

## PASSIVE COMPONENTS TRENDS

The market for passive components is being driven by a variety of factors:

→ The disaster in Japan has affected a group of manufacturing facilities causing shut downs and postponement of supply. Specifically we believe the impact is most severe for certain types of large can size aluminum electrolytic capacitors, high CV and high voltage MLCC's, wire-wound and multi-layer inductors and ceramic substrates for chip resistors. In addition there is a degree of uncertainty from the nuclear radiation leaks which is influencing many OEM's on their buying strategies.

- Lead times have increased and there is evidence of double ordering to protect the supply lines before the busy summer builds.

- NIC has had very limited consequences from this disaster. The vast majority of our factories and raw material suppliers are in safe areas of Japan or completely outside of Japan.

- Still the influence on pricing due to spot shortages of materials and the pickup in demand from nervous buyers may impact some of our product lines.

→ Raw material costs are continuing to rise. As the global economy improves demand for precious metals and oil based materials grows commensurately. Some costs are offset by better yields and production efficiencies but in general we see prices stable to up as much as 20% this year. Transportation and utility costs will also rise due to the inflated energy costs.

→ Inflation and economic recovery will drive up the wages of workers and increase cost of production as well. Some shortages of skilled labor will occur and add to extended lead times.

→ Supply and demand. As mentioned earlier, demand is increasing with improving economic conditions and "hot" new product sectors such as smart phones, tablets, automotive and military electronics to name just a few. In addition, distributors are rebuilding their inventories along with the EMS and OEM customers who fear interruptions or inadequate supplies this summer.

## ALUMINUM ELECTROLYTIC CAPACITORS

- High reliability and extended life types of these capacitors are still dominated by Japanese companies.

- Demand from the automotive sector and higher end industrial products will put pressure on deliveries.

- While several Taiwanese and Chinese makers have entered this product domain, we urge caution in reviewing and testing their specifications. Japanese makers all utilize high end raw materials from vetted suppliers, and have many years of experience in this demanding market segment. Diligence in qualification of quality materials and component manufacturing gives the edge to Japan suppliers.

- Solid polymer version aluminum electrolytic capacitors (low ESR, flat package format) continue growth driven by embedded computing, high end PCs, laptops and tablet applications

## TANTALUM CAPACITORS

- We still experience a tight market with the possibility of further price increases. We don't think the same type of panic shortages in 2000 will occur but it is recommended that our customer pipeline products out at least 4 to 6 months.

## MLCC CERAMIC CAPACITORS

- Extended lead times on high capacitance ( $C \geq 10\mu F$ ) are to be expected. Conversion by MLCC makers to RoHS exemption free construction (ahead of 2013 deadline) will be discussion point for many customers. Learn your customer environmental requirements and manage MLCC inventories accordingly.

## DOUBLE LAYER CAPACITORS (EDLC)

- Growth and adoption of double layer capacitors for battery back-up applications, in green power applications.

- SMT version EDLC for reflow soldering process is hot product in 2011.

## MAGNETICS

- Material costs and increasing quality requirements have caused the shift to automatic assembly products (**NPI(S)\_LS Series**).

- Metal Composite Power Inductors (**NPIM Series**) continue growth driven by high end PCs, laptops and network stations

- Multi-layer styles gain in popularity. Ceramic (**NML Series**) increasing Q to compete against wire-wound technologies, while Ferrite (**NFI Series**) focus on extended range and current ratings.

- EMI Suppression such as Ferrite Beads (**NCB Series**) in greater demand with increased convergence in electronics. USB 3.0 introduced need for new common mode choke types.

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