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Samsung's New Image Sensors Bring Fast and Slim Attributes to Mobile Applications

Samsung releases ISOCELL Fast 2L9 with Dual Pixel technology and ISOCELL Slim 2X7 with Tetracell technology

SEOUL, Korea – October 11, 2017 – Samsung Electronics Co., Ltd., a world leader in advanced semiconductor technology, today introduced two new ISOCELL image sensors: 1.28-micrometer (μm) 12-megapixel (Mp) ISOCELL Fast 2L9 with Dual Pixel technology, and ultra-small 0.9 μm 24Mp ISOCELL Slim 2X7 with Tetracell technology.

Samsung ISOCELL image sensors fall into four categories—Fast, Slim, Bright and Dual—depending on their key attributes. As market demand for sleeker smartphones with advanced features increases, ISOCELL Fast 2L9 and Slim 2X7 both offer high resolution image sensors in small chip packages, delivering detailed pictures in low-light environments without a camera bump.

With Dual Pixel technology, the ISOCELL Fast 2L9 delivers ultra-fast auto-focus at a reduced pixel size from the previous Dual Pixel sensor's 1.4 μm to 1.28 μm . Dual Pixel technology employs two photodiodes in each and every pixel of the sensor instead of only one. With 12 million focus detecting pixels, the sensor is able to not only quickly focus on small still objects, but also lock on and track moving objects without losing focus, even in low-light environments. With smaller pixel size, the ISOCELL Fast 2L9 can fit into slimmer camera modules, enabling bump-less designs for smartphones. Dual Pixel technology especially allows depth-of-field effect for taking *bokeh*, or aesthetically out-of-focused photographs, through a traditional single lens camera.

At 0.9 μm , the ISOCELL Slim 2X7 is the first sensor in the industry to have the pixel size below 1.0 μm . Even with such a small pixel size, the Slim 2X7 is able to provide high color fidelity with less noise due to the improved ISOCELL technology's deeper DTI (deep trench isolation) that reduces color crosstalk and expands the full-well capacity to hold more light information. In addition, the small 0.9 μm pixel size enables a 24Mp image sensor to be fitted in a thinner camera module, allowing premium smartphones to offer high resolution cameras in a very slim and elegant design.

The ISOCELL Slim 2X7 is also packed with Tetracell technology, which lets the sensor take brighter photographs in the dark and more detailed ones in well-lit environments. Tetracell improves performance in low-light situations by merging four neighboring pixels to work as one to increase light sensitivity. In bright environments, Tetracell uses a re-mosaic algorithm to produce full resolution images. This enables consumers to use the same front camera to take photos in various lighting conditions.

"Samsung ISOCELL Fast 2L9 and ISOCELL Slim 2X7 are new image sensors that fully utilize Samsung's advanced pixel technology, and are highly versatile as they can be placed in both front and rear of a smartphone," said Ben K. Hur, Vice President of System LSI Marketing at Samsung Electronics. "Samsung plans to further develop the Dual Pixel and 0.9 μm -pixel product categories, and expand applicable devices for ISOCELL image sensors that can enhance photographing experiences for consumers."

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