



Zdenek OK₁DFC

SSPA 1kw 1296 MHz

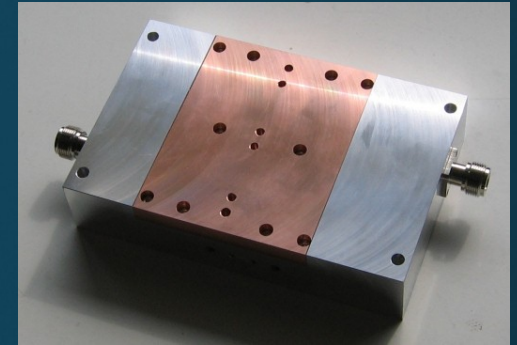
MW & EME PK UKF Stara Morawa 2017

Requests:

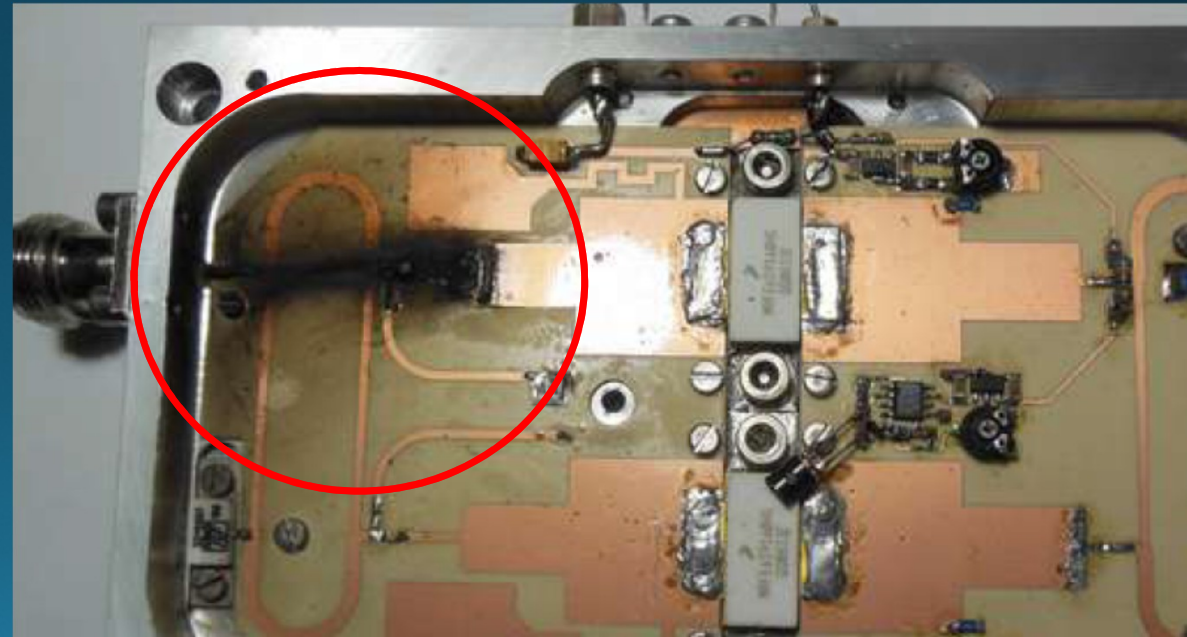
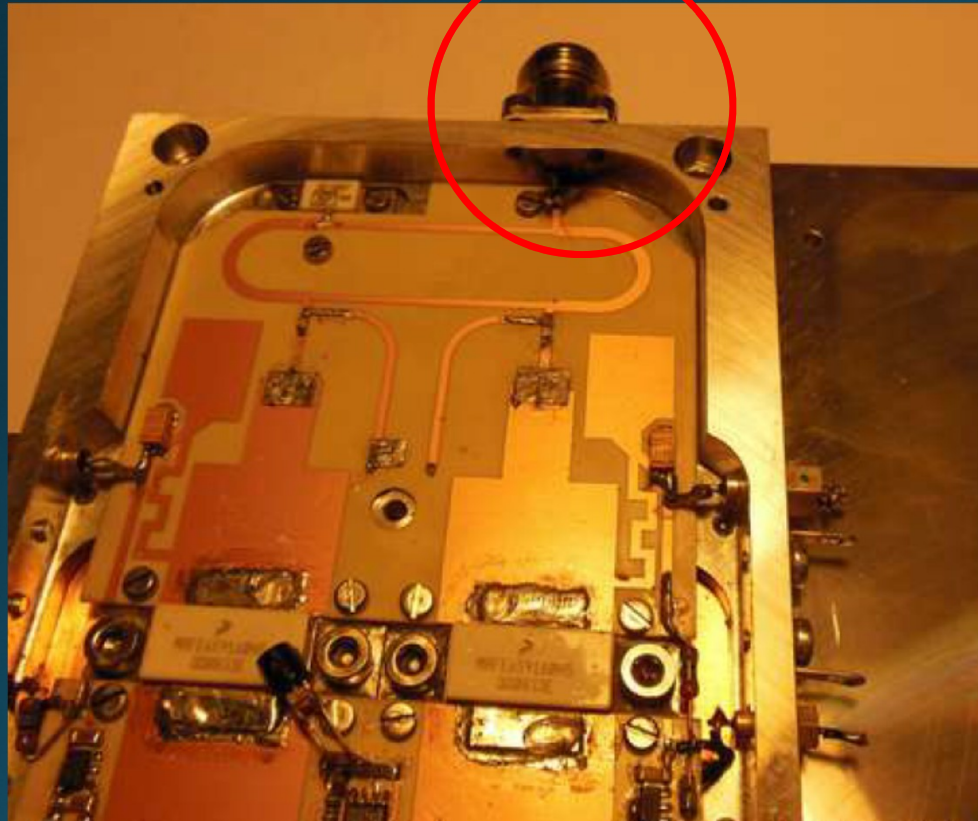
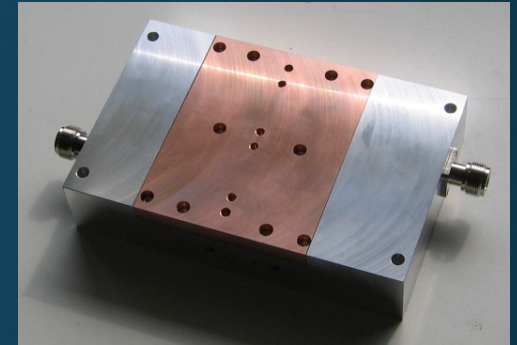
- Build SSPA for EME DX pedition
- Reliability - long time stability, JT65
- Heftiness - mechanically
- 50V DC powering (SSPA for 144 and 432 are already with 50V DC powering)
- Size

