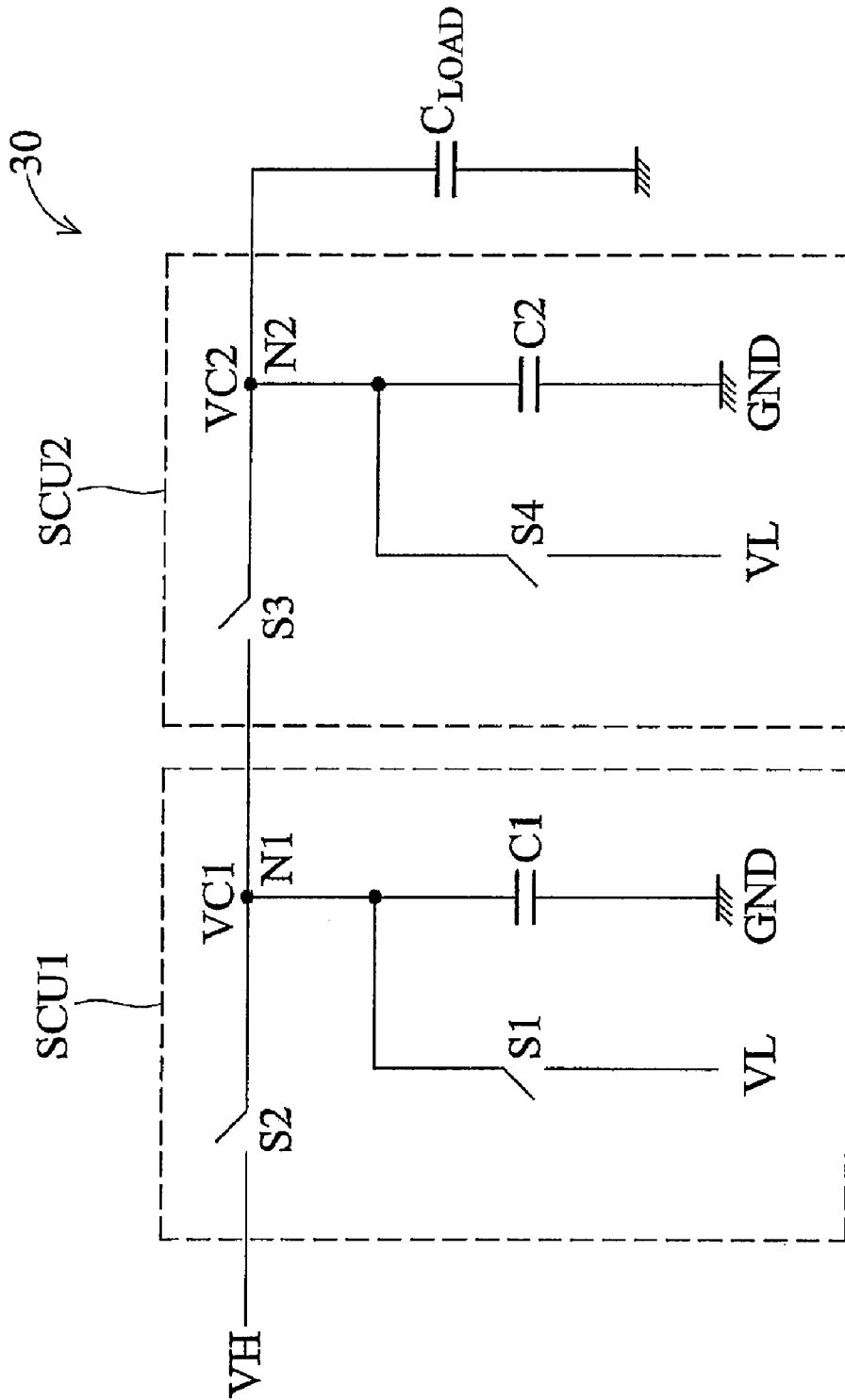


FIG. 3

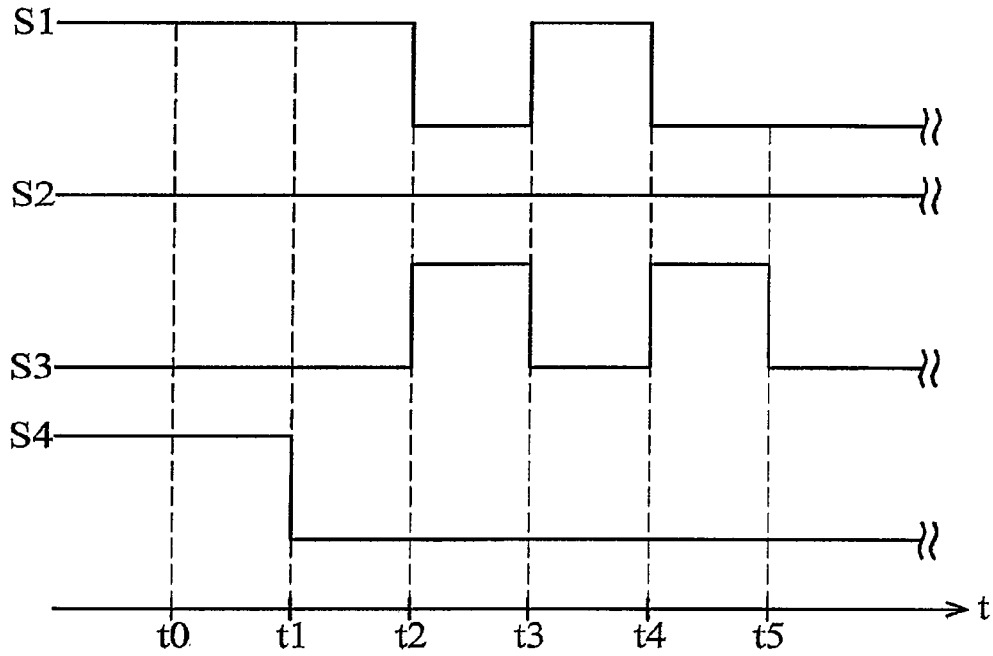


FIG. 4A

