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(54) **COLUMN DRIVING CIRCUIT AND METHOD FOR DRIVING PIXELS IN A COLUMN ROW MATRIX**

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(51) Int. Cl.^{7} **G09G 3/36**
(52) U.S. Cl. **345/100**
(58) Field of Search 345/87, 92, 100, 345/103, 95, 88, 89, 93–96, 98; 349/33, 41, 42

(56) **References Cited**

U.S. PATENT DOCUMENTS

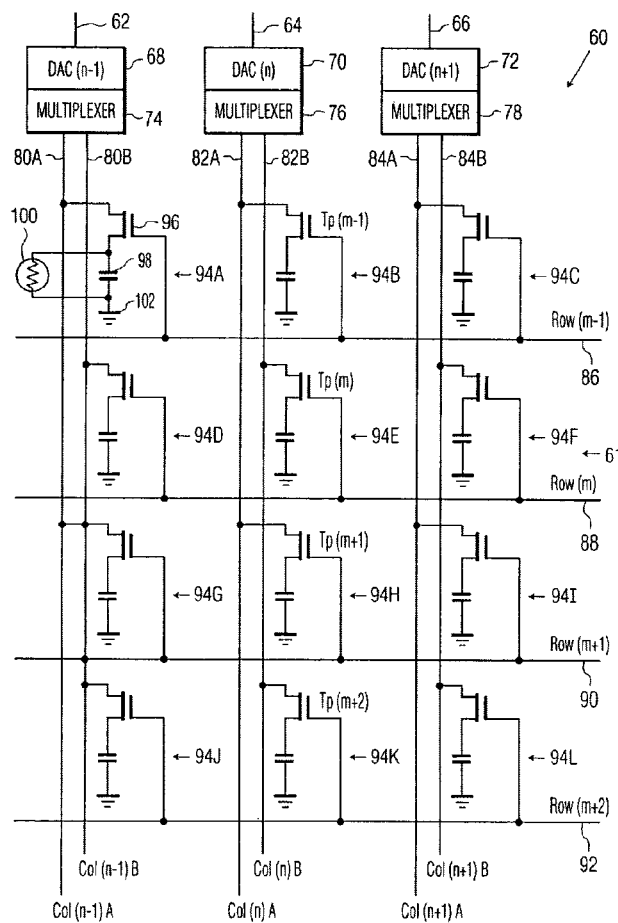|					
4,781,438 A	*	11/1988	Noguchi	....	349/54
6,310,628 B1	*	10/2001	Matsushita et al.	....	219/411
6,424,328 B1	*	7/2002	Ino et al.	....	345/87

