

SWR- / Watt- Meter für Kurzwelle und VHF/UHF



SX / RS - 600 / 400

INSTRUCTION

The RS-200/400 and RS-600 or RS-1000 POWER&SWR meter is the most efficient tool in wide range of semi-professionals. Measuring And control instruments, the measured values can be easily read in the large scale instruments.

The RS-200/400 and RS-600 or RS-1000 is an insertion type RF wattmeter and can be permanently fitted into a transmissi System for continuous monitoring of station working condition .

The unit can be work without external power supply . but with 13.8VDC power which permits to light up the Meter and sho the active led corresponding to the selected RF coaxial line (for RS-600 and RS-1000)

DESCRIPTION OF CONTROL

- | | |
|--|---------------------------------------|
| 1 POWER/SWR reading meter | 14 led sensor 1 |
| 2 Indicator adjustment | 15 led sensor 2 (BANK2 ,BANK3 ,BANK4) |
| 3 Power range switch | 16 sensor1/sensor2 switch |
| 4 Function switch | |
| 5 FWD /REFLECT POWER/OFF SWITCH | REMARK :FIG1/FIG2 FOR RS-200/400 |
| 6 SWR calibration potential-meter | :FIG3/FIG4 FOR RS-600/1000 |
| 7 Average pep to pep switch | |
| 8 200W/400W select switch | |
| 9-12 Antenna connector(connect to the antenna with 50 ohm coaxial cable) | |
| 10-13 TX connector (connect to the radio with 50 ohm coaxial cable) | |
| 11 Power jack (13.8VDC) light up the meter and sensor 1 / sensor 2 led | |

FIG1

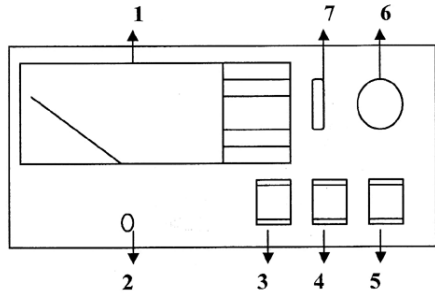


FIG2

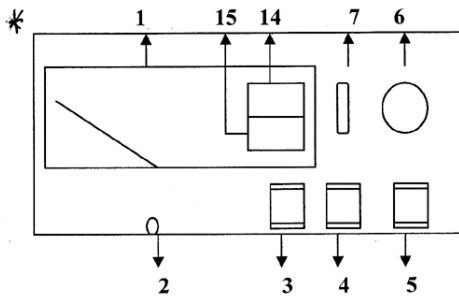
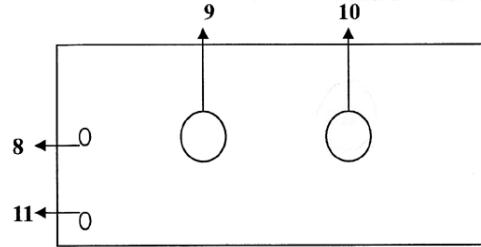
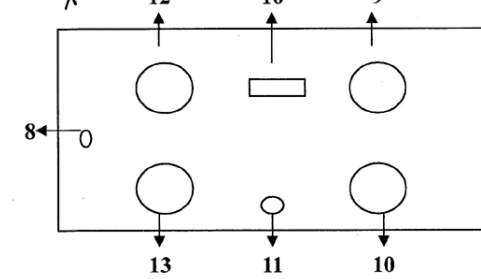


FIG4



INSTALLATION

To install the RS-200/400 and RS-600 or RS-1000 simply connect coaxial cable directed to the antenna connector marked "ANT", and the cable coming from the transmitter or from the linear amplifier to the connector marked "TX" RS-200/400 and RS-600 or RS-1000 is ready to operate.

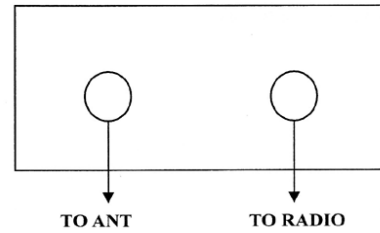
POWER MEASUREMENTS

- 1 Select the RANGE (3) switch on the end-scale position value as to the power of the unit
- 2 Select the FUNCTION (4) switch in the power position
- 3 Select the POWER switch the FWD position to measure the direct power(from the radio to antenna) or REF position to measure the reflected power(from antenna to the radio)
- 4 Select the power value can be read on the corresponding scale.

