

## **PSMA Capacitor Committee Minutes & Action List**

### **Attendees October 11, 2021**

**Fred Weber – Future Technology Worldwide**

**Pierre Lohrber – Würth**

**Andrew Mikulski – KEMET**

Ada Cheng – AdaClock

Beth Massey – TEA - The Energy Authority

Brian Sparks - FEDCO

Caleb Breazeale - Independent

Ed Herbert – PSMA – Magnetics Workshop

Ed Lobo – CDE

Eduardo Drehmer – TDK

Eric Schneider - Independent

Frank Puhane – Würth

Hengzhao Yang – New Mexico Institute of Mining and Technology / IEEE

Joe Horzepa – PSMA

John Horzepa - PSMA

Kevin O'Connor – Caporus Technologies

Mark Scott – Miami U / IEEE

Matt Wilkowski – Magnetics Committee – Workshop

Mike Cannon - TDK

Mike Dombrow – Faratronic

Mike Dombrow Jr – Faratronic

Mike McGeachie – FAE Cornell Dublier

Nick Visic – AISHI Capacitors

Norm Schutzkus – Richardson Electronics

Peter Victor - Fedco

Phil Whitmire – CDE

Raj Pulugurtha – Florida International University

Rene Kalbitz -Würth

Rob Haywood – Gore

Scott Franco – CDE

**Stephan Menzel - Capxon**

Thomas Gietzol – Collins

Victor Boyadzhyan – AiTech Systems

~~William Mak – KEMET~~ left KEMET

**Next Meeting Wednesday, November 10,  
2021 at 10:00 CST**

**Discussed Planning Meeting Presentation**

### **Committee Webpage**

**The PSMA Webpage have been completely updated!!!**

**We can always use more!!! If you have a training presentation or file please upload it to the following DropBox and let me know:**

<https://www.dropbox.com/request/Nq4EYFznmfUKY7Qdiicu>

## **PSMA Capacitor Committee Minutes & Action List**

# **Vehicular (Automotive) Electronics Workshop**

PSMA is organizing a Workshop that focusses on the electrification Vehicles, including powertrain and autonomous products. Can use the following capacitor Webinar in the workshop.

Fast Charging – Ada Cheng, Gerald Deboy – Infineon  
PCB Layout Considerations – Victor Boyadzhyan  
Wireless Charging – Pierre Lohrber – Joe Horzepa  
DOD electrification trends – Chris Waling  
Israeli Capacitor company supplier for Wireless Charging – Norm Schutzkus  
Off road Autonomous vehicles – John Deere, CAT  
Latest On-Board Charger  
Power Distribution (24V to 48V)  
Safety –  
Reliability Committee – Ada Cheng  
Magnetics Requirements - Spang

## **Webinars**

***There is a desire and demand to restart the Fundamentals Webinars from the beginning with a fresh approach. Need volunteers, preferably from those that were NOT part of the first series.***

### **PSMA Capacitor Committee Offers Capacitor Fundamentals for Automotive Applications**

Webinars / Low power and control circuit applications  
/ Power Stage – High Power

**Picking Capacitors for your application is always a challenge. Deciding on the proper component given all of the various parameters associated with your design and the numerous capacitor technologies results in choosing a part that best balances the pros and cons of each component and how your application will react to the use of that specific part. Add in the need to consider an automotive application with the temperature extremes, need for EMI suppression, not to mention shock and vibration and you have a true challenge for only the most experienced engineers.**

**PSMA Capacitor Committee will be offering two Educational Webinars presented by a design leader in the automotive industry explaining a best practices approach to choosing the capacitor that will be best for your application. The Webinars will be broken into different power levels.**

## **PSMA Capacitor Committee Minutes & Action List**

[Best Practices for Choosing Capacitors for Automotive Low-Power and Control Circuit Applications](#)

[Best Practices for Choosing Capacitors for Automotive High-Power Applications \(power stage in Chargers, Converters, & Inverters\)](#)

Specific capacitor locations will be identified on schematics, and their requirements will be reviewed and all of the various critical parameters will be identified. Various suppliers' products will be analyzed using their datasheets as possible candidates. Will we be able to find the best solution? We will have to see...

[Eric Schneider, Independent Engineer with over 35 years of engineering experience.](#)

### **Pierre to offer a Würth Fundamentals 101 presentation**

#### **Educational Webinar – Sorting out the Data Sheets**

Need an FAE or using engineer with experience reviewing different brands of cap datasheets to compare and contrast and to pull out key data

#### **Redo the Capacitor Fundamentals series**

Need volunteer(s) to start at the beginning

## **Roadmap Webinar 2021 & 22 Ideas – Reviewing Options**

### **FUTURE ROADMAP Webinar Ideas**

#### **Norm, RELL – Vishay possible high voltage ceramics discussion, disks... trying to get more details**

##### **NEED IDEAS!!!**

New technologies for Broadband application Capacitor support  
Tantalums

##### **New in Ultra Caps – Takata, more than ELC – Hybrid package?**

Application Driven – how different technologies behave – Filtering, Inverters (DC Link), Power Supplies, compare and contrast technologies and certain parameters for each technology.

Also include Environmental technology discussion (i.e. Heat, Vibe, EMI).

Würth – Power Supply - DC Link / MLCC DC bias

**EPCOS – Filtering X/Y Caps, Rob Haywood – Gore's new dielectrics**, Würth - Polymers with higher capabilities

##### **Cap optimization for EMC & EMI, BOM, layout, etc. – Raj**

**New: Aug, 4<sup>th</sup>**

Raj and Victor to supply an abstract of his presentation

**Polymer Caps, MLCCs – at least two segments: low voltage / high voltage**

## **PSMA Capacitor Committee Minutes & Action List**

**Make suggestion to Connor & Dhaval for Power Tech Roadmap**

**Possible Eaton Hybrid Supercap – need contact**

<https://www.eaton.com/us/en-us/products/electronic-components/faq/what-is-a-hybrid-supercapacitor.html>

## **Workshop Mission Statement –**

*The PSMA Capacitor Committee Annual Workshop aligned with APEC has a mission to educate the attendees on capacitor trends, technologies, and innovations. Wherever and whenever applications need energy, Capacitors are at the spotlight, and as energy moves the world it is incumbent for everyone to keep their finger on the pulse of capacitor issues. PSMA's Capacitor Committee is committed to present the best material available to meet the industry's needs.*

## **Workshop 2022 – Overview**

### **2022 Theme**

**Schedule – Setup like before, Sat., before APEC starts**

**Appreciation letter, PSMA header, signed by chair to all speakers (IS & WS), both committees (Mag & Cap) support this suggestion**

**PSMA Capacitor Committee Minutes & Action List**

**Industry Session 2022 – Andrew Mikulski**

**Abstract for Industry Session 2022  
Hearing from Capacitor Wideband Gap (SiC, GaN)  
Customers, What Does the Industry Need, What  
Capacitor Technologies Need to Improve**

Joe – Sept., 17<sup>th</sup> date of committing to an IS, headline – rough setup

Change the perspective; listen to the VOC (voice of customers)

Identify customers who would be interested in taking part & take a slot – all participants

**GET MORE COMMITTEE PARTICIPANTS**