Available SSPA modules

- PE₁RKI
- 250W module
- 28V DC powering
- Request for 6 pcs of 90° hybrids with connectors for combining
- Tiny PCB on Duroid for 250W power with JT65 traffic (more details next page)
- EME users *OK1KIR, OK2DL, G4CCH, ONoEME beacon*



Available SSPA modules



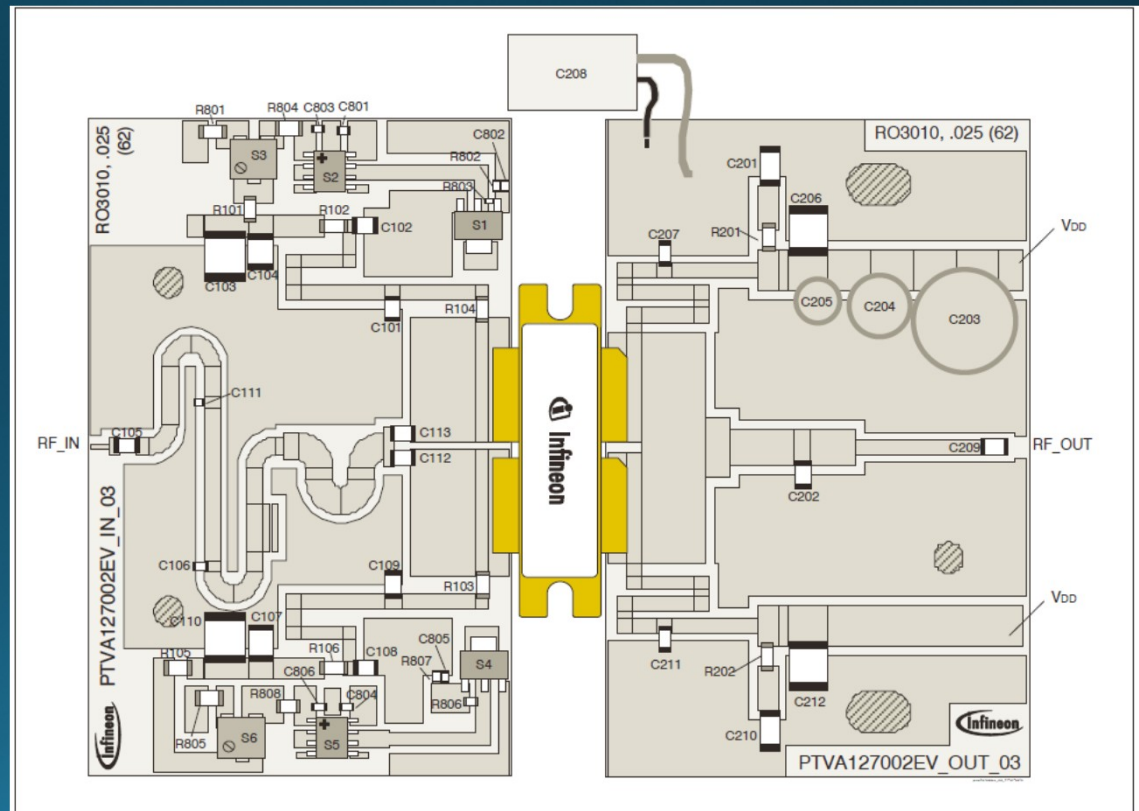
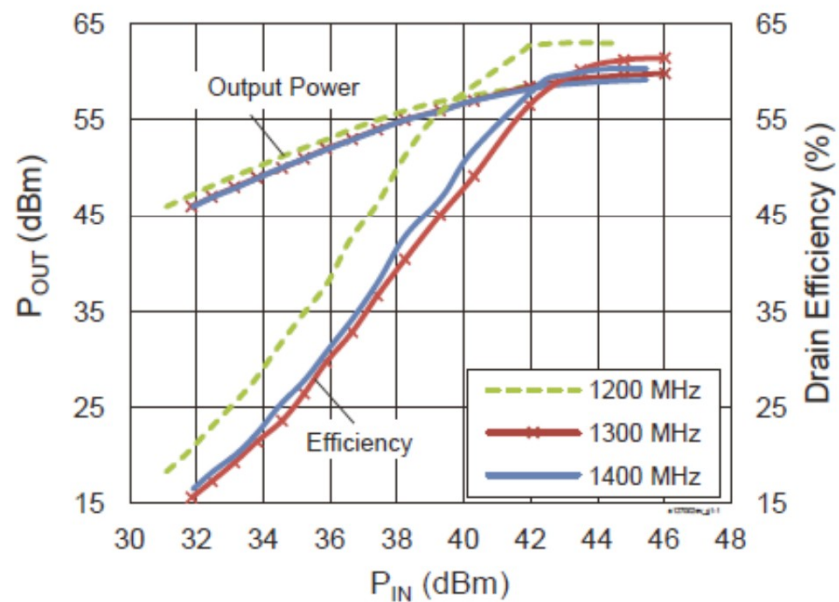
Available SSPA modules



