

# Market INTELLIGENCE Report

**2018 | October/November/December**

At Asteelflash Group, we manufacture products over 4 continents, 8 countries, 18 factories, and manage Supply Chain Material all over those areas. Asteelflash procurement and advanced sourcing organization have been designed to support our customers locally using our global leverage.

Since 2016, the Electronics components market is facing severe shortages. It started with Memories, then MLCCs (beginning 2017); currently we are seeing extended lead-times on discretes (SOT23/SOT223) and soon followed by Mosfets.

Our market intelligence report, released quarterly, is made to help you better understand the current and future challenges, and how mitigate them. In our Q1/2017 report, we have highlighted that the MLCC market was going to be very constrained and we asked our customers to extend their forecast in order to secure the supply chain. This initiative, combined with our distribution strategy, allowed us to maintain the right level of services to our customers.

As described in this report, we still face severe shortages on MLCCs in the next coming months. Placing extended orders are necessary, but may not be enough. So it is important to understand the root causes of this crisis in order to define and implement the right strategy.

There are about 3 Trillion MLCCs produced every year, and some main markets are driving the manufacturers' roadmap.

- \\ The **mobile devices** market, consuming about half of the annual production of MLCCs, and more in the coming years. As an example, an iPhone X contains around 1,200 MLCCs versus 800 in the previous version.
- \\ The **automotive** industry, also very strategic for MLCCs manufacturers. A thermic vehicle contains about 3,000 MLCCs against 20,000 for an EV.

- \ The Internet of Things. Experts expect to see about 20 billion IOT devices by 2020.
- \ The evolution of 5G is also a major focus for the manufacturers. Its implementation is coming soon in China which will constrain the market in the next months.

All these markets requiring small case size, Manufacturer's like Murata already announced end of life for all packages above 0402 (for MLCCS) in the coming months.

We recommend using other technologies, such as Plastic Film, Aluminum, Tantalum when possible for any new design or redesign. AFG can support you in your design efforts and provide a DFP (Design For Procurement) in order to choose the right sources.

Keeping good communication will be key to the success of your project and I'm very confident that we will overcome this crisis by working closely together.

**Ramy Karoun**

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Commodity Director – Asteelflash Group*

# Market trends and analysis report

- \ Moving into the end of 2018 MLCC constraints still continue .
- \ Expected to last through 2020 .
- \ We have lead times for passive components over 50 weeks plus, allocation ,and end of life.
- \ Some suppliers and manufacturers cancelling orders, or not taking new orders, instead choosing to discontinue the large case size MLCC's, forcing migration to smaller case size. The automotive, IoT, and the consumer electronics ( cell phones especially) have helped to create this shortage.
- \ Murata, one of the largest suppliers of MLCC's has issued a statement that they are going to stop manufacturing the larger case sizes 0603 , 0805,1206, 1210, 1812, 2220, and moving all production to the smaller case sizes recommending such as 0201, Kemet is also suggesting moving to polymer AECQ200 , aluminum (lead-time might be increasing but still a better choice), ceramic film, and of course good old tantalum. Kemet has sent out notices that they will no Longer be taking any new orders for the large case size MLCC's.
- \ Murata's last time buy for the larger case sizes is March 2019 and their last shipment March 2020.
- \ Some of the ways to alleviate this problem is to give plenty of lead time (suggest at least a year) and rolling forecast. The best way is to use suggested replacement parts in the design stage.
- \ Everyone needs to be aware that there are a lot of counterfeit parts in the market ( in the billions of dollars), and only when you have to purchase from brokers, only deal with known reputable brokers .

# Market trends and analysis report

- \\ Electrode foil is a key raw material for the aluminum electrolytic capacitor, taking up 30-60% of the Aluminum Electrolytic total cost.
- \\ Since 2017, stricter national environment protection requirements ( to protect the workers) put in place, have led to production suspension or bankruptcy of several aluminum foil manufacturers and resulted in a smaller supply of electrode foil available.
- \\ With the aluminum and electricity prices being hiked up, this causes a substantial rise in the prices of electrode foil in China and beyond. Aluminum electrolytic capacitor vendors have raised their prices a few times since the third quarter of 2017. It is predicted that the price uptrend of aluminum electrolytic capacitor is unlikely to be reversed in the short term.
- \\ Discrete- package size SOT23/SOT223 lead times increasing

