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Philipp et al.

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(54) **PROXIMITY SENSOR**

(75) Inventors: **Harald Philipp**, Zug (CH); **Kevin Snoad**, Chicester (GB)

(73) Assignee: **Atmel Corporation**, San Jose, CA (US)

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G01R 27/26 (2006.01)
G08B 13/08 (2006.01)

(52) **U.S. Cl.**
USPC **324/663**; 340/545.4

(58) **Field of Classification Search**
USPC 324/663, 658, 649, 600; 702/57; 340/545.4, 545.2, 545.1, 541, 540; 381/74
See application file for complete search history.

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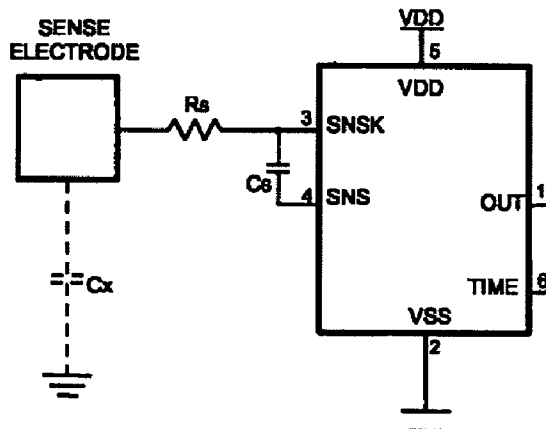U.S. Appl. No. 61/454,936, filed Mar. 21, 2011, Myers.

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Primary Examiner — Hoai-An D Nguyen
(74) *Attorney, Agent, or Firm* — Baker Botts LLP

(57) **ABSTRACT**

In one embodiment, a method includes monitoring detection by a sensing element of a key touch on a touch screen; determining an amount of time that has elapsed since the sensing element last detected a change of capacitance indicative of a key touch on the touch screen; and, if the amount of time that has elapsed exceeds a predetermined time duration, then initiating a particular function of an apparatus.

20 Claims, 10 Drawing Sheets

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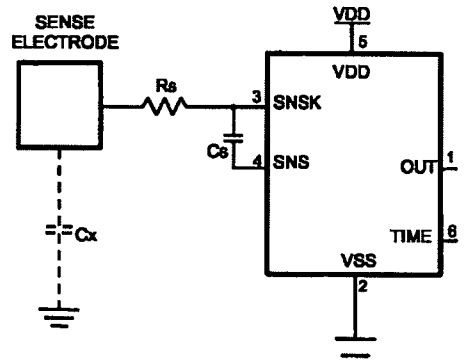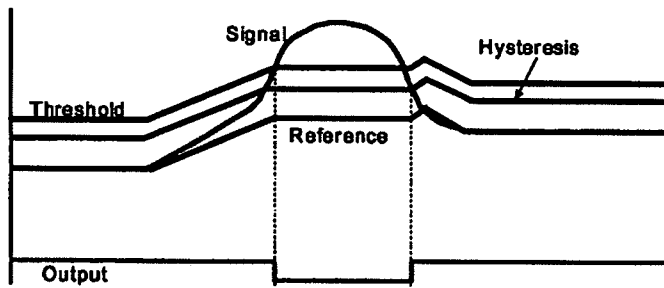
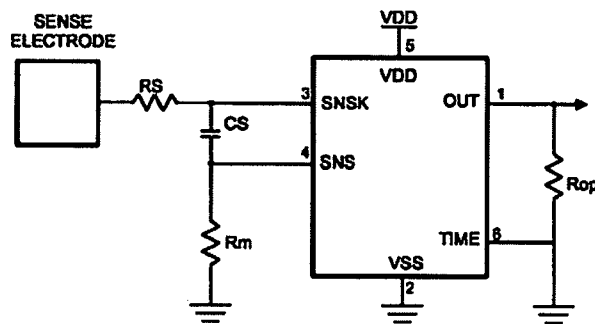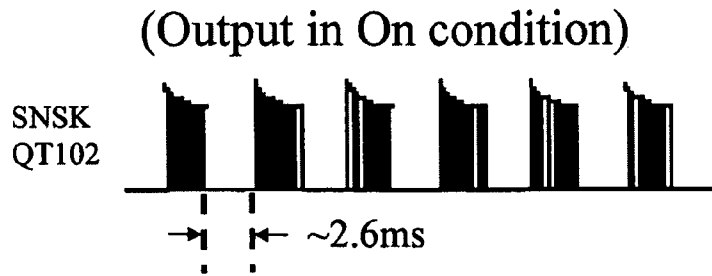* cited by examiner