SWR MEASUREMENTS

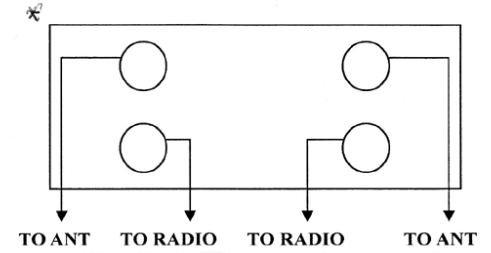
- 1 Select the RANGE (3) switch on the end-scale position value as to the power of the unit.
- 2 Select the FUNCTION (4) switch in the CAL position .
- 3 Let the radio transmit and adjust the instrument by turning the CAL knob, position the end-scale index in the CAL position.
- 4 Select the FUNCTION (4) switch in the SWR position
- 5 Read the SWR value in the above scale.

FIG5 (FOR RS-200 OR RS-400)



(1.8-160MHZ)OR(140-525 MHZ)

FIG6 (FOR RS-600 or RS-1000)



(1.8-160MHZ) *RS-600 (140-525 MHZ)

RS-1000(430-1300MHZ)

REMARK: SWR VS. REFLECT POWER

SWR (STANDING WAVE RATIO)=

$$\frac{\sqrt{P_{fwd}} + \sqrt{P_{rev}}}{\sqrt{P_{fwd}} - \sqrt{P_{rev}}}$$

SWR	1.0	1.1	1.2	1.5	2.0	2.5	3.0
Prev%	0	0.22	0.8	4	11.1	8.4	25.0

SPECIFICATION

FREQUENCY RANGE:1.8~160 MHZ(RS-200,RS-600 ,RS-1000) , 140~525 MHZ (RS-400,RS-600) , 430~1300MHZ(RS-1000)

POWER MEASURE RANGE :0.5~400W(5W/20W/200W/400W) , RS-1000(430-1300MHZ) only 200W 200/400W

SWITCH DISABLE

MINIMUM POWER INPUT :0.5W

PRECISION:.....5W RANGE ±5% , 20W RANGE ±7.5% , 200W RANGE ±10% , 400W RANGE ±12.5%

SWR:.....1~INFINITY

IMPEDANCE:.....50ohm

INPUT LOSS:.....0.2db (1.8~160. MHZ) , (140~525MHZ) , 0.3db(430-1300MHZ)

DEMISION:.....15X6.5X10CM

WEIGHT:.....720gr.(RS-600) , 630gr.(RS-200/400) , 730gr.(RS-1000)

Bedienung des SWR - und Wattmeter SX / RS-600 oder 400

Messsensor KW oder VHF/UHF (auf der Rückseite) wählen.

SWR

Sender im Betriebs-Mode "AM", "FM" oder ähnlich (Dauersignal) einstellen. Sende-Leistung beim Transceiver reduzieren auf ca. 10 W. Das SWR einer Antenne sollte stets mit kleiner Sendeleistung gemessen werden. Mit PTT von Empfang auf Senden schalten und Sendesignal mit dem "CAL"- Potentiometer auf Vollanzeige "rote Markierung CAL" auf der Messgeräteskala abstimmen.

Dann den Schiebeschalter auf "SWR" schieben und auf der obersten Skala das Stehwellen-Verhältnis ablesen.

Sendeleistung

"Power"- Schiebeschalter auf "FWD" schieben. "Range" - Schiebeschalter auf 200W / (eventuell Taste auf der Rückseite) auf 400W einstellen - je nach gewünschter Sendeleistung. Schiebeschalter "FUNCTION" auf "Power" stellen.

Kurzzeitig die PTT-Taste drücken und Dauersignal Sendeleistung auf der "W"-Skala 5, 20 oder 200/400 entsprechend ablesen.