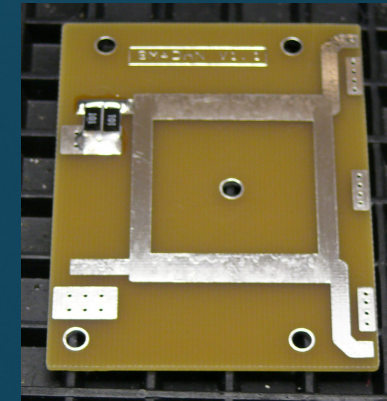
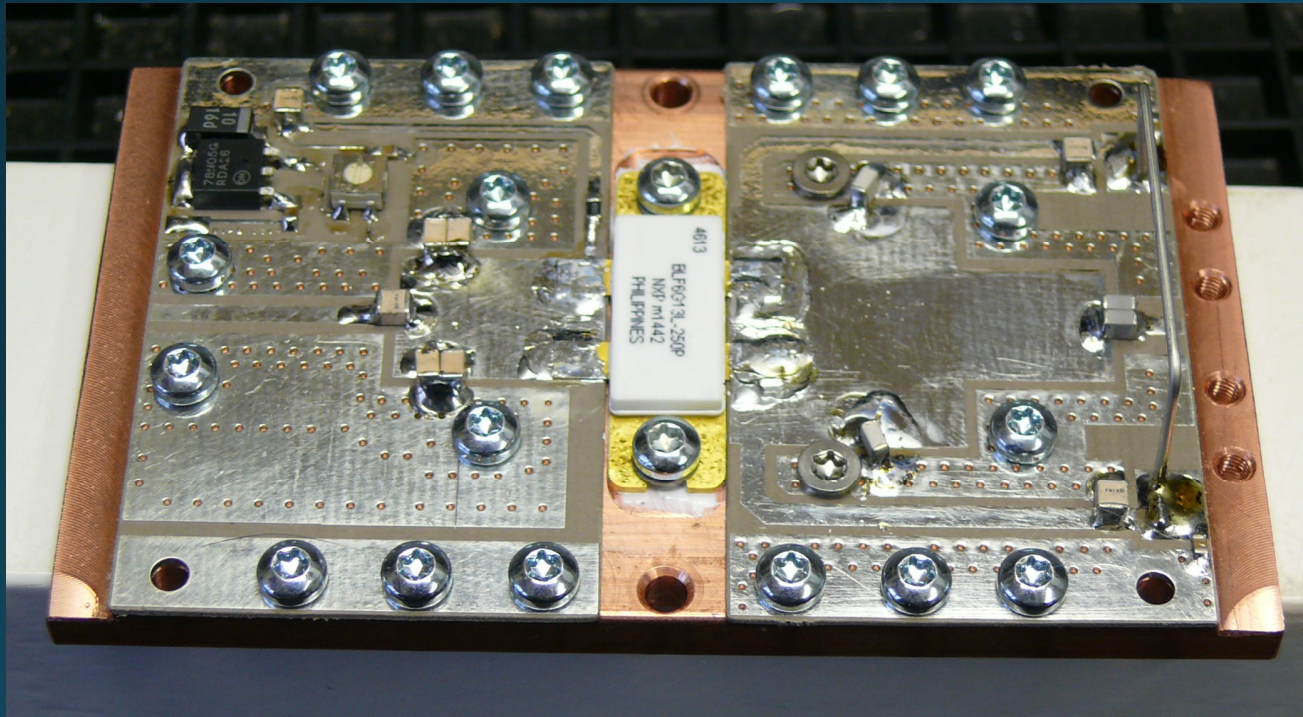
Thermally-Enhanced High Power RF LDMOS FET
700 W, 50 V, 1200 – 1400 MHz

Power Sweep, Pulsed RF

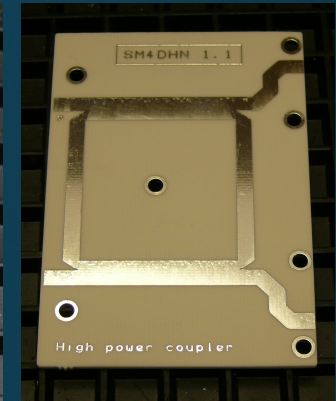
$V_{DD} = 50\text{ V}$, $I_{DQ} = 300\text{ mA}$, $T_{CASE} = 25^\circ\text{C}$,
300 μs pulse width, 12% duty cycle



