

# **A New Storage Node Pad Formation Technology – Line Type SAC with Oxide Spacer(LSOS) and Direct Metal Plug(DMP) – for 0.115 $\mu$ m Tech and Beyond**

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Line type SAC with Oxide Spacer(LSOS) and Direct Metal Plug(DMP) were designed and developed as a storage node pad formation technology. This paper describes physical and electrical characteristics of this new storage node pad formation process including the overall integration scheme for cells having a minimum feature size of 0.115 $\mu$ m and provides comparative analysis with other storage node pad formation techniques