

Murata launches 008004 size (0.25×0.125mm) capacitor-The Industry's smallest-Another "world's first" product offering from Murata

May 7, 2014

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Overview

Murata started mass production of the world's smallest 008004 size (0.25×0.125 mm) monolithic ceramic capacitors from April 2014.

Background

Mobile phones, smartphones and other mobile devices are incorporating ever more advanced functions, and there are demands to mount increasing numbers of components on boards and to further reduce component sizes. In addition, compact applications such as wearable devices are expected to become more popular in the future, increasing the requirements for more compact, low-profile capacitors.

Murata aims to lead the world in providing components that can contribute to compact, lightweight, consumer friendly mobile device sizes in the future. To accomplish this, we have increased the accuracy of our original raw materials, processes, machining and production technologies, and have integrated these technologies to successfully introduce the world's first 008004 size (0.25×0.125 mm) monolithic ceramic capacitors.

Features

008004 size (0.2×0.125mm) products require a mounting area approximately half that of 01005 size (0.4×0.2mm) products, which was previously the smallest size. This reduction in mounting space helps to reduce the size and profile of the end product. (See Fig. 1 below.)

Furthermore, mixed mounting is possible with the capacitors of various sizes used in many applications, so 008004 size (0.25×0.125mm) products can be used together with conventional-size products. (See Fig. 2 below.)

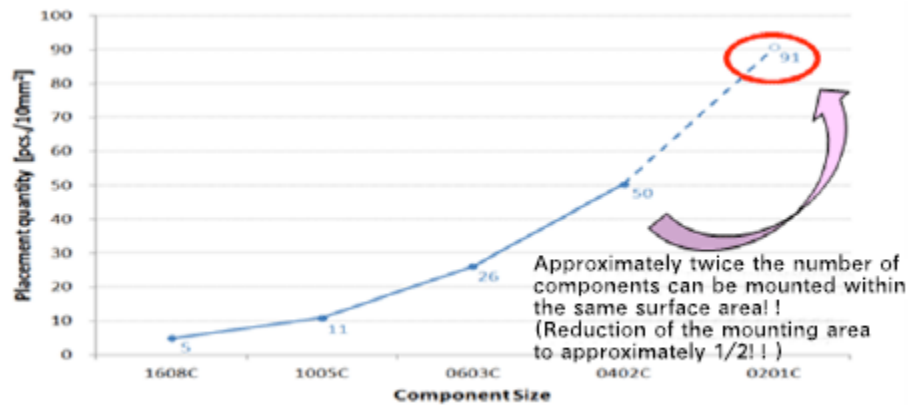


Fig. 1. Number of components mounted per unit area

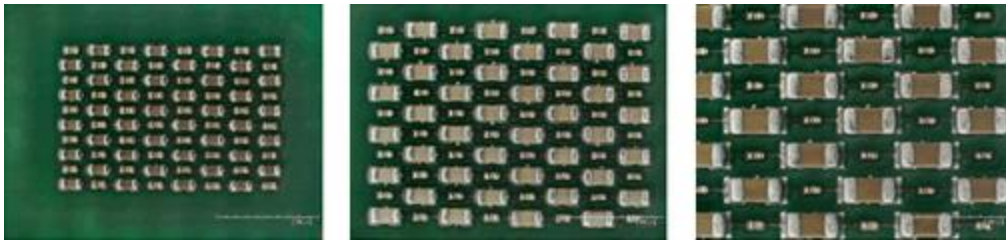


Fig. 2. Example of mixed mounting (Example of mixed mounting with 01005 size (0.4×0.2mm), 0201 size (0.6×0.3mm) and 0402 size (1.0×0.5mm) products, in order from the left)

Applications

Smartphones, wearable devices, compact module devices, etc.

Part number

Typical example: COG characteristics, rated voltage 25V, 1.0 pF, deviation class B (±0.1pF): GRM0115C1E1R0B

Electric characteristics

Temperature-compensation types

Temperature characteristics	CH*1、C0G*2
Rated voltage	25Vdc
Capacitance range	1pF~10pF**
Operating temperature range	-55°C~+125°C

*The capacitance range is scheduled to be expanded to include ranges less than 1pF and 10pF or more.

High-dielectric-constant types

Temperature characteristics	X5R*3
Rated voltage	6.3Vdc
Capacitance range	1,000pF~10,000pF**
Operating temperature range	-55°C~+85°C

*The capacitance range is scheduled to be expanded to include ranges less than 1,000pF and 10,000pF or more.

External size



L: 0.25±0.013、W: 0.125±0.013、T: 0.125±0.013 (unit: mm)

Production

Manufacturing commenced in April 2014 at Fukui Murata Manufacturing Co., Ltd. (Echizen City, Fukui Prefecture).
Monthly production of 10 million units at the start of mass production (April 2014)
Scheduled to increase to monthly production levels of 30 million units from October 2014

Sample price

10yen

Terminology

- *1 CH characteristics:** A temperature characteristic in which the capacitance temperature coefficient is $0\pm 60\text{ppm}/^\circ\text{C}$ when the operating temperature range is 20°C to 125°C .
- *2 C0G characteristics:** A temperature characteristic in which the capacitance temperature coefficient is $0\pm 30\text{ppm}/^\circ\text{C}$ when the operating temperature range is 20°C to 125°C .
- *3 X5R characteristics:** A temperature characteristic in which the capacitance change rate is $\pm 15\%$ when the operating temperature range is -55°C to 85°C .