SAE INTERNATIONAL

MIL-PRF FOR EXTENDED RANGE STACKED CERAMIC CAPACITORS

ELECTRONICS TECHNOLOGY WORKSHOP

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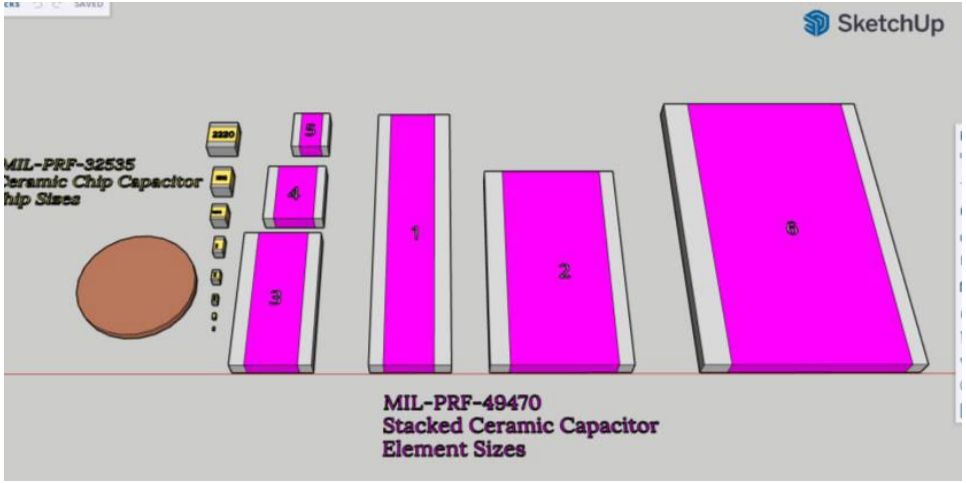
Task Description

A need is seen for higher capacitance high reliability capacitors in smaller footprints. Some users have had COTS product built into stacks to meet these needs. Our goal is to work with DLA to produce a MIL-PRF for stacked capacitor assemblies based upon smaller geometry extended range ceramic capacitors.

Illustration of circa 1980's MIL-PRF 47490 chip outlines verses MIL-PRF 32535 chip outlines.



Description of End Product

The following items have been selected to start this process:

a) Interested suppliers - Three to five suppliers have a stated interest.
b) Will be surface mount only.
c) The document will include Non-Established and Space level components.
d) The physical case outlines documented will initially reflect the current customer demand (unless our survey demand indicates a different trend).
e) X7R, NPO and perhaps X5S dielectrics.
f) Three slash sheets will be developed initially based upon 1210, 1812 and 2220 case sizes. The base document will follow.
g) Voltage range is TBD but will be with the 10 to 100-volt range and perhaps 200 volts for NPO products.
h) Minimum capacitance will be clamped at the maximum value present in MIL-PRF 32535.
i) Will be both PME and BME technologies.

Interested Supplier's

Supplier	POC's
AVX	Ron Demcko, John Marshall, Bill Sloka, Daniel West
Kemet	Hal Perkins, Wilson Hayworth, Abhijit Gurav, John Bultitude
Presidio	Christine Pollock, Maria Petkova, Fred LaGrange (?)
Spectrum Control	No Reply
Union Technology Corp	Robert Boughrum, Jacob Yang, Stephanie Loreto, Gary K, Lauriano V
Vishay	Brian Ward (interested party not currently producing stacked MLCCs)

Process

This effort had been started over a year ago but had stalled due to other priorities among the usual volunteers. Now that MIL-PRF 32700 has posted and MIL-STD 1580 rev D is nearing submittal to DLA, this effort has been rebooted.

- The entire user, DLA, government and manufacturer group of participants will meet every 4 weeks. (June 20, July 18, etc.)

- A manufacturer only group is also meeting monthly on a proposed slash sheet. (These meetings will be offset two weeks from the larger group. The next manufacturer only meeting would be July 4, Aug 1, etc. They will probably need to adjust their schedule to do something different for their July 4 meeting.)

In support of the capacitor manufacturers, we are asking for user inputs (especially design organization) are what their needs are. An e-mail has been sent to the CE-11 and CE-12 community. A more targeted survey is planned.

Questions

The manufacturers request inputs from its customers, users and circuit designers to help focus their efforts.

- What capacitance values and rated voltages are needed?
- Vertical or horizontal chip arrangement?
- Preferred lead configuration and number?
- Maximum chip count or height?
- Etc.

The manufacturers plan to share a list of the questions that they would like user input for at the scheduled June 20th meeting of the larger government, industry and manufacturer group.

