

RF Dummy Load KT-002

Up to 100 W RF continuous power
 Frequency range: DC to 54 MHz (6 m band)

Active cooling (80x80 mm fan) ensures high reliability and a compact design

Main Features

- Cost-effective HF + 6 m band 50R RF dummy load
- 100 W continuous power handling
- 300 W peak power handling capability
- Low VSWR levels up to 54 MHz
- UC-1 (PL-259) RF input connector
- Built-in fan for reliable continuous operation
- 2,1x5,0 DC input connector for the fan supply
- THT components for easy assembly

Mechanical Characteristics

- Compact design: 80 × 80 x 75 mm (with fan)
- One layer PCB for easy components assembly
- Solid aluminum baseplate for the input connector
- CE marked
- RoHS compliant
- 1-year warranty

Application

- Antenna replacement during transmitter tests
- Part of an experimental RF equipment
- Dummy load for long-term TX testing

General Description

The KT-002 RF Dummy Load is a compact design and cost-effective solution for RF dummy load. Specially selected components and coaxial design ensure a stable 50R resistive behaviour over a wide frequency range at 100W RF continuous operation.

Table 1. Typical VSWR characteristics

FREQUENCY RANGE	VSWR	Power Trans. [%]	Power Refl. [%]
0 Hz to 30 MHz	≤ 1.04	100.0	0.0
30 MHz to 60 MHz	≤ 1.09	99.8	0.2
60 MHz to 144 MHz	≤ 1.42	97.0	3.0

Absolute Maximum Ratings

Maximum Input Voltage for continuous operation:	70.7 Vrms (+50.0 dBm)
Maximum Input Voltage for 5 s operation:	165.6 Vrms (+54.7 dBm)
Operating Temperature Range:	-10°C to +45°C
Storage Temperature Range:	-40°C to +70°C
Noise level:	34.7 dBA
Current consumption:	0.163 A
DC Input Voltage:	12.0 V
Lead Temperature (Soldering 10 sec):	+300°C



FIGURE 1. Assembled RF Dummy Load (KT-002)

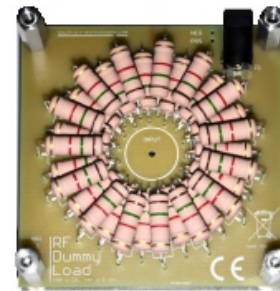


FIGURE 2. Coaxial arrangement of resistors

Important safety instructions

▪ **Risk of electric shock and risk of burns:** high voltage and high temperature may be present on components during use!



▪ This product was **NOT** designed for use in wet/damp locations and should not be used near water or exposed to rain.

Before your proceed

Before proceeding with assembly, the power resistor should be prepared so that they can be properly mounted in the PCB.

▪ Do not bend leg right next to the resistor body. Keep 1 mm distance from the resistor housing.

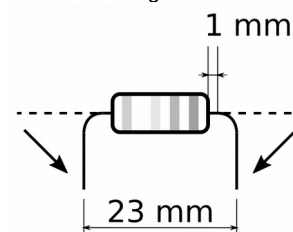


FIGURE 3. Requirements for bending the legs of the resistor

Resistors must be mounted in two layers. Details are shown in Figure 5. Keep the required clearances to allow proper air cooling.

Assembly Instructions

Recommended order of assembly

- solder the bottom layer of the power resistors (15) R1, R3, R5, ... ► Keep a distance 3 mm to the PCB (6)
- solder the top layer of the power resistors (15) R2, R4, R6, ... ► Keep a distance 2 mm to the bottom layer of resistors
- solder the DC input connector (14) to the PCB (6)
- screw the UC-1 connector (2) to the metal plate with the screws (11) and nuts (10)
- screw the metal pins M4x25 (1) and M4x10 (7) through the PCB
- solder the short metal pin (13) (cut off from the end of the resistors) to the pad on the PCB marked INPUT

- put the metal plate and PCB together and fix with M4x6 screws (9)
- solder pin (13) to UC-1 connector (12)
- mount the fan (4) and the steel guard (3) with the screws (1) and washers (2)
- Note the required fan orientation! The air movement is to be directed towards the resistors. The marking is on the fan.
- solder two fan cables to PCB; NEG and POS pads are printed on the board ► Pay attention to the polarity!

Components List

Table 2. Components list

No.	DESIGNATOR	DESCRIPTION	QTY	PART NUMBER	VALUE											
1		Screw M4x25 HEX3	4	-	-											
2		Washer M4	4	-	-											
3		Guard, stell 80x80 mm version	1	-	-											
4		Fan 80x80x15,12V, 163 mA	1	EE80151S1-000U-A99	-											
5		Distance pin M4x25, male-male	4	-	-											
6		Printed circuit board for KT-002	1	-	-											
7		Distance pin M4x10, female-male	4	-	-											
8		Aluminum plate 80x80 mm with holes	1	-	-											
9		Screw M4x6 HEX3	4	-	-											
10		Nut M3	4	-	-											
11		Screw M3x8, PH1	4	-	-											
12		UC-1 (PL-259) connector, panel version	1	-	-											
13		Metal pin (extracted from resistor's leg)	1	- </tr <tr> <td>14</td> <td>J1</td> <td>2,1x5,0 connector, angle version, THT</td> <td>1</td> <td>-</td> <td>-</td> </tr> <tr> <td>15</td> <td>R1...R30</td> <td>THT power resistor</td> <td>30</td> <td>MOF5WS-1K5</td> <td>1k5/5W</td> </tr>	14	J1	2,1x5,0 connector, angle version, THT	1	-	-	15	R1...R30	THT power resistor	30	MOF5WS-1K5	1k5/5W
14	J1	2,1x5,0 connector, angle version, THT	1	-	-											
15	R1...R30	THT power resistor	30	MOF5WS-1K5	1k5/5W											

