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单片三轴大量程加速度传感器性能测试与分析

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摘　要：

对设计的单片三轴MEMS大量程加速度传感器进行了马歇特锤冲击测试和Hopkinson杆冲击校准试验，得到了三轴加速度传感器冲击过载信号及其各轴向的横向灵敏度比、线性度等关键参数。测试结果表明该三轴传感器在受到117,395.95g以上的冲击信号作用时，传感器各轴仍然能够正常工作；其三轴轴向灵敏度均能达到0.1μV/g以上，各敏感轴受到轴向加速度时其线性度小于6%，轴间横向灵敏度比小于10%。

关键词：加速度传感器，三轴，大量程，MEMS

Testing and Analysis of a Single-Chip Triaxial High Measure Range MEMS Accelerometer

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Abstract:

The key parameters such as impact over-loading signal, ratio of crossing sensitivity of each axial, and linearity of single-chip triaxial high measure range MEMS accelerometer were tested by Master hammer and Hopkinson bar. The test results showed that the triaxial sensor can work with the impact acceleration up to 117,395.95 g. The sensitivities in the x, y and z axial were measured to over 0.1μV/g, the linearity of each axial in sensing direction was less than 6%, and the ratio of crossing sensitivity of each axial less than 10%.

Keywords: accelerometer, triaxial, high measure range, MEMS

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