



Samsung Introduces New Line-up of LED components for Automotive Lighting, Featuring Chip-Scale Packaging

SEOUL, Korea – June 21, 2016 – Samsung Electronics Co., Ltd., a world leader in advanced component solutions, announced today that it has introduced “Fx-CSP”, a line-up of LED packages which features chip-scale packaging* and flexible circuit board technology, for use in automotive lighting applications.

“Our new Fx-CSP line-up will bring greater design flexibility and cost competitiveness to the automotive lighting industry,” said Jacob Tarn, executive vice president, LED Business Team, Samsung Electronics. He added that, “We will continue to introduce innovative LED products and technologies, such as multi-chip array technology, that can play a key role in the growth of the automotive LED lighting industry.”

Samsung’s new Fx-CSP provides an advanced combination of chip-scale packaging and flexible circuit board technology, which together enable more compact chip sizing and a higher degree of reliability. The use of a flexible circuit board also enables more heat to dissipate, which leads to lower resistance and brings about a greater degree of lumen-per-watt efficiency than using a ceramic board.

In addition, the new Samsung automotive LED line-up allows car designers to use a variety of chip arrangements such as a single chip, a 1 by 4, or a 2 by 6 multi-chip arrangement to suit different lighting configurations. The Fx-CSP line-up can be widely used in automotive lighting applications that include position lamps** and daytime** running lamps as well as headlamps** that require higher luminous flux and reliability than other automotive lamps.

The Fx-CSP line-up consists of single packages, Fx1M and Fx1L, with 1-3 watts each, as well as packages with a 14W high voltage array, Fx4 and a 40W high voltage array, Fx2x6. The variation in wattage levels allows Samsung LED lighting packages to work well with a wide range of exterior automotive lighting.

By adding the new Fx-CSP line-up to its existing mid-power and high-power automotive LED component line-ups, Samsung now provides a highly competitive family of automotive lighting components.

Product	Chip arrangement	Power consumption (W)	Application
Fx1M	1x1	1	Daytime running lamp, Position lamp
Fx1L	1x1	3	Daytime running lamp
Fx4	1x4	14	Headlamp, Light guide type daytime running lamp
Fx2x6	2x6	40	Multi-beam headlamp

Samsung’s new Fx-CSP LED line-up was recently selected for a compact car headlamp project from
Confidential

one of the major global automotive manufacturers.

Samsung plans to introduce more CSP technology-based LED components such as the new Fx-CSP line-up for automotive lighting, later this year.

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.

###

* *Editors' Note 1:* Samsung's chip-scale package (CSP) is combination of advanced flip chip technology and phosphor coating technology. A CSP chip can be created by flipping over blue LED chips and then immediately coating them with a phosphor substance.

* *Editors' Note 2:*

- Position Lamp: A lamp used to make a car conspicuous and indicate the width of a vehicle at nighttime.
- Daytime Running Lamp: A lamp facing forward, used to make the vehicle more easily visible when driving during the day.
- Headlamp: A lamp used to illuminate the road over a long distance ahead of the vehicle under low light conditions.