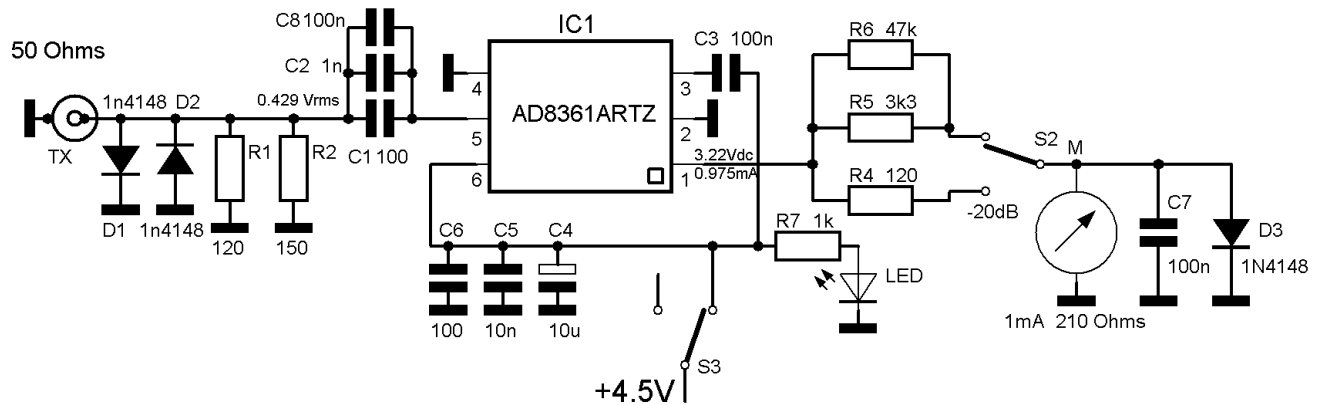


# Pa0nhc RF Low Power Meter 20171221

PA0NHC 1uW - 3.7mW RF PWR meter 200MHz 20170810



## Operation.

IC1 is a **"true rms detector"** SMD chip. IC1 is accurate and sensitive. It can detect -30dBm (1uW @ 50 Ohms) with an error of only -1dB. Equivalent to **minimum measurable power** of 1 uWrms over 50 Ohms load.

Between 0 and 800 MHz its conversion gain is abt. 7.5Vdc / Vrms, and its RF input resistance 225 - 175 Ohms.

Together with parallel resistors R1 and R2 the total input resistance varies from 0 to 800 MHz only between 51.6 and 48.4 Ohms.

From 800MHz to 2.5 GHz, gain, impedance and meter readings will drop gradually to lower values.

All resistors and capacitors are cheap 1206 size SMD components. The PCB has enlarged solder contacts for easier soldering.

For R1 and R2 are thick film SMD resistors chosen for their low self inductance.

(R5//R6) is dimensioned for full scale deflection at 3.3Vdc output of IC1.

Input voltage at IC1 is then 0,442Vrms (+6 dBm).

D1,2 start limiting after the meter reached FSD, to protect IC1 input for overload.

R4 is dimensioned for full scale deflection at only 0,33 Vdc output of IC1. S2 can be switched to R4 for reading lower power levels (+20 dB meter deviation). The maximal input voltage at IC1 is then 44.2 mVrms (-14 dBm). The meter is protected against overload by D3.

To minimize the chances of interference from low frequency sources, C8 attenuates frequencies below 14 KHz by 6dB/oct (-45dB @ 50Hz).

**If power at still lower frequencies should be measured**, a capacitor of 1uF can be soldered in parallel to C8.