Summary

Members of SAE's CE-11 components committee in conjunction with DLA and with the support and knowledge base of the component manufacturers are developing a "MIL-PRF-Stack." This is seen as a technology update to the ceramic capacitor assemblies upon which MIL-PRF 49470 was based upon. MIL-PRF Stack should more accurately reflect the current desire for a higher capacitance and reduced board footprint product that is qualified and has a known high reliability.

The MIL-PRF Stack task group welcomes user inputs on what they desire for product performance and what attributes they would like to see to support their next generation products.

Contact Information

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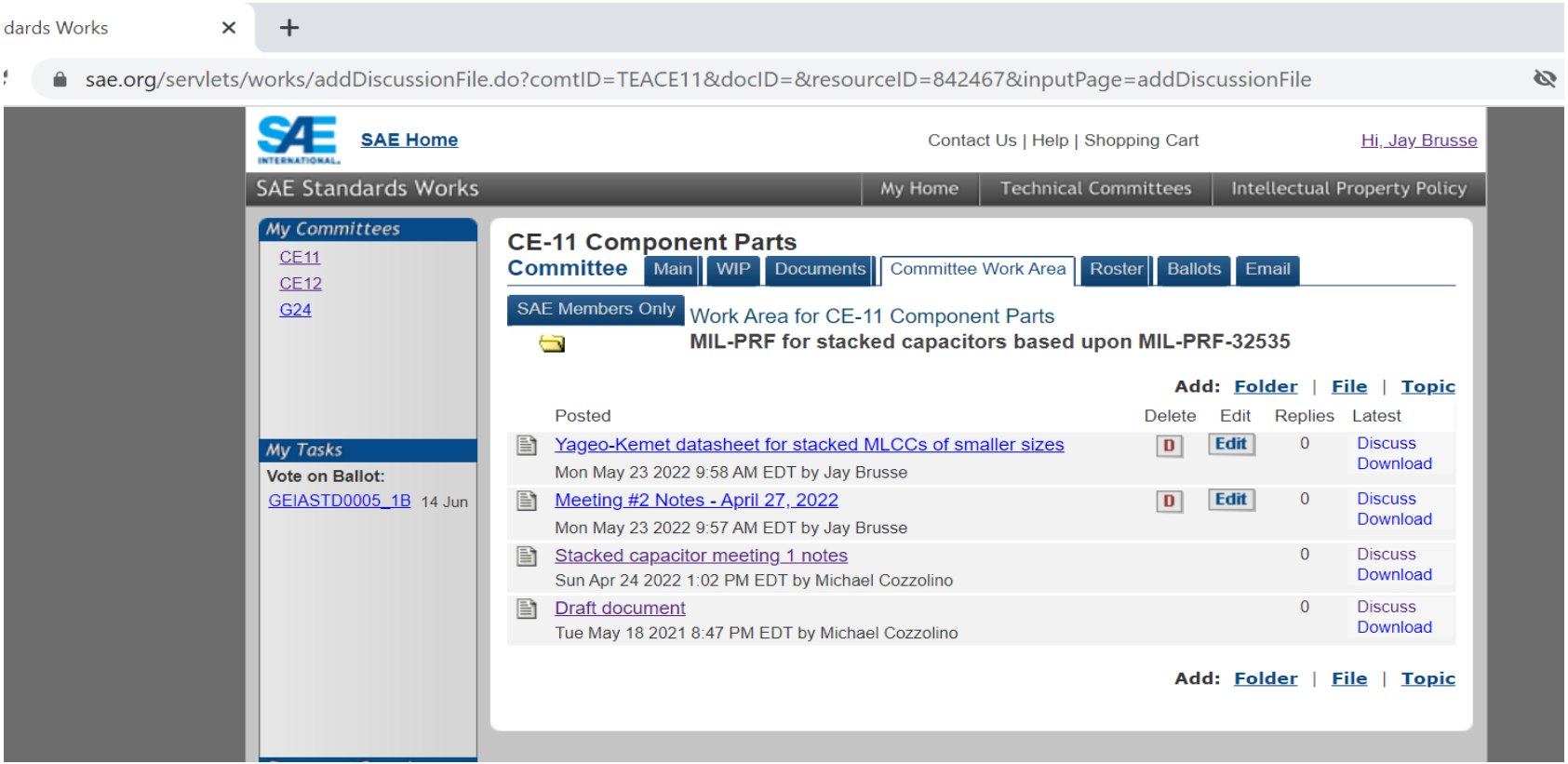
Where to find Information



QUESTIONS?