

## THE SVARC 200-WATT COMMON MODE CHOKE

### ASSEMBLY INSTRUCTIONS

*.K6NM Oct 2024 v2.*

-- **Parts list:** 96 cm length of RG-174 coax; 2 SO-239 coax connectors with mounting hardware; 6 zip ties; 1 ferrite toroid, type FT-140-43; snap lid ABS project box, pre-drilled; foam spacer.

-- **Mount the coax connectors.** Using a small screwdriver, gently pry open the box lid at one of the end slots, and insert each connector from the outside, with a flat washer, the ground soldering ring, another flat or lock washer, and then the hex nut, all on the inside of the box. Finger tighten this hardware - the plastic case can crack if you use too much force with wrenches, etc. Bend up the soldering tab and rotate it so it is easy to solder to.

After fully tightening down the hardware, apply a drop of super glue or thread lock to the edge of each connector's hex nut and washer to keep them in place.

-- **Wind the toroid.** You'll be adding 16 turns of RG-174 coax to the ferrite toroid. (Every time the coax goes through the center of the toroid ring, it counts as a "turn".) For this choke, we want the two coax ends to emerge opposite each other, for easy soldering to the coax connectors. The windings should be rather snug and neat-looking - there's no need to use much force. Here's a similar 14-turn choke:



Mark the center of the coax with a bit of electric tape, and feed the coax through the toroid core so the mark is in the center of the toroid hole. Snug down (finger tight) a cable tie to hold the coax center in place - then loosely attach two more cable ties that will secure each coax end. Take one tail of the coax and begin winding turns, keeping the coax turns snug and neat against the toroid.

Keep the turns next to each other - we'll space them out around the toroid later. Keep winding until about 1-1/2 inches of coax tail remains, then use a cable tie to snug that last coax turn down on the core. You should have 8 turns.

Now take the other loose end of the coax and wind that the same way, on the other side of the toroid, until that coax tail is also about 1-1/2" long. Use a cable tie to clamp it down. Again, you should have 8 more turns.

Gently work all the coax turns apart until they're pretty evenly spaced around the toroid - the two end tails should be opposite each other. When it looks good, give the cable ties a final tightening.

When you're done winding, place the choke in the center of the box, measure the tails and trim them to length for soldering. Remember, it's way better to have slightly too long tails than too short ones!

**-- Heat up that soldering iron.** Pre-tin the two connectors' center conductors and ground tabs. Prepare the coax ends for soldering. Try to keep the unshielded coax end leads short. Of course, the coax center conductor goes to the connector center, and the coax shield goes to the connector ground soldering tab.

Use an ohm meter to check your choke's continuity and add the foam spacer to keep the toroid from rattling around. Now snap that case lid on and enjoy!