Tools required:

- PH1 screw driver
- HEX3 screw driver
- soldering station
- cutting pliers

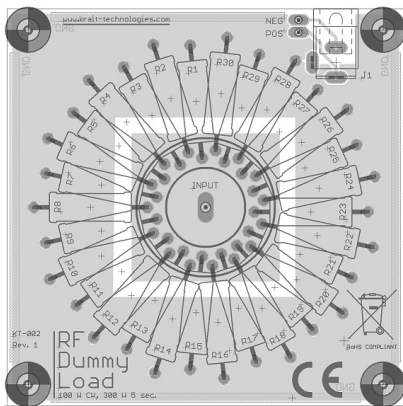


FIGURE 4. Printed circuit board layout

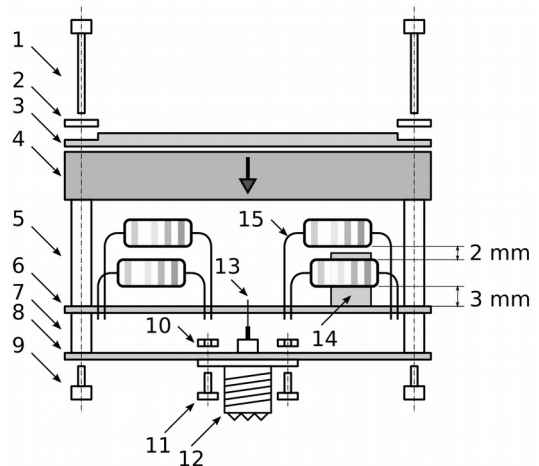


FIGURE 5. Assembly diagram

Schematic Diagram

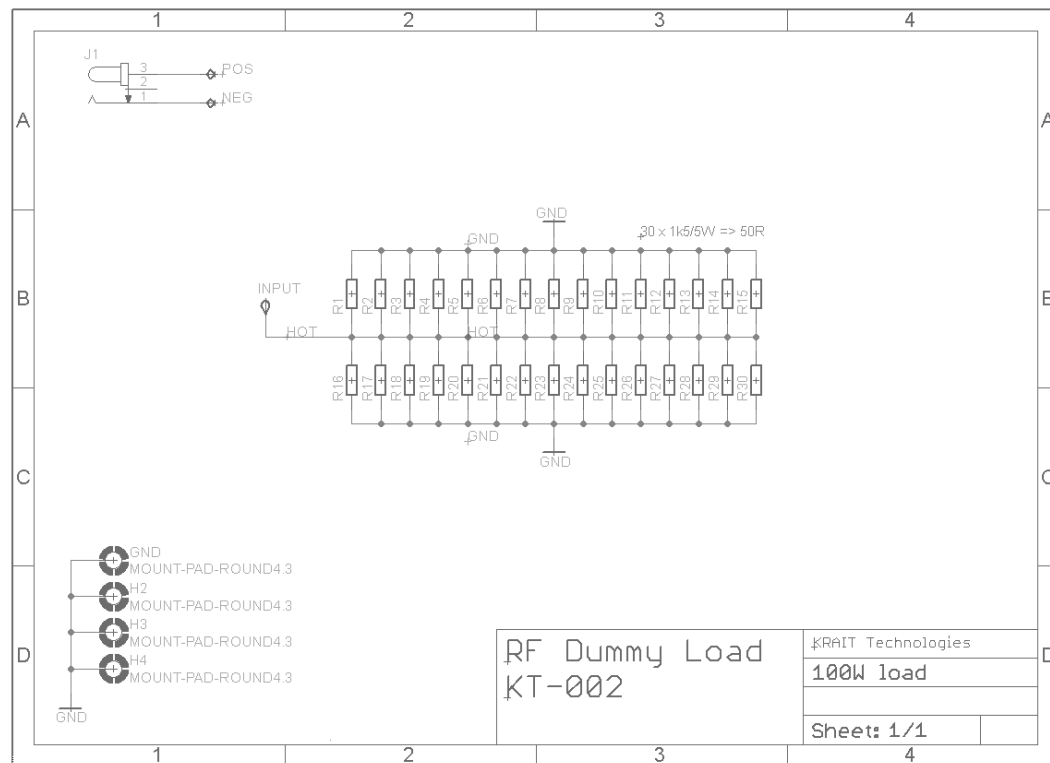


FIGURE 6. Schematic diagram

Mechanical Details

RF Dummy Load dimensions: 80 x 80 x 75 mm (measured with mounted PCB, fan, connectors)
PCB specification: FR 4, 35 um layers, HAL

Ordering Information

Table 3. Ordering information

Description	Version	Ordering Code	QTY
Printed Circuit Board only	PCB	KT-002B	1
Kit for self assembly (passive cooling version; without fan)	Kit	KT-002KP	1
Kit for self assembly (active cooling version; fan included)	Kit	KT-002KA	1
Assembled module (passive cooling version; without fan)	Assembled	KT-002P	1
Assembled module (active cooling version; fun included)	Assembled	KT-002A	1

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