SM₄DHN



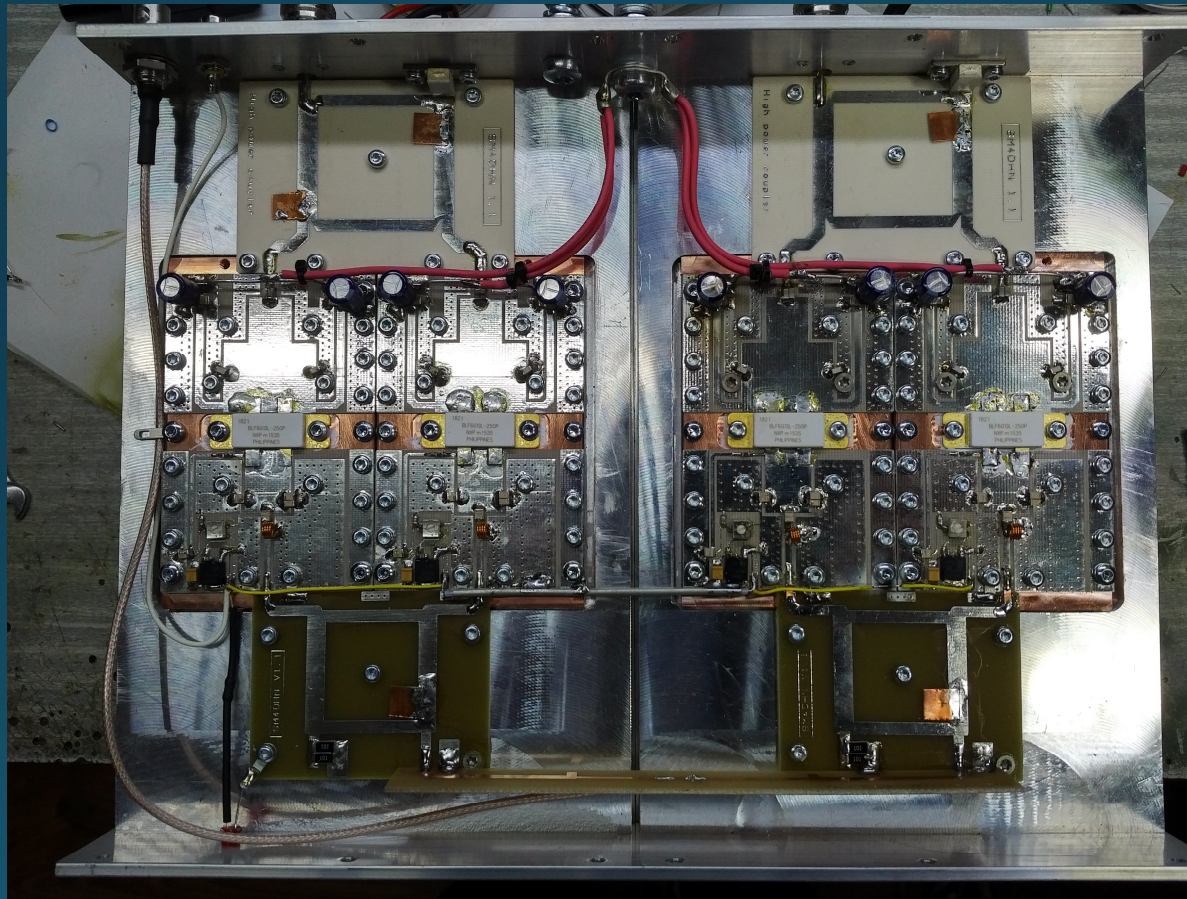
Low power combiners



High power combiner

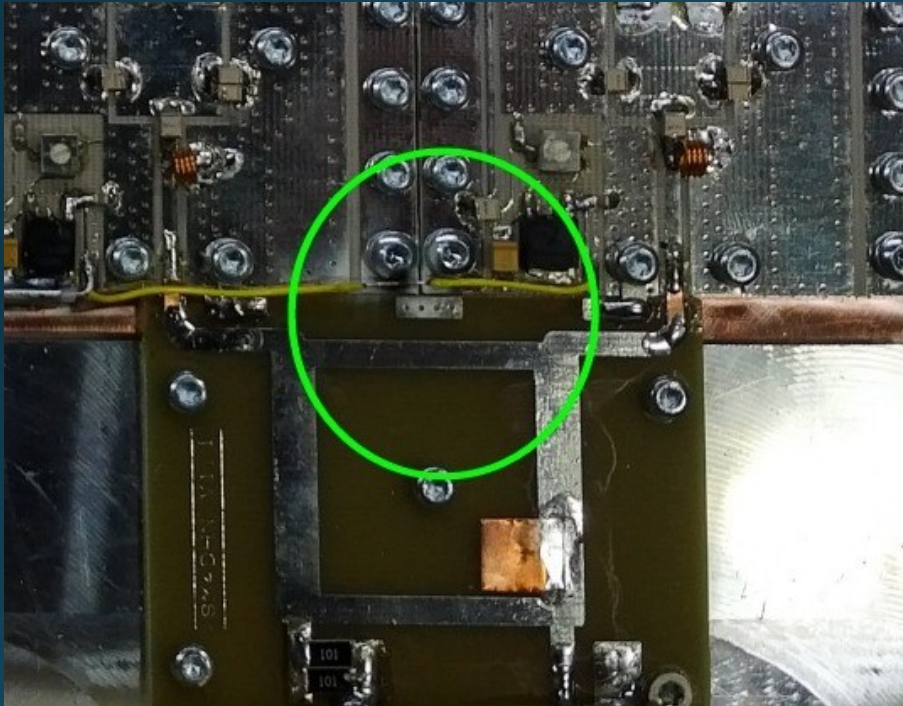
- Robust PCB
- Many grounding screws
- Robust cooper heatsink

OK₁DFC SSPA with 4x SM₄DHN



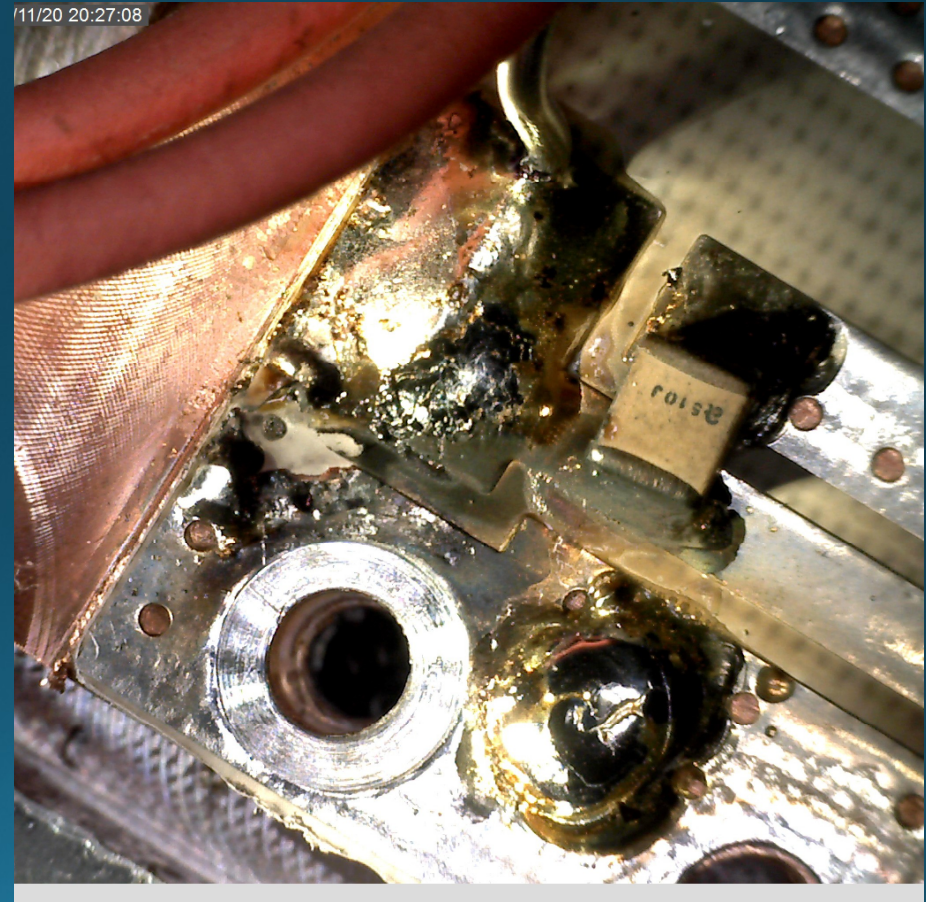
4 times SM₄DHN modules - 2 Low power combiners and 2 High power combiners