# Section 301 Tariff

- \\ There have been three Tariff lists implemented by the Trump Administration since July 2018.
- \\ Suppliers have teams of people working on these lists to verify , COO –Country of Origin commodities and HTS codes affected deciding the best way to handle the added cost.
- \\ Most suppliers have chosen to bill separate which makes it easier for the CM's or OEM's to process, but there are a few suppliers, and manufacturer's that are adding the cost to the part, which makes it a little more difficult to sort what the true cost of the part versus added tariff cost.
- \\ There are parts manufactured in more than one country which might make it a little harder to tell until part is ready for shipment.
- \\ All agree the implementation of Tariff's is causing added time and effort to make sure we comply with federal regulations.
- \\ Some of the commodities that have been affected are diodes, Caps, resistors, motors, fabricated metal and plastics etc. included on the first two lists, the third list includes PCB's, which left many manufacturer's scrambling to move their PCB supply to other countries.
- \\ The parts listed above are used in almost all products from appliances, car's, IOT, your smart phones to name a few.

# BREXIT

scheduled to take affect 11:00 pm UK time on March 29, 2019

So If you think the Tariff issue is confusing, let us look at Brexit.

- \ Most people know, but just in case, Brexit is a word that is used as a shorthand way of saying the UK leaving the EU - merging the words Britain and exit to get Brexit.
- \ The European Union - often known as the EU - is an economic and political partnership involving 28 European countries. The EU has evolved to functioning as one entity, allowing goods and people to move around as if they were one country. With Brexit the UK would not be able to just drive their goods over the borders into the EU countries, they would have to negotiate a deal.
- \ If no deal or extension to negotiate is agreed to, then all EU treaties cease to apply. In order to renegotiate new deals for Brexit 20 countries w/ 65% of population need to agree. We will have to wait and see as this unfolds.
- \ To conclude, it might have an impact on our UK linked market. We will keep you posted.

# Provisional USMCA versus 25 years old Nafta

Effective January 2019

- \ Recently it was announced that there was a new trade agreement between the US, Canada, and Mexico expected to be signed the end of November.
- \ Besides affecting the dairy industry, it is expected to affect the car manufacturer's.
- \ If this goes through it will mandate that 75% of car parts must be made in North America in order for the car to be free from Tariffs.
- \ This is 12 percentage points higher than the original NAFTA.
- \ The agreement also includes an exchange rate curb, to deter countries from manipulating their currencies.
- \ Experts are currently sifting through the documents to access the actual impacts.

# LEADTIMES & PRICING Analysis

- \ **Passives** – As reported last Quarter Passives continue to increase lead time and pricing.
- \ **MLCC** - Multilayer ceramic capacitors still constrained and on allocation. Expected to last through 2021. Murata taking last time buys, Kemet not taking any new orders. All suggest move to lower case sizes.
- \ **Chip Resistors** - Lead times 50 plus weeks constrained and on allocation Vishay has been on allocation for some time, a number of other manufacturers are on allocation will continue through the end of year 2021.
- \ **Discrete** - Majority of the Discrete devices increased lead time and pricing. Especially your TVS , and Zener diodes using packages SOT23/SOT223. **Power Mosfet's** increasing lead time due to the advanced features in the automotive industry requiring increased power. We are currently monitoring as the increase of electric vehicles could have a big effect. Might be a good idea to place lead time and forecast.

# LEADTIMES & PRICING Analysis

- \ Sensors – Stabilizing Melexis, Infineon, ST Micro, On Semi 16-30 weeks. ST advises automotive components lead time constraints but report should see some relief Q2 2019
- \ Relays - Zettler, Honfa, Panasonic some series constrained, all others appear to be stable
- \ Filters and Inductors - Lead times increasing 36+ weeks.
- \ Memory DRAM – Is softening from last quarter.
- \ Microcontrollers – stable from last report. Lead time still long.

# Non-Volatile & Volatile Memory

	Pricing	Lead Time	Supply	General Lead Time
Nand-Flash	stable	stable	No Constraint	12-14 w
Nor-Flash	stable	stable	No Constraint	8-22 w
EeProm	Stable	Stable	Stable	5-17 w
SRAM	Stable	stable	stable	6-12 w –see ST below
DRAM	Stable	stable	Stable	6-10 w
DDR3-DDR4	Stable	stable	Stable	8-10 w
EPROM	Stable	Stable	Lt.'s extend	10-14w

