Lessons Learned of MLCC Allocation
Allocation on Passive Component Market

It’s low tide for MLCC’s
Allocation on Passive Component Market

Extensive EOL

Significant Price up

According to the Japanese media reports, the Murata Manufacturing Co., Ltd. held a media meeting in Tokyo on November 29, and announced the combined sales target for 2021, which is 2 trillion yen.

The reason for setting the target at 2 trillion yen is that Murata believes that the next-generation communication standard “5G” will be put into operation in 2020 and auto-driving and other car electrification processes will increase the demand for electronic components.

According to Murata, the annual production increase rate of its main product MLCC is 10%. MLCC is a component for stabilizing voltage and noise reduction, Murata produces more than 1 trillion pieces per year and has a global market share of 40%, it is the world’s largest MLCC producer. In the past two years, MLCC has been in a state of shortage, and Murata also said at the business briefing that it will raise MLCC prices from January to April next year.

Murata did not mentioned at the media meeting that which MLCC parameters prices will be increased. It is worth noting that after a year of shortages and price increases, MLCC is slowly returning to supply balance, and prices are slowly falling. If Murata announced the official price increase in January 2019, it will have a big impact on the entire MLCC market.

Source: https://www.annet.com/eps/portal/abacus/solutions/technologies/passive/capacitors/the-global-mlcc-shortage/

Source: https://epsnews.com/2018/08/30/component-shortages-worsen/


Source: http://www.semimedia.cc/?p=3536

Source: murata mailing, March 2018
MLCC prices to rise 40-50% in 2Q18

MLCC‘s

- Massive price increase
- LTs > 40 weeks in average and lots not available parts
- Quarterly prices up to bidding procedures


Where we are coming from:

MLCC’s

- Massive price decrease over 27 years, prices down to less than a fifth of the origin
- Korea – Japan – Taiwan - Battling for lower prices over a decade
- Huge increase in demand from consumer based applications

What Triggers the Situation?

- Generally good market situation before allocation
- Worldwide E-Mobility / EV market creates high demand
- IPhone X generation, Huawei mate, Samsung Galaxy have generated massive cap needs
- Enrolled 5G standard
- No or small investments into MLCC productions because of low margin business
- EOL messages from major manufacturers

Source: https://www.innovationtoronto.com/2017/04/the-5g-wireless-communications-standard-is-creating-the-conditions-required-for-the-tactile-internet/
Why do Some Emphasize the Use of Smaller Sizes?

- Production optimization
- Resource optimization
- Technology progress
- Market demand
- Optimize earnings per space

<table>
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<tr>
<th>Global Share</th>
<th>Size (inch)</th>
<th>Size (mm)</th>
<th>Quantity per Production Wafer</th>
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Allocation on Passive Component Market

MLCC’s

- Supply based on sizes
- Small sizes getting more and more volume
Which Sizes Maintain in Future?

- EOL announcements @ Murata, Taiyo Yuden, TDK and others on sizes ≥0603

- Customers are doubtful:
  - How to maintain designs with 0603, 0805 and larger?
  - What to do with application life cycles longer than consumer business?
  - Which sizes should be in focus for new developments?
Disadvantages of Changing to Smaller Sizes?

- **Worse electrical stability / performance**
  - For class 2 ceramics X7R / X5R >> higher capacity loss due to DC bias

- **Physics – mechanical & electrical**
  - Less stability of smaller components with thinner layers especially with higher voltages

- **New production equipment**
  - New feeder benches, nozzles and pick & place machines

- **Re-design necessary**
  - Engineering resources blocked for ages instead of creating new designs
  - Releases (such as e.g. UL) must be renewed
  - Changes in the manufacturing process needed
How to Overcome the Actual Situation?

Searching for long-term stability

- Some confirm larger MLCC case sizes (>0603) at least until end of 2023
- Different technologies for new designs
  - H-Chip Aluminum Polymer
  - Miniaturization of E-Caps (Ø3mm)
Conclusion

- MLCC market remains tight, actual slight step back to normality due to lower quantities in mobiles and other market influences
- Lots of EOL announcements, but still manufacturers maintain larger sizes
- Consider alternatives for new designs, e.g. H-Chip Aluminum Polymer
- Miniaturization of E-Caps (Ø3mm) as another alternative
- Long-term cooperation to ensure component availability