OK₁DFC SSPA bias power wiring

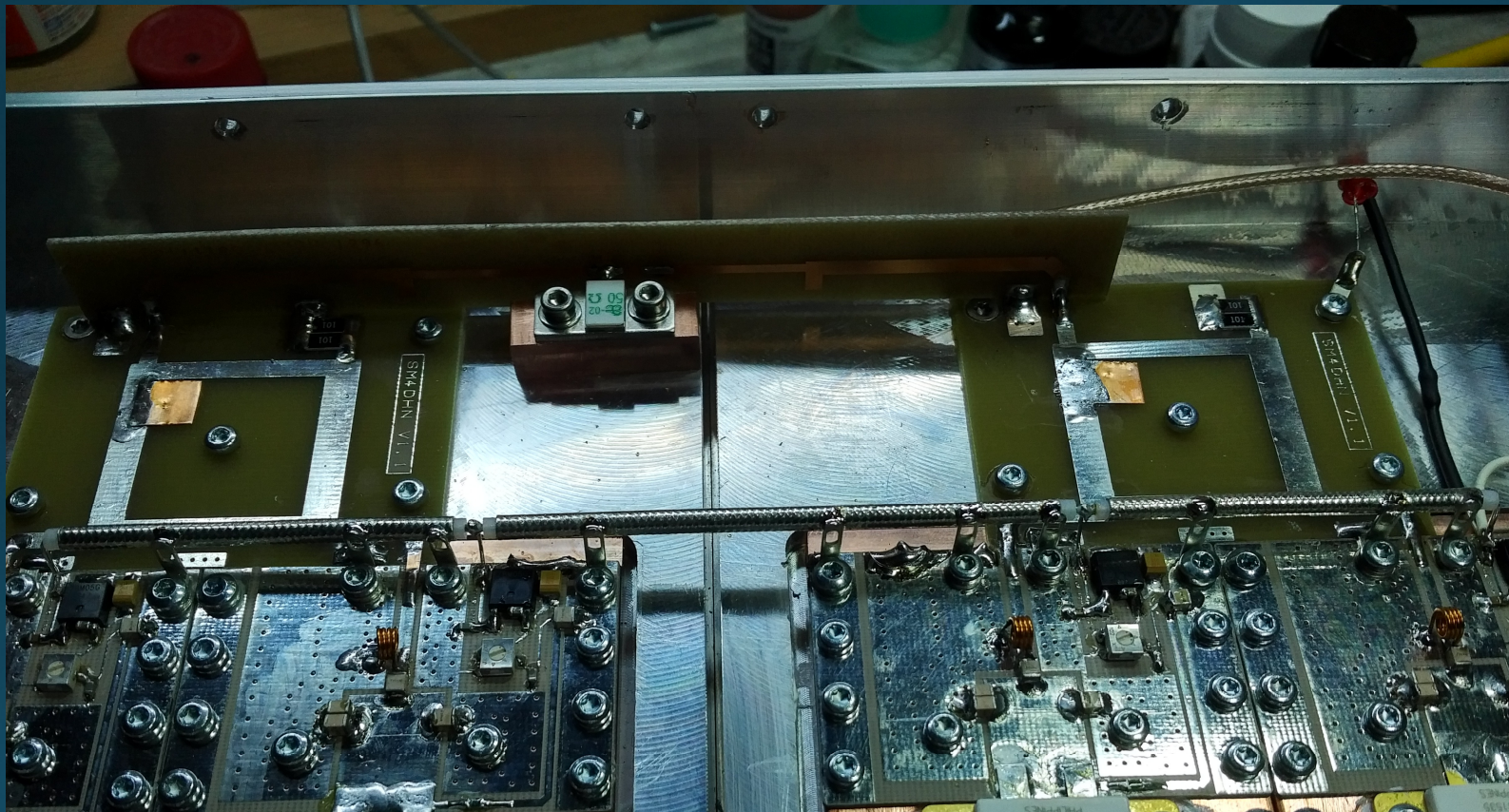


Lengths between powering points are $\lambda/2$

Fault – WHY ?

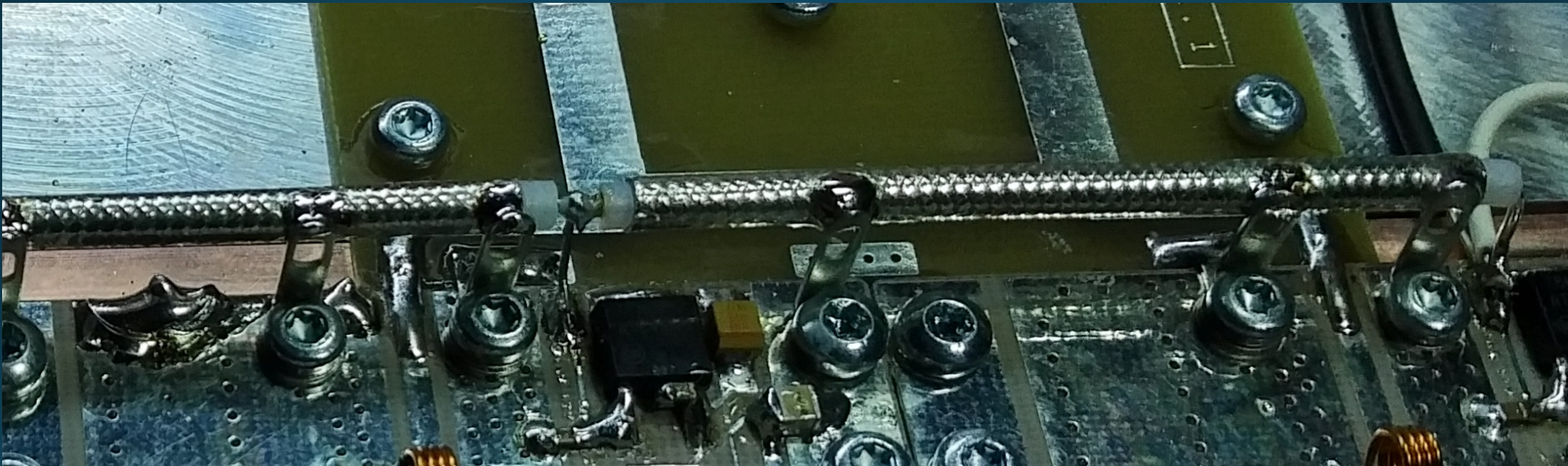


OK₁DFC SSPA bias power wiring



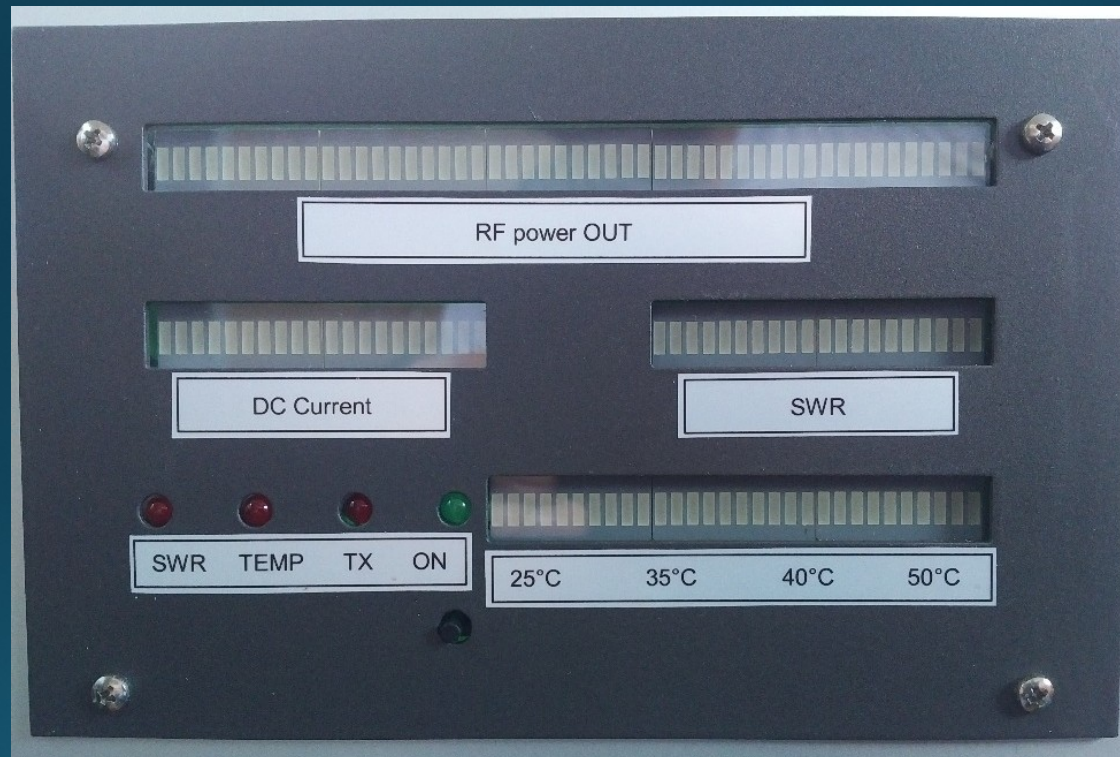
Wiring changed with flex semi rigid UT141 with more grounding points, 50ohm match on input

