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(54) **PROXIMITY SENSOR**

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(75) Inventors: **Harald Philipp**, Southampton (GB); **Kevin Snoad**, Chichester (GB)

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Correspondence Address:  
**DAVID KIEWIT**  
**5901 THIRD ST SOUTH**  
**ST PETERSBURG, FL 33705 (US)**

(57) **ABSTRACT**

A capacitive touch sensor providing an automatic switch-off function for an apparatus in which the sensor is incorporated is provided. The sensor comprises a sensing element coupled to a capacitance measurement circuit for measuring the capacitance of the sensing element. A control circuit is operable to determine from the capacitance measurement whether an object is in proximity with the sensor. The determined presence of an object may be used to toggle a function of the apparatus. Furthermore, when it is determined that an object has not been in proximity with the sensor for a predetermined time duration, an output signal for switching off the apparatus is provided. The predetermined time duration may be selected from a number of predefined time durations, or may be programmed using an resistor-capacitor network. Pulses may be applied to the control circuit to override features of the automatic switch-off functionality.

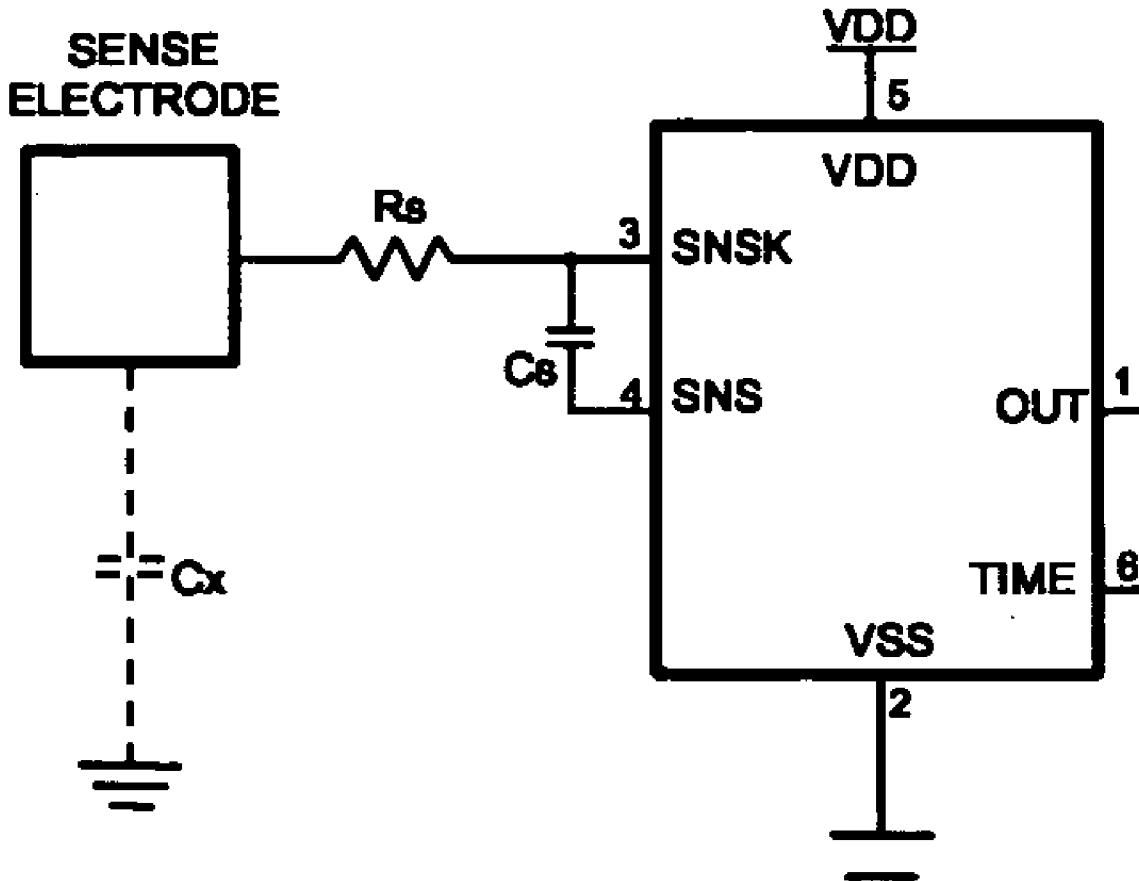
(73) Assignee: **QRG LIMITED**, Eastleigh (GB)

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**Related U.S. Application Data**

(60) Provisional application No. 60/952,053, filed on Jul. 26, 2007.