- \ ST Micro still long lead times(14 to 38 w), but report second half of 2019 should see some relief.
- \ Cypress has a lot of EOL product. DRAM is stable.
- \ Micron long lead times for Flash, SDRAM, DDR, DDR2, DDR3 still constrained price is stable, looks to be softening.
- \ Renesas lead times increasing
- \ IDT stable for SRAM ,

# Analog, Linear, Logic

	Pricing	Lead Time	Supply	General Lead Time
Data converters	Stable	Stable	No constraints	8-24+ w
Amplifiers	Stable	Stable	No constraints	8-24 w
Interfaces	Stable	Stable	No constraints	8-20 w
Power Management	Stable	Stable	No constraints	2-16 w
Logic	Stable	stable	No constraints	8-24 w
Programmable Logic-FPGA	Stable	increases	Lt's extend	8-24 w
Linear	Stable	Stable	No constraints	4-22 w
Sensors	Stable	Stable	No constraints	16-30 w
Standard Analog	Stable	Stable	No constraints	6-8 w

- \ Data Converters are stable besides Automotive VNX series : 24+ weeks
- \ Amplifiers are mostly stable On-Semi and ST Micro increasing lead times, 26 weeks for ST Micro, and 20 weeks for On-Semi
- \ Power Management are stable
- \ Sensors are stabilized
- \ Logic are increasing with TI and Xilinx, Microchip is stable

# Passives

	Pricing	Lead Time	Supply	General Lead Time
Chip Resistors	Increases	Increases	Allocation	12-50w and allocation
Network & Array Resistors	Stable	Increases	Lt.'s extend	+16w
Non-Linear Resistors	Stable	Stable	Lt.'s extend	13-15w
Thermistors				
Trimmers & Pots	Stable	Stable	No constraints	10-16w
Varistors	Stable	Stable	No constraints	6-14w
Fuses	Stable	Stable	No constraints	2-10w
Frequency Control-Crystals & Oscillators	Stable	Stable	No constraints	10-14w
Resonators	Stable	Stable	No constraints	12-14w
Filters	increases	Increases	Lt.'s extend	8-32w

## Passives Continued

	Pricing	Lead Time	Supply	General Lead Time
Ceramic Capacitors	Increases	Increases	Allocation	20-52+w
SMP Tantalum Capacitors	Increases	Increases	Lt.'s extend	20-40w
Film Capacitors	Stable	Increases	Lt.'s extend	12-16w
Aluminum Capacitors	increases	Increases	Lt.'s extend	15-40w
Coils-inductors-chokes	Stable	Stable	No constraints	8-20w
Transformers	Stable	Increases	Lt.'s extend	10-14w
Ferrites	Stable	Stable	No constraints	6-12w
Inductors	Stable	Increases	Lt.'s extend	4-40+w

- \ Almost all MLCC constrained or on allocation. Murata taking last time buys for large case MLCC's , Kemet is not taking any new orders for MLCC's . Yageo Constrained
- \ Tantalum Capacitors very constrained
- \ Aluminum Capacitors SMD 3-10 mm constrained-increasing
- \ Inductors Large case sizes 3232,4040,6767 and all automotive parts ending in A 24-40 plus weeks.

## Discretes

	Pricing	Lead Time	Supply	General Lead Time
Thyristors	Stable	Stable	stable	14-20 w
BiPolar Transistors	Stable	Stable	Stable	4-12 w
Transient Voltage Suppressors	Stable	stable	stable	20-42 w
Rectifiers	Stable	stable	stable	18-39 w
Small Signal Devices	Stable	stable	stable	20-30 w
Zener Diodes	Stable	stable	stable	18-32 w
IGBT	Stable	stable	stable	18-42 w
MOSFETs	Stable	increasing	stable	24-30 w

- \ Lead time and pricing stabilizing, automotive still long lead time ,but stable. ST advises they see softening possible in Q2 of 2019
- \ Discretes **SOT23/SOT223** expect lead time increases
- \ Mosfets- Expect power Mosfets lead time to continue to increase.

# Connectors

	Pricing	Lead Time	Supply	General Lead Time
HeadersDin, PCB	Stable	Stable	No constraints	6-12w
Board to Board High Speed	Stable	Stable	No constraints	8-14w
I/O , D-sub	Stable	Stable	No constraints	6-10w
IC Sockets	Stable	Stable	No constraints	8-14w
Terminal Blocks & Crimps	Stable	Stable	No constraints	6-12w
RF Connectors	Stable	Stable	No constraints	6-12w
Automotive	Stable	Stable	No constraints	6-12w

\ Stable for all connectors.