OK₁DFC SSPA bias power wiring



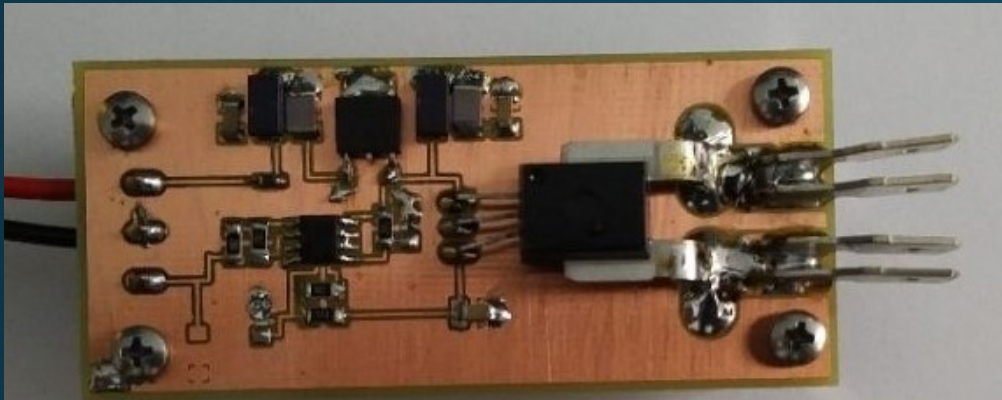
Wiring changed with flex semi rigid UT141 with more grounding points

OK₁DFC SSPA - measuring



One unit with RF power measuring, DC current, SWR, Temperature - LED ON - TX - TEMP warning, SWR warning
Design OM6AA

