

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

DECLARATION OF RANDALL LEWIS

Exhibit 1015

1. I, Randall Lewis, resident at 280 Greenwood Road, Afton, Tennessee, hereby declare as follows:

2. I am a scanning electron microscopy (SEM) engineer for AVX Corporation in Fountain Inn, South Carolina. I have held this position since July of 2005 and have over 38 years of experience in the field of physical analysis of electronic components including capacitors. My principle job is to evaluate components being developed by the Advanced Products and Technology group. As part of my employment at AVX Corporation and in my role as SEM engineer, I routinely cross-section (or otherwise deconstruct) electrical components such as multi-layer ceramic capacitors and analyze those electrical components using a scanning electron microscope and associated hardware and software tools.

3. In early January of 2017, I was provided with a reel of capacitors by Mr. John Galvagni, and was asked to assist in analyzing the physical dimensions and other properties of several samples of the capacitors on each reel. I selected three sample capacitors from the reel provided by Mr. Galvagni. To prepare the samples for SEM analysis, as is my typical habit, I cased each of the sample capacitors on a mount in a two part acrylic epoxy called Castamount, which is purchased from Pace Industries. The samples were each placed in a same orientation according to their external electrodes, and the mount was labeled with

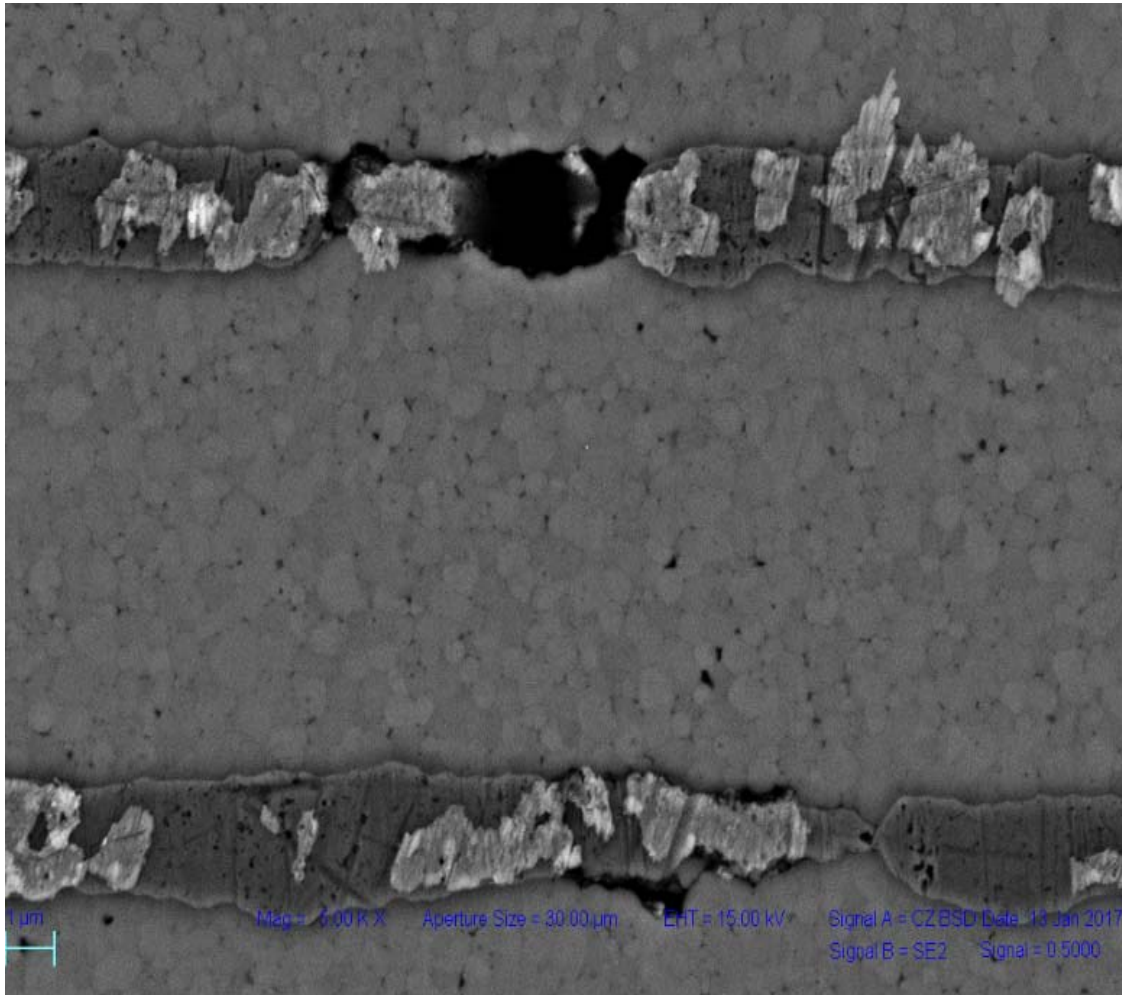
the date on which the mount was prepared. Samples of the capacitors provided by Mr. Galvagni were the only samples mounted on that date. After the Castamount epoxy cured, the sample capacitors from Mr. Galvagni were sectioned to reveal a cross-sectional area suitable for visible analysis with a scanning electron microscope. For the sectioning, as is my typical habit, I used an Allied High Tech MultiPrep grinder and polisher and carbide sanding paper purchased from Allied High Tech. This process used to mount and section the sample capacitors from Mr. Galvagni is the same process I routinely use in my role as SEM engineer for critical destructive physical analysis requests of electrical components. I have performed sample preparations such as this approximately 3,000 times in my career at AVX, and the results of my preparation and subsequent analysis are regularly relied upon by me and others at AVX during the normal course of business.

4. After completion of the mounting and sectioning process, I witnessed Mr. Galvagni take photographs of the respective cross-sections of each sample capacitor with a Zeiss Axio Imager Optical Microscope. After these initial photographs were taken, the sample capacitors were prepared for scanning electron microscope evaluation of the dielectric grain structure between internal electrode layers. To prepare the sample capacitors for this analysis, I placed the mount onto an aluminum stub using conductive carbon adhesive and aluminum adhesive strips.

The mount and the aluminum stub were then placed in a Denton Vacuum Desk-1 chamber and degassed and sputter-coated for 30 seconds with gold-palladium. This process used to prepare the samples for scanning electron microscope evaluation is the same process I routinely use in my role as SEM engineer for preparing samples for such evaluation. I have performed sample preparations such as this approximately 3,000 times in my career at AVX, and the results of my preparation and subsequent analysis are regularly relied upon by me and others at AVX during the normal course of business.

5. The gold-palladium coated capacitors and mount were then placed in a Zeiss Sigma field emission scanning electron microscope (SEM) with which I reviewed each of the samples of the capacitors provided by Mr. Galvagni. The dielectric layers were the same for each of the three samples of the capacitors provided by Mr. Galvagni both in numbers of grains per layer and approximate size of the grains themselves. I took magnified photographs of the dielectric grain structure for sample 2 of the sample capacitors provided by Mr. Galvagni using a Carl Zeiss Backscatter Detector at 5,000 times magnification and at 20,000 times magnification. I selected sample 2 because it offered the clearest photographs from the three samples of the dielectric grain structure. This sample 2 is the same sample as the sample 2 capacitor to which Mr. Galvagni refers in his declaration. I personally provided the following photographs of sample 2 to Mr. Galvagni on a

thumb drive, the first of which is taken at 5,000 times magnification and the second of which taken at 20,000 times magnification:



Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.