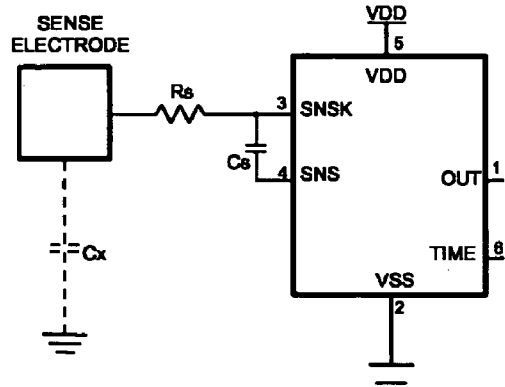


Fig. 1

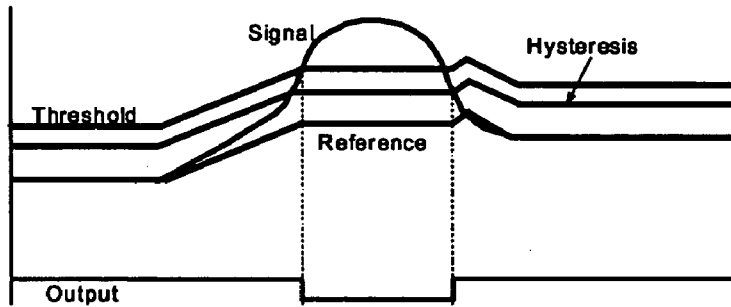


Fig. 2

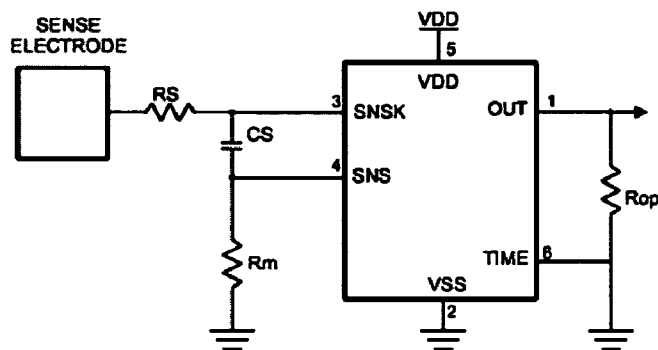


Fig. 3

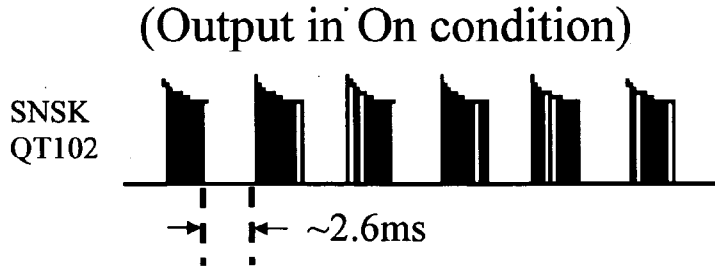


Fig. 4

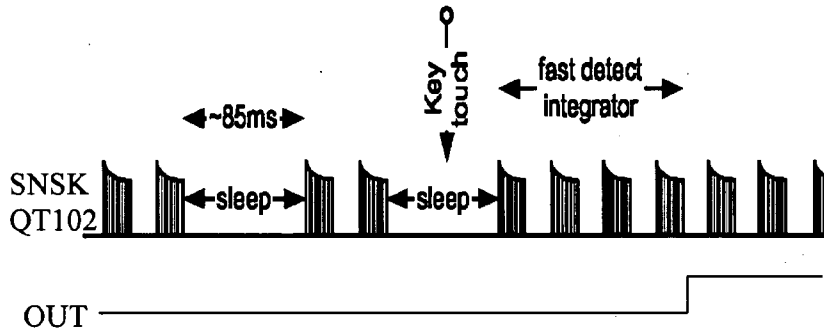


Fig. 5

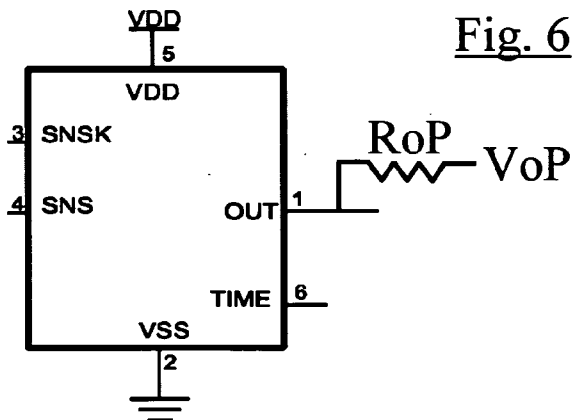