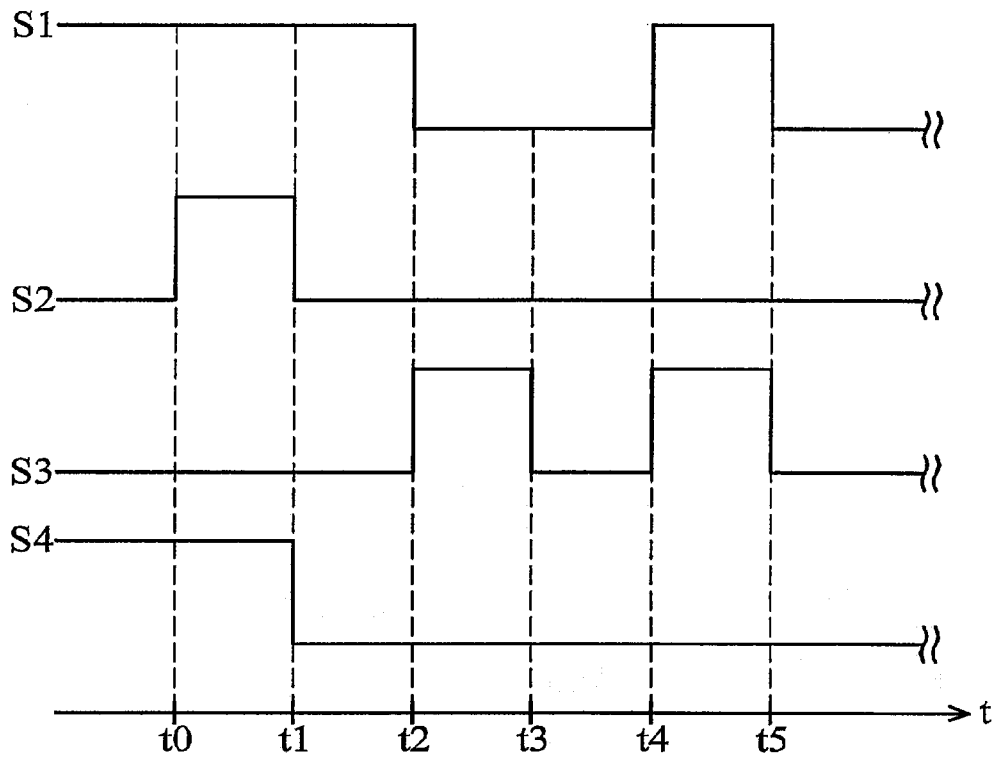


FIG. 4B

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