# 适用于RF MEMS能量耦合传输的高Q值电感

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摘　要：

利用MEMS微电镀工艺技术制作了一种新型的适用于RF MEMS能量耦合传输的高Q值电感，采用ANSOFT公司的HFSS优化平面螺旋电感的结构。在具有高电阻率的玻璃衬底上溅射0.5um的铜层作为下电极；PECVD淀积厚度为1umSiO2 作为中间介质层；在介质层上结合厚胶光刻技术电镀厚为22um的铜作为电感线圈。这套电感制作工艺流程简单、易于与IC制备工艺集成。本文制备的微机械电感在微型植入系统中具有广阔的应用前景。测量结果表明：当工作频率在1GHz左右时，微电感的电感值达到55nH,Q值最大可达到25。

关键词：微电感，MEMS，能量耦合，电镀

# High Q MEMS Inductor for RF Power Delivery

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**Abstract:**

A high Q inductor is designed and fabricated utilizing MEMS technology for RF power delivery system. The inductor structure is simulated and optimized by ANSOFT HFSS. In order to improve the Q factor, glass wafer is used as the substrate according to its high resistivity. A 0.5um thick copper is sputtered and stripped to form the underpass. A 1um of SiO2 film is deposited by PECVD which act as the dielectric layer. The inductor is patterned with thick photoresist and formed by copper electroplating with the thickness of 22um. This fabrication process is simple and easily to be integrated with IC. The measured results show that the micro inductor is about 55nH and the maximum quality factor of 25 at the operating frequency of 1 GHz.

**Keywords:** Micro inductor; MEMS; Power delivery; Electroplating

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