* cited by examiner

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(57) **ABSTRACT**

A column driving circuit and method for driving pixels in a column row matrix. Specifically, the present invention provides a circuit and method that generally includes an input for receiving a signal, a multiplexing circuit for receiving the signal from the input, and a first and a second column line, wherein each column line alternates in receiving the signal from the multiplexing circuit. By splitting the signal between two column lines, overall line capacitance is reduced, as are problems associated with delays in ramp retrace.
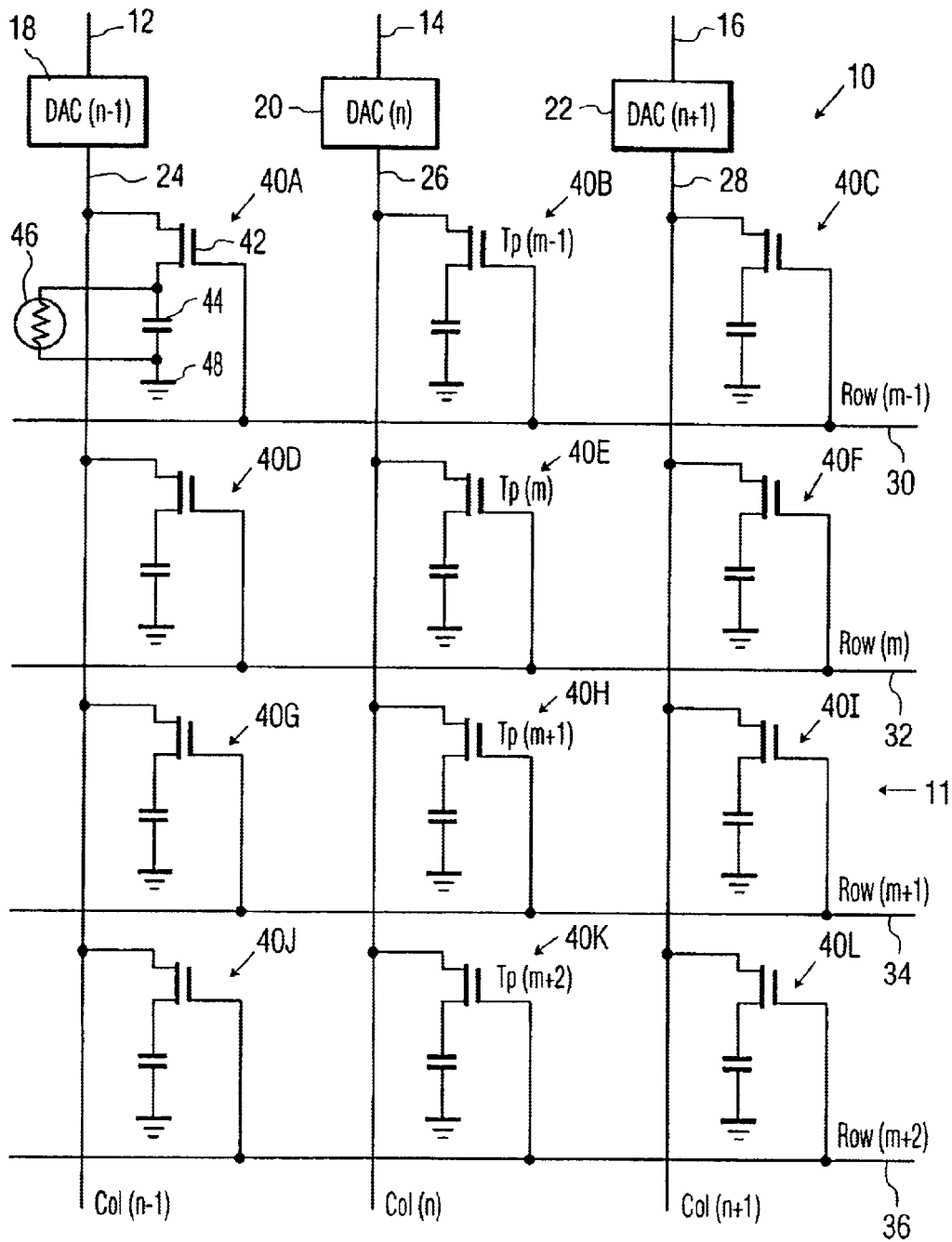
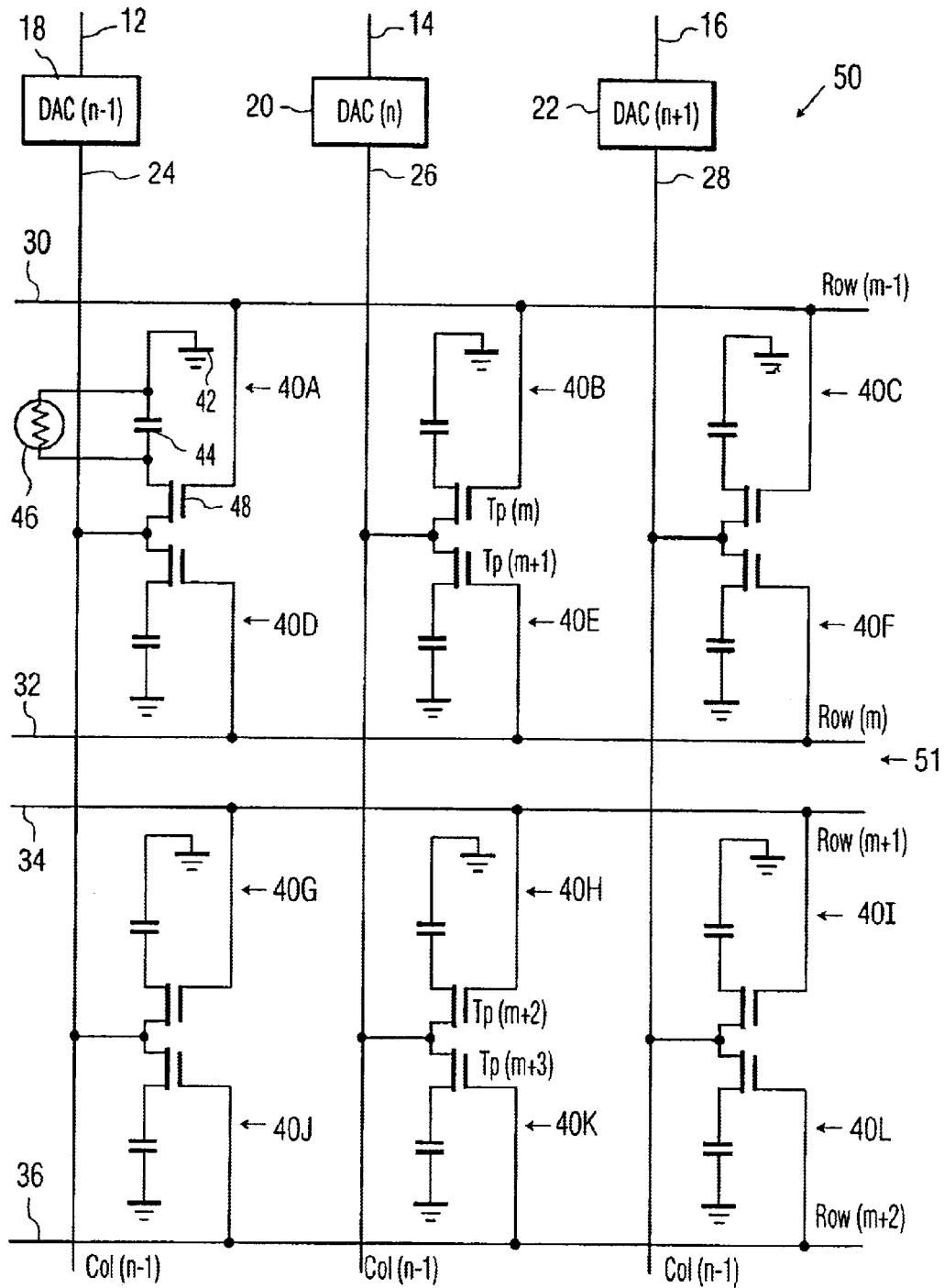**15 Claims, 6 Drawing Sheets**

