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器件物理及器件制备技术

TFT-LCD Touch Mura不良的研究和改善

齐鹏<sup>1,2</sup>, 施园<sup>2</sup>, 刘子源<sup>2</sup>

1. 清华大学 电子工程系, 北京 100084;

2. 合肥京东方光电科技有限公司, 安徽 合肥 230012

摘要: Touch Mura在整个TFT-LCD制作流程中非常容易发生,并且严重影响产品性能。文章主要研究了液晶量、Sub PS设计、PS段差设计及工艺参数Total pitch对Touch Mura的影响。实验结果表明液晶量的增加能够补偿敲击偏移,减轻Touch Mura不良;Sub PS的Z字形设计由于阻挡效应能够有效减轻Touch Mura;Main PS和Sub PS的段差越大,Touch Mura margin越小;工艺参数Total Pitch越接近设计值,Touch Mura风险越小。所以在设计过程中优化液晶量和Main-Sub PS段差设计及Sub PS设计能够有效减低Touch Mura风险,此外,生产过程中对工艺参数Total pitch的管控也至关重要。

关键词: Touch Mura 液晶量 柱状隔垫物 Total Pitch

Research and Improvement of Touch Mura in TFT-LCD

QI Peng<sup>1,2</sup>, SHI Yuan<sup>2</sup>, LIU Zi-yuan<sup>2</sup>

1. Department of Electronic Engineering, Tsinghua University, Beijing 100084, China;

2. Hefei BOE Optoelectronics Technology Co. Ltd, Hefei 230012, China

Abstract: Nowadays, much attention had been paid to the investigation of Touch Mura, which affects the performance of products seriously. It has been observed frequently during the manufacturing process of TFT-LCD products. In this paper, several important impact factors to the Touch Mura were systematically studied, including the liquid-crystal quantity, the designing of sub PS, the designing of height difference between main PS and sub PS, and the total pitch (one of the process parameters). The experiment results demonstrated that the increment of liquid-crystal quantity can compensate the touch shift; thereby the decrease of the defect rates in Touch Mura will be lead to a certain extent. The "Z" design of sub PS can ease the Touch Mura effectively due to the blocking effect. Besides, it was also found that the more height difference between main PS and sub PS, the smaller Touch Mura margin is; meanwhile, if it set the parameter of total pitch close to the design values, the Touch Mura will occur in a very little chance. In conclusion, in order to reduce the risk of Touch Mura, it can obey the following ways in the new frame, including the proper using liquid-crystal quantity, the optimum designing of sub-PS, and the metering the height difference between the main and sub PS. In addition, the controlling of total pitch is also of great importance in manufacturing process.

Keywords: touch Mura liquid crystal amount post spacer total pitch

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通讯作者:

作者简介: 齐鹏(1983-),男,河北故城人,硕士研究生,高级工程师,主要从事TFT-LCD产品的品质管理工作,E-mail:qipeng@boe.com.cn.

作者Email:

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