OK₁DFC SSPA current measuring



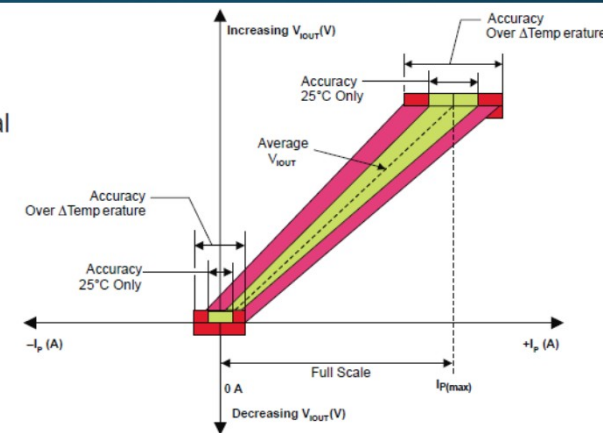
ACS 758 50A top - 100A bottom



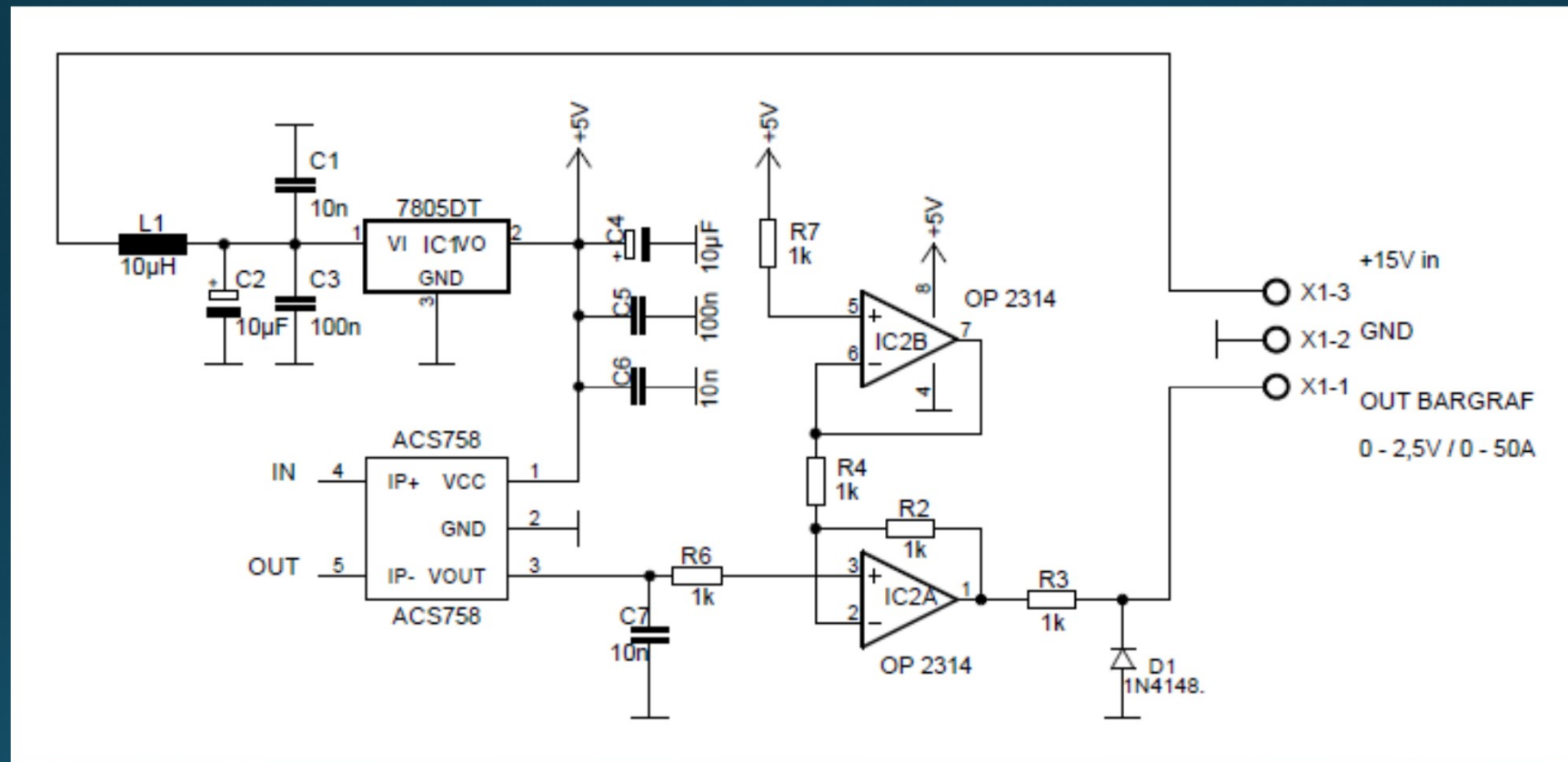
Package: 5-pin package



Unidirectional

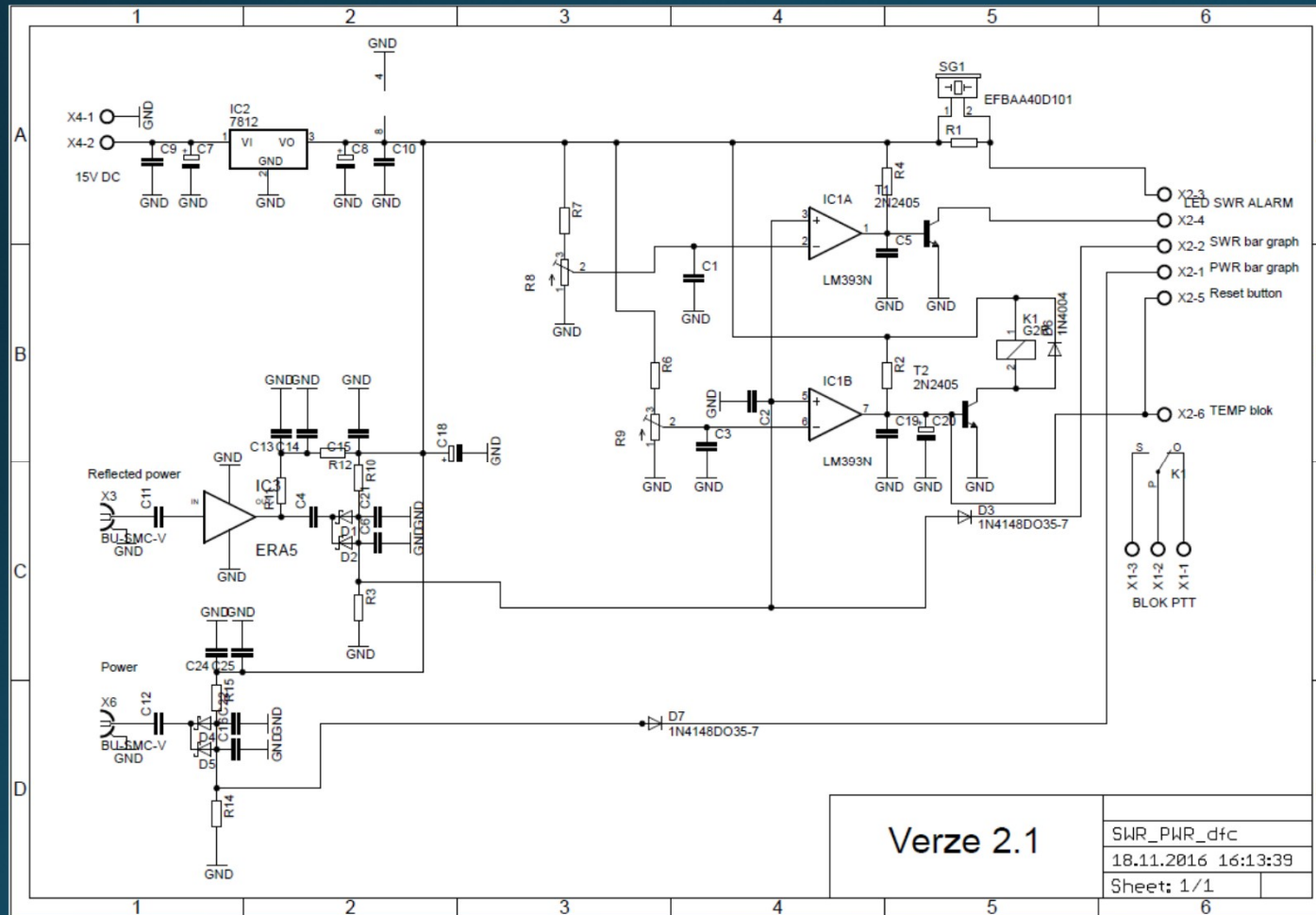


OK₁DFC SSPA current measuring



ACS 758 unit

OK₁DFC SSPA - RF-SWR measuring

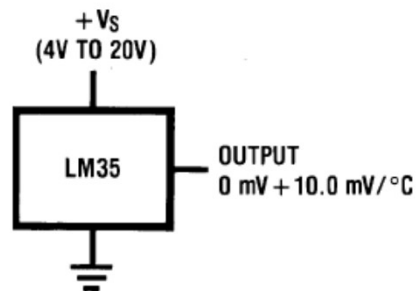


	DIR	REF	Isol.
1296 MHz	-30,67 dB	-53,83 dB	23,16 dB



OK₁DFC SSPA temp. measuring

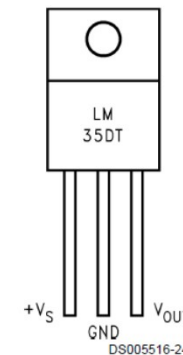
Typical Applications



DS005516-3

**FIGURE 1. Basic Centigrade Temperature Sensor
(+2°C to +150°C)**

TO-220
Plastic Package*



*Tab is connected to the negative pin (GND).

Note: The LM35DT pinout is different than the discontinued LM35DP.

