

Modification of Freescale PRF8P90300 LDMOS board

Remove all existing ATC capacitors from the board. Except the input C on the gate side.

Clean the ground parts from green protection so you can solder the C later on.

Apply the +5 V regulator with its in and out C and the potentiometers on the board and connect it to the gate via the existing strip line.

Apply the low ohm semi rigid with the SMA C-output transformer carefully to ground so it fits to the board.

Connect the C-trimmers to the semi rigid and also all other C's to their initial position.

Prepare the input link.

Put a 50 ohm load to the output.

Start the initial adjustment with +28 V on the drain and a current limit to app 5 A. Adjust the bias current for each transistor to app 300 mA.

Apply 1 W of 1296 MHz to the input and start adjust the input to best SWR.

Measure the HF output in 50 ohm you will see something but not much.

Try with the trim cap to maximize output and substitute them with C.

Adjust the position of all C carefully 1 mm back and force for each try and even change the value until you get the wanted output. This is very time consuming and needs a lot of patina for an expert in SHF technician.

Never use too much driving power. If you go over -4 V gate voltage generated from rectified HF the transistor will be destroyed. Old LDMOS could not tolerate negative voltage on the gate. So the new LDMOS 8 from Freestyle former Motorola are very durable. It is almost impossible to destroy the output. When trimming the stage start with not more than 1 W.

Remember that the transistor is internally matched to 900 MHz. With your new matching you compensate for the internal and find a new matching for 1296 MHz. This is narrow and very critical.

At the end the gain should be 12 to 16 dB. Then you can try to rise the drain voltage to 34 V and the current limit to 16 A.

I use an input power of app 5W for 200 W output in a single transistor and 12 W for 400 W in a double transistor.

My 400 W amplifier works with 300 W output in a mast mounted system without any problem and no service since summer 2013.

Good luck

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