FIG. 1

PRIOR ART

FIG. 2

PRIOR ART

FIG. 3

FIG. 4

DOCKET ALARM
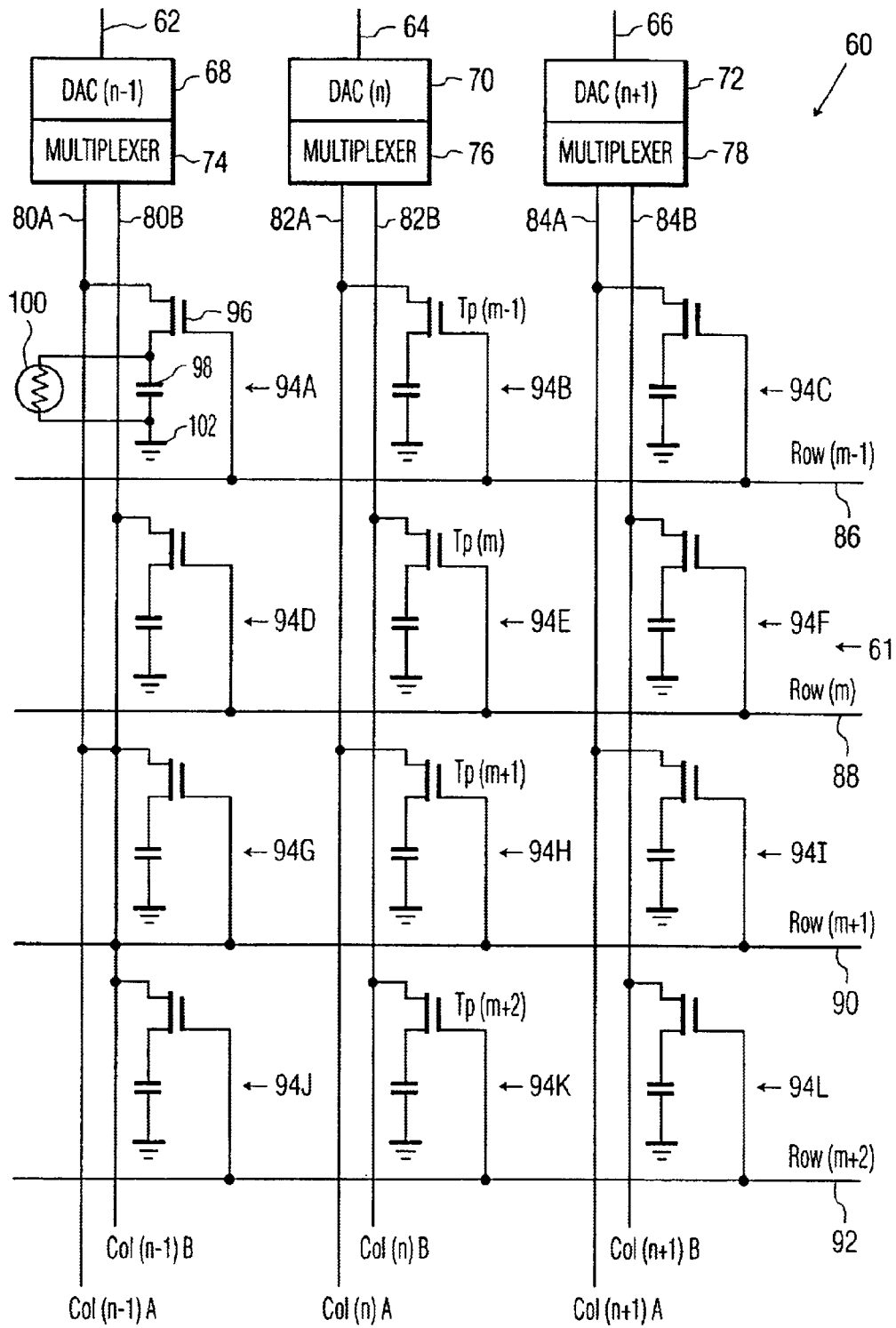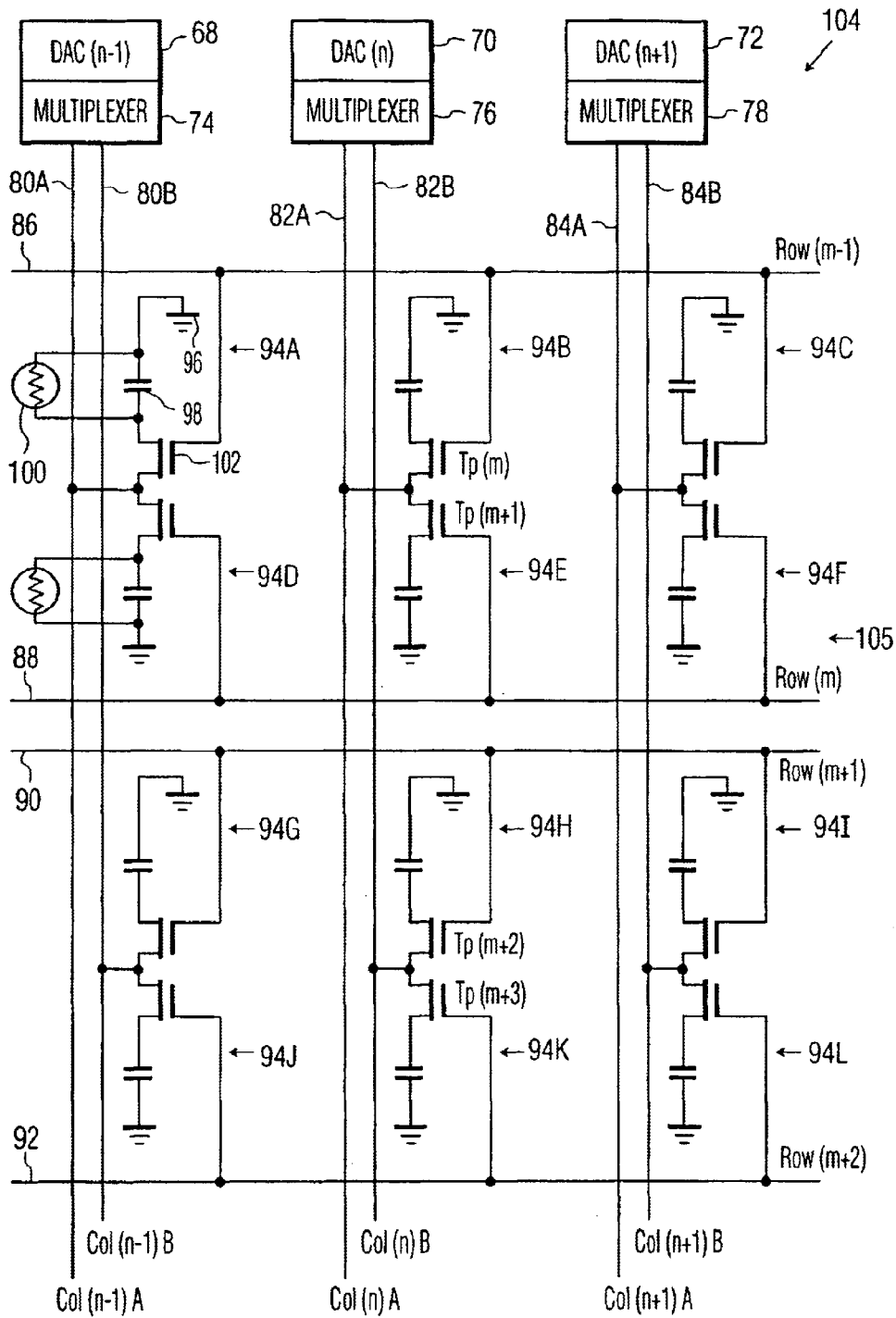
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