

Fraunhofer IPMS achieves 'first light' with its HYPOLED digital VGA full-color OLED microdisplay

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Fraunhofer IPMS is pleased to announce 'first light' with its digital VGA full-color OLED microdisplay. Thereby an important milestone within the European project "HYPOLED" has been achieved. The device features VGA resolution (640 x 480 x 3), active area 7.7 x 5.8 mm², chip size 12 x 11 mm², monochrome & full colour versions, digital pixel cell (PWM), 24 bit parallel digital video interface, I²C configuration interface (including color, contrast, gamma correction), 50/60 Hz frame rate, temperature monitoring and test modes (test pattern). The chip is realized on a 0.18 μm CMOS 8" backplane wafer (supplied by X-FAB Silicon Foundries) and operates with a core supply of 1.8 V. All digital inputs and outputs are 1.8 V interfaces. An effective OLED voltage up to 6.7 V can be applied (depending on specific OLED stack) with a negative voltage of -5.0 V at the common OLED cathode. Ongoing work is related to full characterization (Fraunhofer IPMS) and implementation into head-mounted displays (HMD) and micro-projector applications (in collaboration with HYPOLED partners). Samples and further HYPOLED achievements will be shown during the Society for Information Display (SID) Mid Europe Spring Meeting 2010 "Personal Projection and Information Displays: OLED, MEMS and emerging technologies for HMD, HUD, flexible displays and pico-projectors", to be held in Dresden/Germany on March 18/19 2010 (<http://www.ipms.fraunhofer.de/sidme2010>).

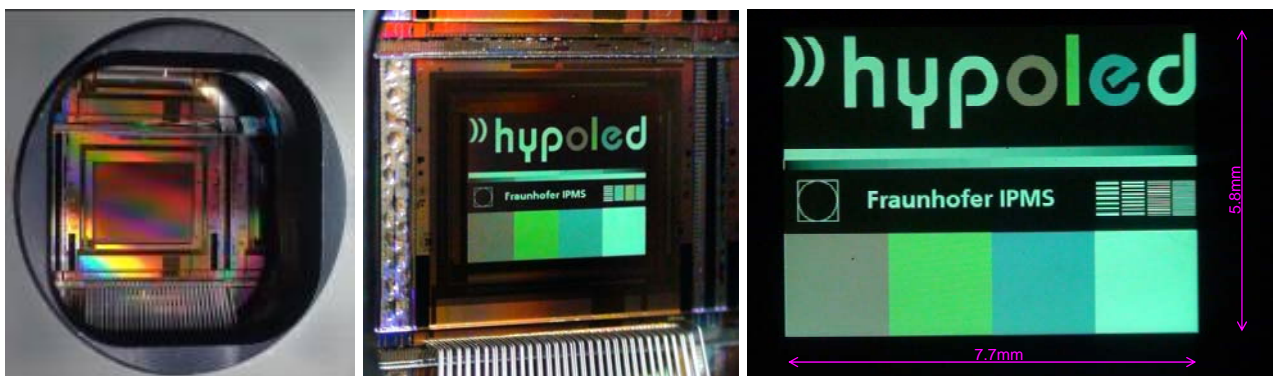


Figure 1: Microdisplay chip in wafer-level test setup (left), operating microdisplay (center), screen close-up (right)

About Fraunhofer IPMS (www.ipms.fraunhofer.de):

At the Fraunhofer IPMS, 250 employees work on electronic, mechanical, and optical components as well as their integration into the tiniest »intelligent« devices and systems. The product portfolio is geared toward customers who want to expand the functionality of their products with the implementation of OLEDs and microsystems (MEMS, MOEMS, CMOS), which offer innovative system characteristics and ever-shrinking dimensions. The unique competency of Fraunhofer IPMS lies in the use of light, i.e. in the application of optical attributes and components. Fraunhofer IPMS covers a wide range of industrial applications. Services range from product conception through development, right up to pilot production in internal labs and clean rooms – from a single device up to complete system solutions. Within the »Center for Organic Materials and Electronic Devices Dresden« (COMEDD) at Fraunhofer IPMS, the Fraunhofer Gesellschaft focuses on research, development and pilot-production of OLEDs based on small molecules. The aim of this center is to be the European leading production-related research and development center for organic semiconductors, mainly organic light-emitting diodes (OLED) and vacuum technology.

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About HYPOLED (www.hypoled.org):

HYPOLED is a collaborative project of European partners funded under the STREP scheme of the European Commission's (EC) Frame Programme 7 (FP7, ICT-2007.3.2-217067). The project is targeted towards "High-Performance OLED-Microdisplays for Mobile Multimedia HMD and Projection Applications", commenced in January 2008 and scheduled for completion in June 2010.

Fraunhofer IPMS is coordinator of this project, further partners are Mobintech A/S (Denmark), microoled SARL (France), Fraunhofer IOF (Germany), Universität zu Köln (Germany), University of Edinburgh (UK).



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