Order Number LM35DT
See NS Package Number TA03F

LM35, LM35A

LM35C, LM35CA

LM35D

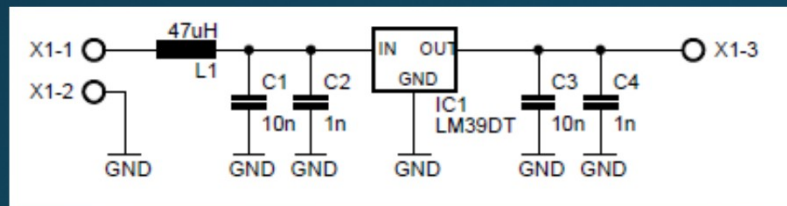
-55°C to +150°C

-40°C to +110°C

0°C to +100°C

LM₃₅ unit

OK₁DFC SSPA temp. measuring



X1-1 in 12-20V

Vout X1-3

+0,25V = 25°C

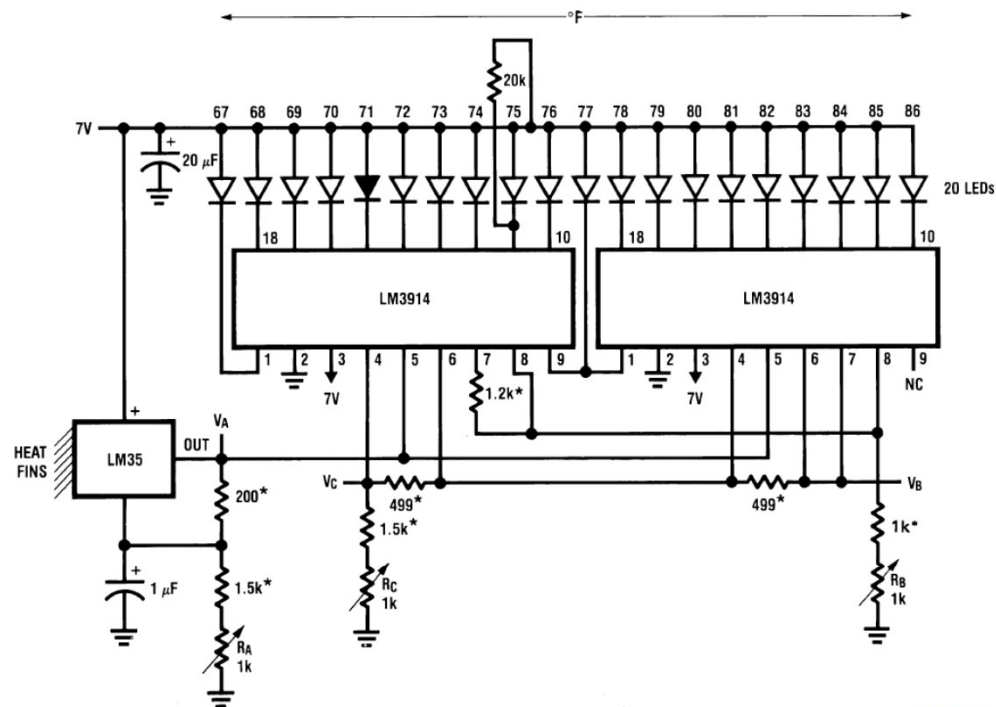
+0,5V = 50°C

+0,7V = 70°C

LM 35 board

OK₁DFC SSPA bar graph

Typical Applications (Continued)



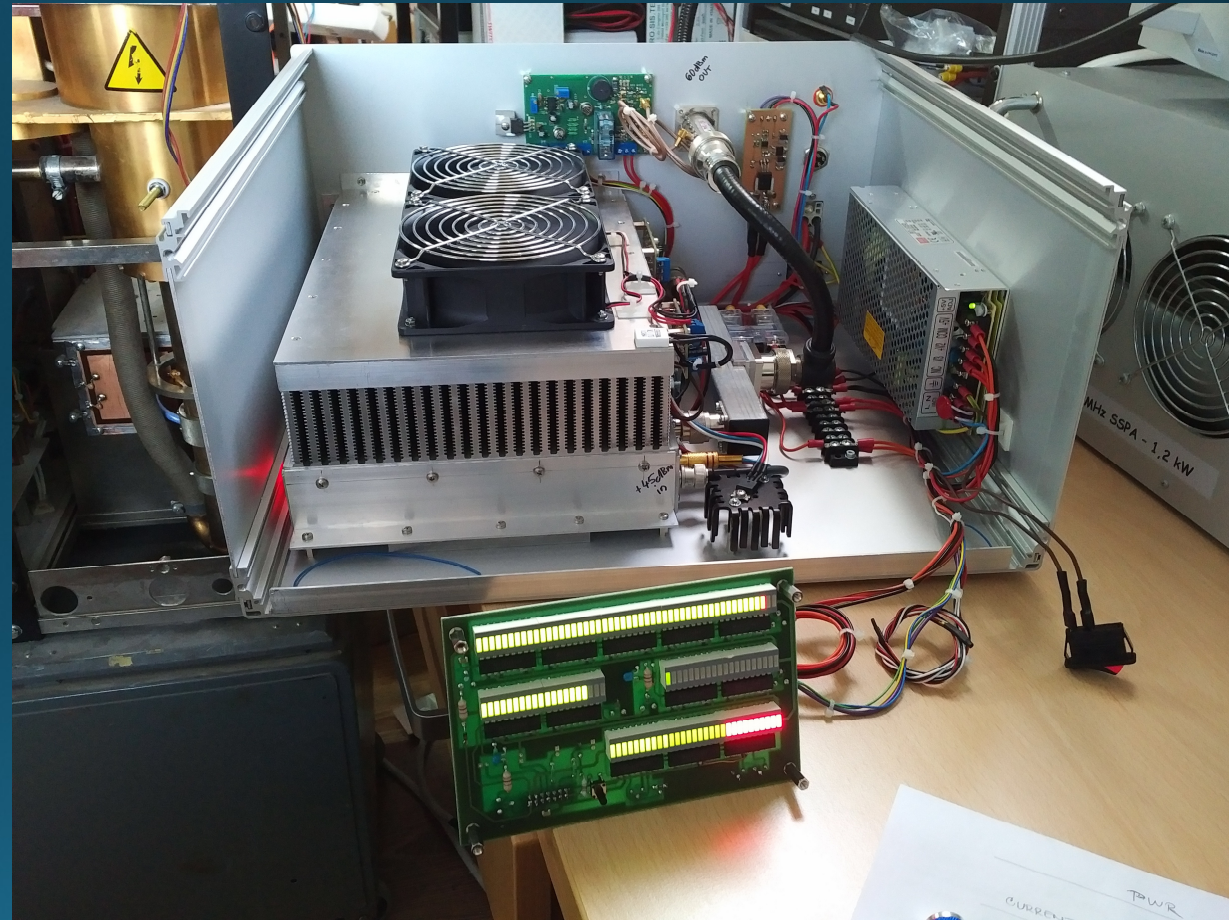
*=1% or 2% film resistor
Trim R_B for $V_B=3.075V$
Trim R_C for $V_C=1.955V$
Trim R_A for $V_A=0.075V + 100mV/^{\circ}C \times T_{ambient}$
Example, $V_A=2.275V$ at $22^{\circ}C$

DS005516-16

OK₁DFC SSPA

- JT65 test - 2 hours continuous traffic - temperature excited to 50°C max.
- CW or SSB - 2 hours CQ and traffic 37°C max.
- DC 48V / 38A
- RF in - 37W / RF out - 1000W

Inside the Fisher Electronics G.m.b.H. alu box



OK₁DFC SSPA

Thank you for your attention and see you via Moon !!!