

Surface Mount Capacitors

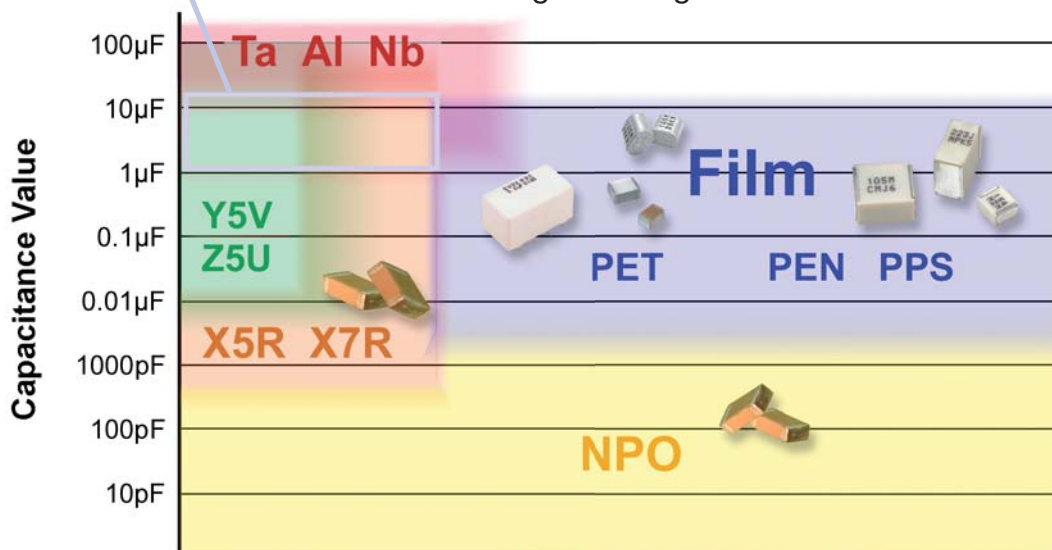
Dielectrics and technologies

Which dielectric is right for your application?

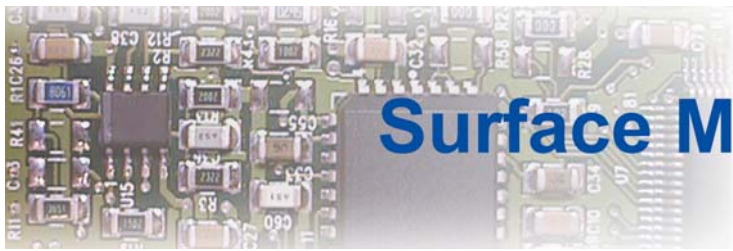
Use the chart below as a handy guide by first locating your tolerance for instability on the horizontal axis. Then move upward vertically to the capacitance value range of interest.

Film capacitors may also be used in place of ceramics or tantalums if:

- The risk of short-circuit or fire must be minimized.
- There are problems with thermal stress cracking using larger ceramics.
- Higher voltages are needed.



Cap. change over temp. range	>20% unpredictable	10%	5%	predictable	2%	1%	flat
Aging per decade of time	3%	1%			none		
DC voltage dependence	-70%	-15%			none		
Piezoelectric?	Yes				No		
DF @ 100KHz			>3%		2%	0.5%	0.1%



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Dielectrics and technologies

Avoid these common pitfalls

when specifying SMD capacitors

Reduce your footprint

Evox Rifa boxed SMD film capacitors can be packaged on tape for either horizontal or vertical mounting. When mounted vertically the required footprint is reduced considerably. For example a capacitor of size 4036 becomes 4022, a footprint reduction of nearly 40%.



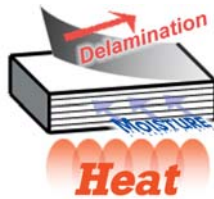
Need an SMD Y capacitor?

Check out the Y2 capacitor SMP253 with complete safety agency approvals. Made of metallized impregnated paper, SMP253 exhibits excellent self-healing properties to minimize the risk of short circuit. SMP253 can be vertically mounted.



Choose the type carefully

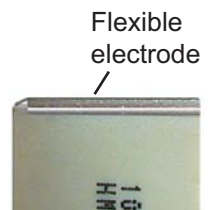
In lower C-values (typically <math><1000\text{pF}</math>) NPO ceramics are the best choice. In larger C-values an NPO may neither be as cost-effective nor as small as a film capacitor. If a film cap is chosen one may choose between wound and stacked construction. Stacked can be economical in small



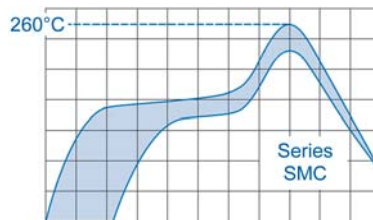
sizes, but larger stacked film capacitors may delaminate. That is, the layers may peel off with heat and moisture. They are also more sensitive to the environment. Where these problems exist use a wound film capacitor.

Thermal expansion stress

In the larger sizes ceramic capacitors (or their solder joints) may crack due to lower coefficients of thermal expansion compared to the PC board. Evox Rifa boxed SMD film capacitors have flexible electrodes to minimize thermal expansion stress.



Lead-free soldering & RoHS



Evox Rifa SMD caps have been Pb-free for more than 10 years. Now Evox Rifa has created new versions with peak reflow soldering temperatures of up to 260°C.