Fig. 6

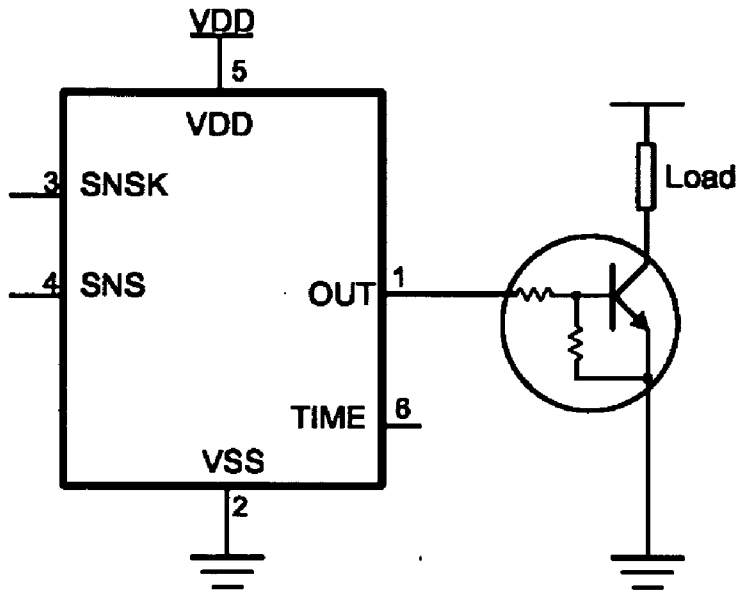


Fig. 7

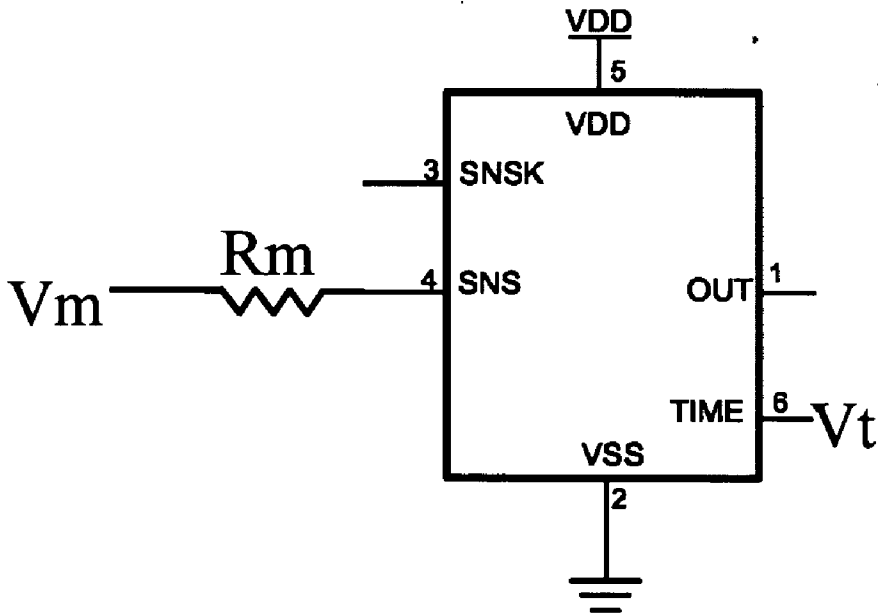


Fig. 8

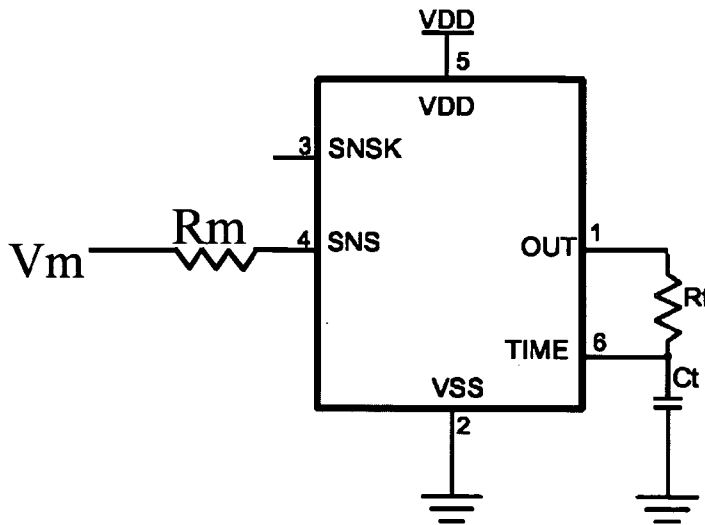


Fig. 9

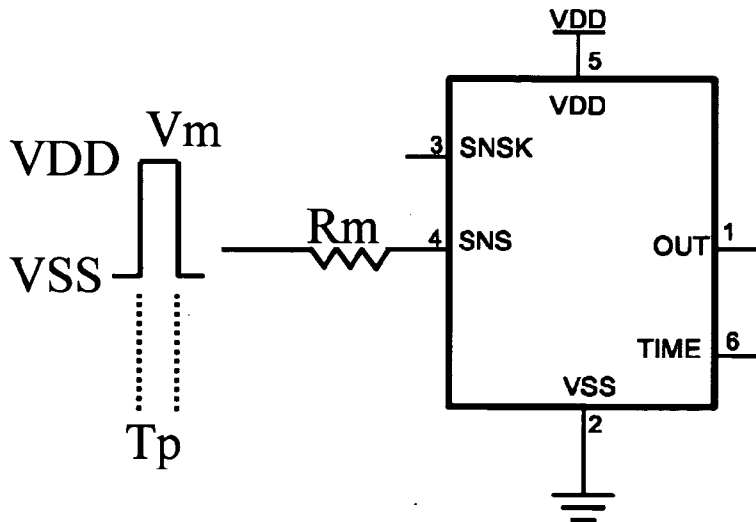


Fig. 10

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