



## Samsung Introduces LED Modules Based on Chip Scale Packaging for Spotlights and Downlights

**SEOUL, Korea – Oct. 12, 2016** – Samsung Electronics Co., Ltd., a world leader in advanced component solutions, today announced a new line-up of chip scale package (CSP) LED modules for spotlights and downlights that features color tunability and increased design compatibility.

“Our new CSP LED modules provide an optimal solution for lighting manufacturers who seek highly compatible and reliable LED components,” said Jacob Tarn, Executive Vice President, LED Business Team at Samsung Electronics. “Samsung will continue to strengthen its CSP technology leadership and spearhead new innovations in LED component technology to bring greater value to our customers.”

The new LED modules are Samsung’s first to incorporate CSP technology, which bring a wide range of lighting benefits such as significantly reducing the size of a conventional LED package. The combination of advanced flip chip and phosphor coating technology eliminates metal wires and plastic molds to enable more compact designs when manufacturing LED modules and fixtures.

In addition to their size advantage, Samsung’s new CSP LED modules deliver further characteristics that furnish seamless tunable color. A color-tunable LED module requires twice the number of LED packages in cool and warm temperature, which work in combination on the same board to create a range of tunable colors. In contrast to conventional plastic-molded LED packages that inevitably increase the size of the modules, Samsung’s ultra-compact chip scale LED packages allow the module size to remain unchanged.

Samsung’s new CSP LED modules are available in two form factors (19x19mm or 28x28mm) and are designed following Zhaga specifications, making them highly convenient in assembling. The modules also provide high-quality lighting in diverse beam angle options – spot, medium, wide – for improved compatibility with the optical solutions of Samsung’s partners. The new modules are based on CSP LED packages that have successfully completed 9,000 hours of LM-80 testing, a level of proven performance that reduces the time to market for lighting manufacturers.

Samsung is now sampling six models of the new CSP LED module in CRI 80 and 90 with varying lumen output, size and CCT specifications. The full line-up includes:

Model	Power Consumption	Lumen	Form Factor (mm)	CCT
CO10	9.4	1050 lm	19x19	2700/3000/3500/4000K
CO20	18.3	2060 lm	19x19	
CO30	27.4	3090 lm	28x28	
CO40	36.5	4120 lm	28x28	
TO10	9.2-9.8	1060 / 1150 lm	28x28	Color tunable between 2700K~5000K
TO20	17.7-18.4	1970 / 2190 lm	28x28	

\* Based on CRI 80

### About Samsung Electronics Co., Ltd.

Samsung Electronics Co., Ltd. inspires the world and shapes the future with transformative ideas and technologies. The company is redefining the worlds of TVs, smartphones, wearable devices, tablets, cameras, digital appliances, printers, medical equipment, network systems, and semiconductor and LED solutions. For the latest news, please visit the Samsung Newsroom at [news.samsung.com](http://news.samsung.com).