

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

AVX CORPORATION

Petitioner

v.

SAMSUNG ELECTRO-MECHANICS CO., LTD.

Patent Owner

Patent No. 9,326,381

Issue Date: April 26, 2016

Title: MULTILAYER CERAMIC CAPACITOR AND BOARD HAVING THE
SAME MOUNTED THEREON

Post-Grant Review No. PGR2017-00010

**REQUEST FOR REHEARING
UNDER 37 C.F.R. § 42.71(d)(1)**

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For the reasons discussed below, Petitioner respectfully requests rehearing of certain aspects of the Institution Decision, Paper 11 (“Decision”).

I. Petitioner Identifies the Claimed “Dielectric Grains” in Jeong

In concluding that Jeong does not disclose the claimed “dielectric grains,” the Board was misled by Patent Owner’s Preliminary Response, which asserted that the “ceramic particles” of Jeong are merely “a source material ... transformed during [manufacturing] to contribute to the ultimate dielectric grains of the manufactured dielectric.” POPR at 8. Unfortunately, the Decision adopted this reasoning (Dec. at 15) and, in doing so, overlooked Jeong’s teachings relied upon in the Petition demonstrating that the “ceramic particles” are directed to the final, completed capacitor—not a “source material” used during manufacturing. In fact, the embodiment of Fig. 2 of Jeong, relied upon by Petitioner for its teaching of “dielectric grains” (Pet. at 34-35) is directed to a sintered ceramic body for which manufacturing is completed. Thus, the “ceramic particles” in ¶¶29 and 40 of Jeong are the final dielectric grains of “sintered ceramic body 110” that result from manufacturing, and are not material used during manufacturing (Dec. at 15).

In analogizing the “ceramic particles” of Jeong to the claimed “dielectric grains,” the Petition and Mr. Galvagni cited solely to the “ceramic particles 110a” discussed with respect to Fig. 2 of Jeong, and equated these ceramic particles to the claimed “dielectric grains.” Pet. at 34-35 (citing Jeong ¶¶29, 40); Ex.1003 at 43-

47, 54-55. Figure 2 of Jeong discloses a capacitor having a “sintered ceramic body 110.” Ex. 1005 ¶¶24-25. The “sintered ceramic body 110” includes a “capacitive part 110A” having “ceramic dielectric layers 111” containing “ceramic particles 110a.” *Id.* ¶¶25, 29, 40; Fig. 2. These “ceramic particles 110a” are the dielectric¹ grains in the manufactured capacitor of Fig. 2, which, as explained by Mr. Galvagni, is directed to a “sintered ceramic body,” *i.e.*, a finished capacitor that has been sintered. Ex. 1003 at 48; Ex. 1005 ¶¶24-25.

Thus, contrary to Patent Owner’s assertions and the conclusion reached in the Decision, these “ceramic particles 110a” are not a material used during manufacturing to make the dielectric layers, but rather are the particles (*i.e.*, grains) that constitute the dielectric layers of the final device after sintering. Because Jeong in ¶¶29 and 40 is discussing the final, sintered dielectric layer, its “ceramic particles” are equivalent to the claimed “dielectric grains,” and none of the issues alleged by Patent Owner (*i.e.*, thermal expansion, tensile and compressive stress, grain growth during sintering, *etc.* (*see* POPR at 9)) are relevant.

Notably, the Petition nowhere cited to Jeong’s discussion of the manufacturing process, because that portion of Jeong does not discuss the size of the dielectric layers or ceramic particles after sintering and after completion of manufacturing. This portion of Jeong was introduced by Patent Owner to

¹ Ceramic is a dielectric. *See* Ex. 1003 at 49-50; Ex. 1004 at 4:9-12; Ex. 1005 ¶29.

obfuscate Petitioner’s arguments, which in fact were based on the final, sintered ceramic body where the “ceramic particles 110a” are equivalent to the claimed “dielectric grains.” Petitioner requested leave to file a sur-reply to address this obfuscation by Patent Owner, but was denied. *See* Paper 9.

A. Sintered “Ceramic Particles” Are “Dielectric Grains”

Patent Owner’s own arguments, as well as Rutt, confirm that the “particles” of the sintered dielectric are the same as the claimed “dielectric grains.” Patent Owner asserts that the “ceramic particles are a source material that is transformed during the manufacturing process to contribute to the ultimate dielectric grains of the manufactured dielectric.” POPR at 8. Patent Owner also points to Rutt’s disclosure of “sintering temperatures” that “fuse ... ceramic particles into grains.” *Id.* at 9. As noted above, the Petition relies only on portions of Jeong directed to a manufactured capacitor where the particles have already been sintered, leaving only the final particles of the dielectric. As both Patent Owner and Rutt confirm, such sintered “ceramic particles” are synonymous with “dielectric grains.”

Further, the terms “grains” and “particles” are commonly interchanged when discussing a dielectric. For example, Patent Owner’s own documents conflate the terms. *See* Ex. 1016 ¶¶63,106, 110; claims 4, 5 (conflating the terms in “average number of dielectric particles” and “average particle diameter of the dielectric grains”). The POPR likewise refers to the “ceramic particles 110a” shown in the

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