

FABRICATION OF AN EMBOSSED DIAPHRAGM

ABSTRACT

5 An embossed silicon diaphragm having a relatively thick bossed portion (13) suspended by a relatively thin border (12) is fabricated from a silicon wafer (1) by a double etch process. A patterned resist layer is provided over a nitride layer (6) on a first surface (2) of the wafer (1) which is dry etched (e.g. by a deep reactive ion etch to a depth of 10 μm) at a defined region. A second patterned resist layer is formed on the first wafer surface, inside
10 the defined region, to define a diaphragm region bordered by a suspension region. The suspension region is etched, preferably by a wet (e.g. KOH) etch to form the embossed diaphragm. The border (12) may completely surround the bossed diaphragm portion (13). Piezo-resistive elements (4) may be formed on the second face (3) of the wafer to overlie the suspension border (12).

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Figure 5



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