



[Tech /](#)

BO Mspecs 2

Bill of Materials: Component Selection Criteria

R, L, C General Requirements:

The vendor assumes full responsibility for the accuracy all substitutions.

Most resistors are Thick Film, size 1206, 1% tolerance, thick film.

These are generally not critical. Any quality quality manufacturer will be ok.

But sometimes these are 1/2 Watt. Some have a different footprint.

Bypass capacitors should all be X7R dielectric material as a simple precaution.

Signal path capacitors should all be 10% tolerance or better, but they must be COG-NPO temperature coefficient.

Tighter tolerance can always be substituted where there are stock problems.

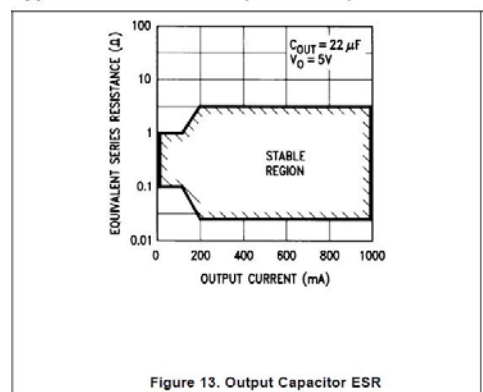
Specific Critical Components:

Voltage regulators are an annoying problem area. They may not only have a minimum and maximum range for filter capacitors, but these may also carry a minimum and maximum range for ESR. Thus, substituting a "higher quality" tantalum capacitor can actually result in regulator instability.

Worse yet, it may only occur unpredictably in 20% of units, or at higher temperature which makes the problem harder to spot.

Worse again, this spec is sometimes buried deep in page 17 of the spec sheet.

Typical Characteristics (continued)



The easiest way to spot this spec is by the rather distinctive plot.

There must be **no** substitutions on capacitors directly associated with voltage regulators. These are C60 - C66.

Inductors have more complex specs:

There are only a few standard test frequencies, but it is difficult to compare parts if they were tested at different frequencies. Q and equivalent series resistance are also quite variable.

There are many different types of ferrites used, but the exact mix is seldom specified. These can affect circuit performance.

There are no inductors in this circuit -- only ferrite noise suppressors.

Integrated circuits **will not** be substituted. There are far too many variables, and even I might miss some subtle difference. AODE does NOT possess sufficient expertise to make such decisions.

[TOP](#)