عنوان مقاله:
A Novel Low-Cost Fabrication Process for Bulk- Mode Resonators in X-Ray LIGA Technology

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خلاصه مقاله:
This paper presents design and fabrication process of a bulk-mode ring resonator in x-ray LIGA technology. The fabrication process is used to achieve a high aspect ratio of 25with 3-4 μm gap spacing. Rigid graphite serves as a low-cost primary substrate and plating base of nickel as structuralmaterial. Moreover, low-cost x-ray mask is developed based on silver electroplating procedure. Through the combination of xray and UV lithographies, the fabrication process needs onlythree lithography steps with one x-ray mask and two Mylar masks. The resonant behavior of the fabricated resonator ischaracterized as a function of the bias voltage using a fully differential drive and sense interface circuit. The results showthat, the quality factor of the fabricated resonator in the extensional wine-glass resonant mode is about 156170 using a DC-bias voltage of 90 V at a resonance frequency of 9.37 MHzand vacuum pressure of 0.10 mbar

کلمات کلیدی:
bulk-mode, ring resonator, x-ray LIGA, nickel electroplating, SU-8 photoresist