Fig. 1

Fig. 2

Fig. 3

(Output in On condition) Fig. 4

SNSK
QT102

→| |← ~2.6ms

Key touch

~85ms

fast detect integrator

SNSK
QT102

sleep sleep

Fig. 5

OUT

VDD

5

VDD

3 SNSK

4 SNS
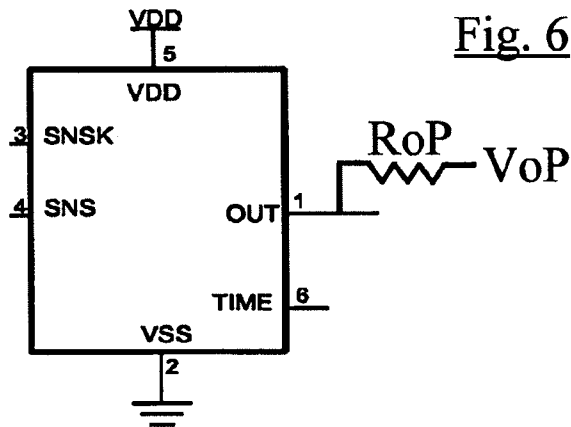
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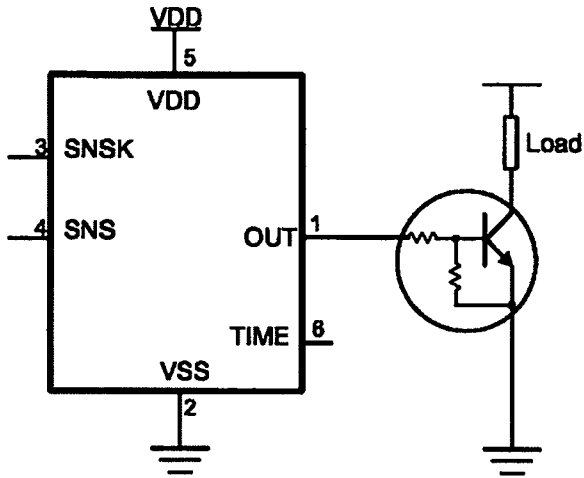
RoP VoP

TIME 6

VSS

2
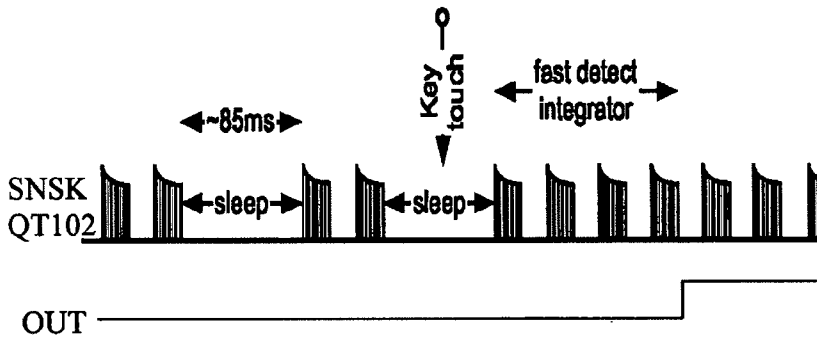
Fig. 6

Fig. 7

Fig. 8

DOCKET ALARM
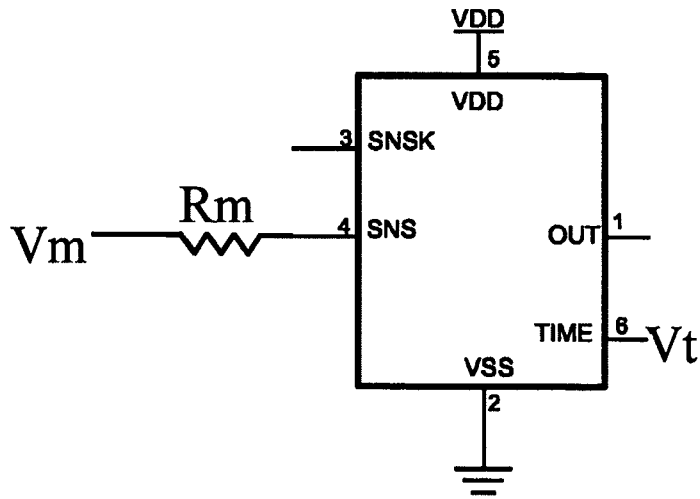
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