# Electro Mechanical and Optoelectronics

	Pricing	Lead Time	Supply	General Lead Time
Circuit Breakers	Stable	Stable	No constraints	Stock-14w
Fans & Blowers	Stable	Stable	No constraints	14-16w
Heat Sinks	Stable	Stable	No constraints	Stock-8w
Relays	Stable	Stable	No constraints	6-26 w
Sensors	Stable	Stable	No constraints	8-10w
Switches	Stable	Stable	No constraints	8– 12w
Power Supplies	Stable	Stable	No constraints	6-14w
Infrared Comp	Stable	Stable	No constraints	6-14w
Isolation Comp	Stable	Stable	No constraints	4-16w
LED Displays	Stable	Stable	No constraints	8-12w
LED	Stable	Stable	No constraints	6-12w

- \ Panasonic series still long lead time up to 26 weeks.
- \ All others are stable.

## OIL – Plastic, Transportation, utilities

- \ ICE September Brent settled \$5.46 lower at \$73.40/b, while NYMEX August crude settled \$3.73/b lower at \$70.38/b.
- \ Crude longs were less focused on the US crude stock draw, and more focused on news that US President Donald Trump said the administration was moving forward with new tariffs on \$200 billion of Chinese imports.
- \ OPEC said global demand should grow 1.45 million b/d to 100.30 million b/d in 2019, but cautioned that trade disputes could have a chilling effect on the economy.
- \ Saudi Arabia pumped 10.49 million b/d of crude in June, up 460,000 b/d from May, OPEC said
- \ US crude stocks were 4% below the five-year average the week ending July 6, down from a 26% surplus the same week last year, the EIA data showed.
- \ <https://www.spglobal.com/platts/en/market-insights/latest-news/oil>

## Crude Oil price



70.38USD/BBL  
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## COPPER – PCB, Cables, Connectors, LCD

- \ Sustained growth in copper demand is expected to continue because copper is essential to economic activity and even more so to the modern technological society,
- \ Operating rates at wire and cable producers across China stood at 83.4% in June, down 8.39 percentage points from the same month last year, an SMM survey showed. This is also down 7.55 percentage points from last month.
- \ The month-on-month decline was because these producers accepted orders selectively on financial pressures towards the middle of the year.
- \ The Federal Reserve Board is expected to increase interest rates for four times this year, leading to a global tightening of liquidity and an increase in domestic interest rates. Stronger US dollar index depresses commodity prices. The ongoing trade conflicts added to risk aversion sentiment, and preference over high-risk assets including commodities and stocks decreased. While copper still has the best long-term fundamentals of the major metals, in the near-term macro risks remain and supply remains plentiful. Against this backdrop, SMM forecast LME copper prices to trade at \$6,200-6,600/mt in the Q3 2018.
- \ <http://static-metal.smm.cn>

## LME Cooper price



6,142 USD/mt

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## GOLD – CONNECTORS, PCB, PLATING

- \ Gold demand had a soft start to 2018, reaching 973 tonnes (t), the lowest first quarter since 2008. This was largely caused by a fall in investment demand for gold bars and gold-backed exchange-traded funds (ETFs), as a subdued gold price environment hampered demand.
- \ Overall demand was 973t, a decrease of 7% compared with 1,047t in Q1 2017
- \ Total supply was up 3% to 1,064t, from 1,032t in the same period last year
- \ Demand in the technology sector increased 4% to 82t compared with 79t in Q1 2017. The wireless sector was a key area of growth as 3D sensors for facial recognition were increasingly deployed in smartphones, gaming consoles and security systems.
- \ <https://www.gold.org/news-and-events>

## GOLD price



1,242 USD/OZ

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## PCB

- \ The future of the printed circuit board (PCB) market looks promising with opportunities in the communication, computer/peripheral, and automotive industries. The global printed circuit board market is expected to reach an estimated \$72.6 billion by 2022 and is forecast to grow at a CAGR of 3.2% from 2017 to 2022. The major drivers of growth for this market are the strong demand for smart phones and tablets along with growing automation in industries, such as automotive and aerospace & defense.
- \ Emerging trends, which have a direct impact on the dynamics of the industry, include the miniaturization of printed circuit boards and development of green PCBs
- \ Predictions that the demand for rigid flex PCBs is likely to experience the highest growth in the forecast period supported by growing demand for smartphone and display applications.
- \ Capacity may be an issue as the demand increases.
- \ PCB from China could be subject to the 301 Tariff

# THANK YOU