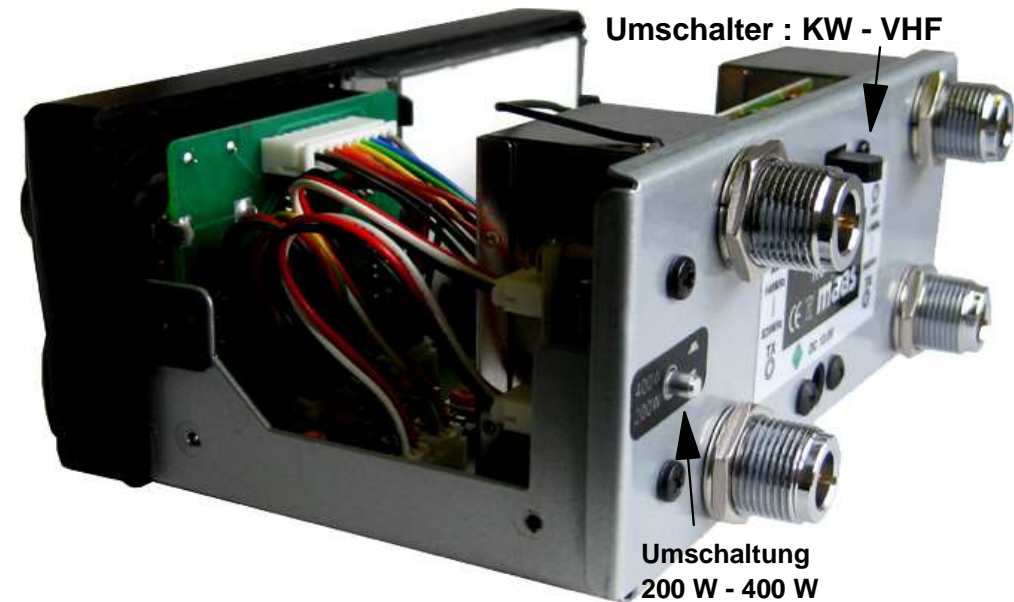
"FWD" zeigt die Vorwärtsleistung und "REF" die reflektierte Sendeleistung der Antenne an.

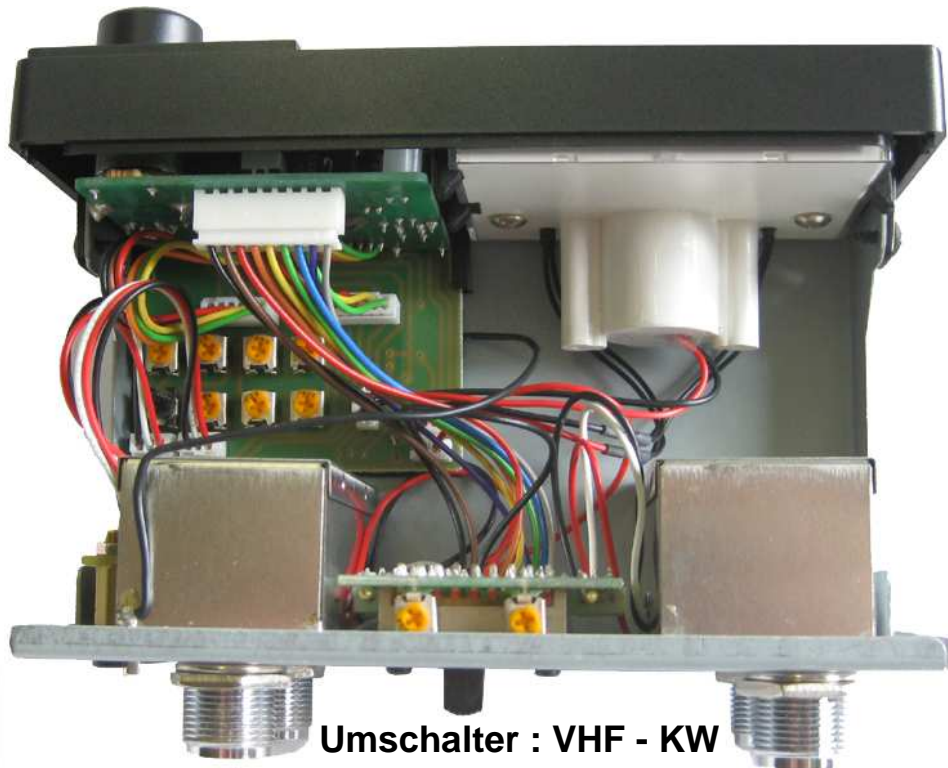
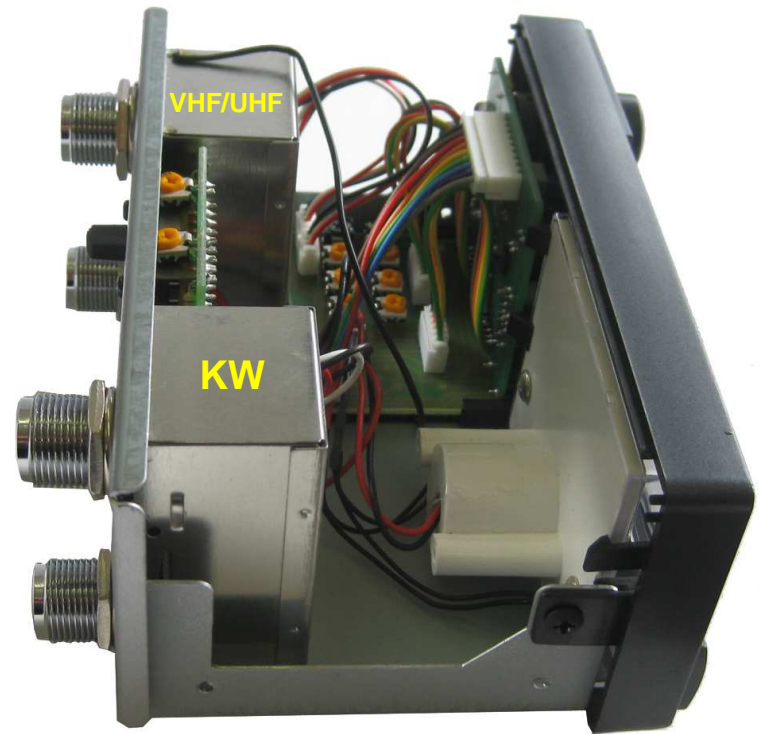
Bitte beachten:

Sendesignal nicht zu lange einschalten.

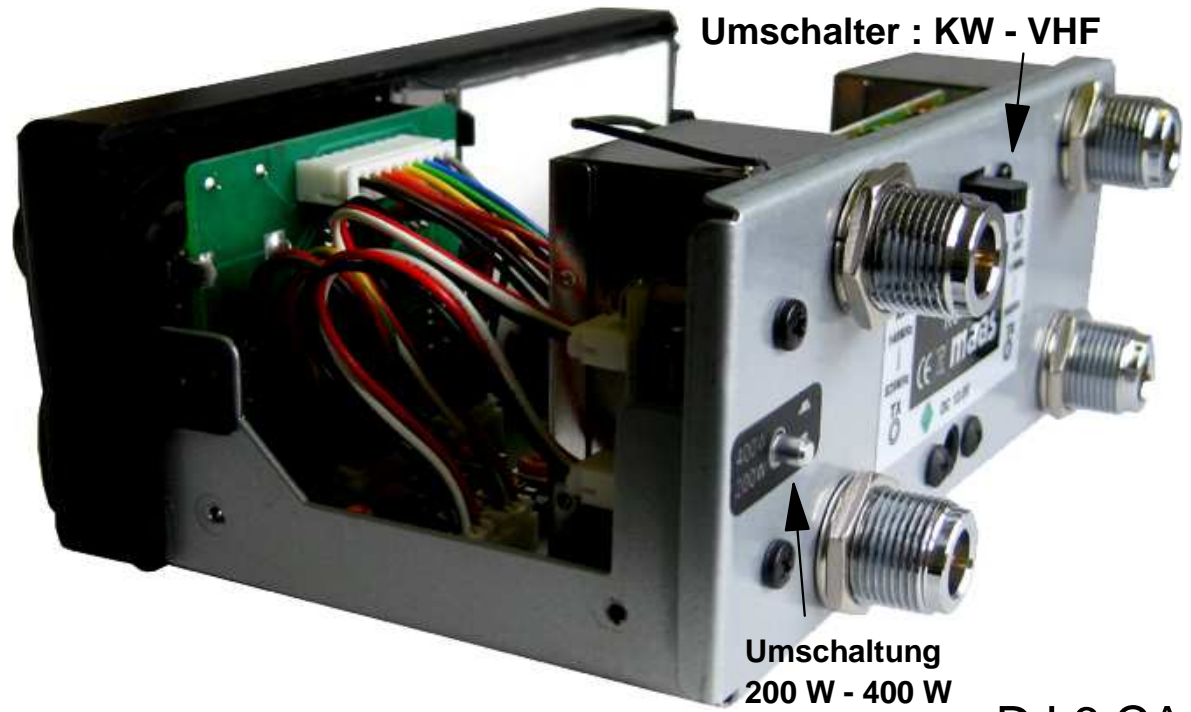
Zu hohe Sendeleistung kann das Messinstrument und oder die Messspulen zerstören.

Auf gute Kontaktgabe bei den Koaxsteckern achten.





Umschalter : VHF - KW



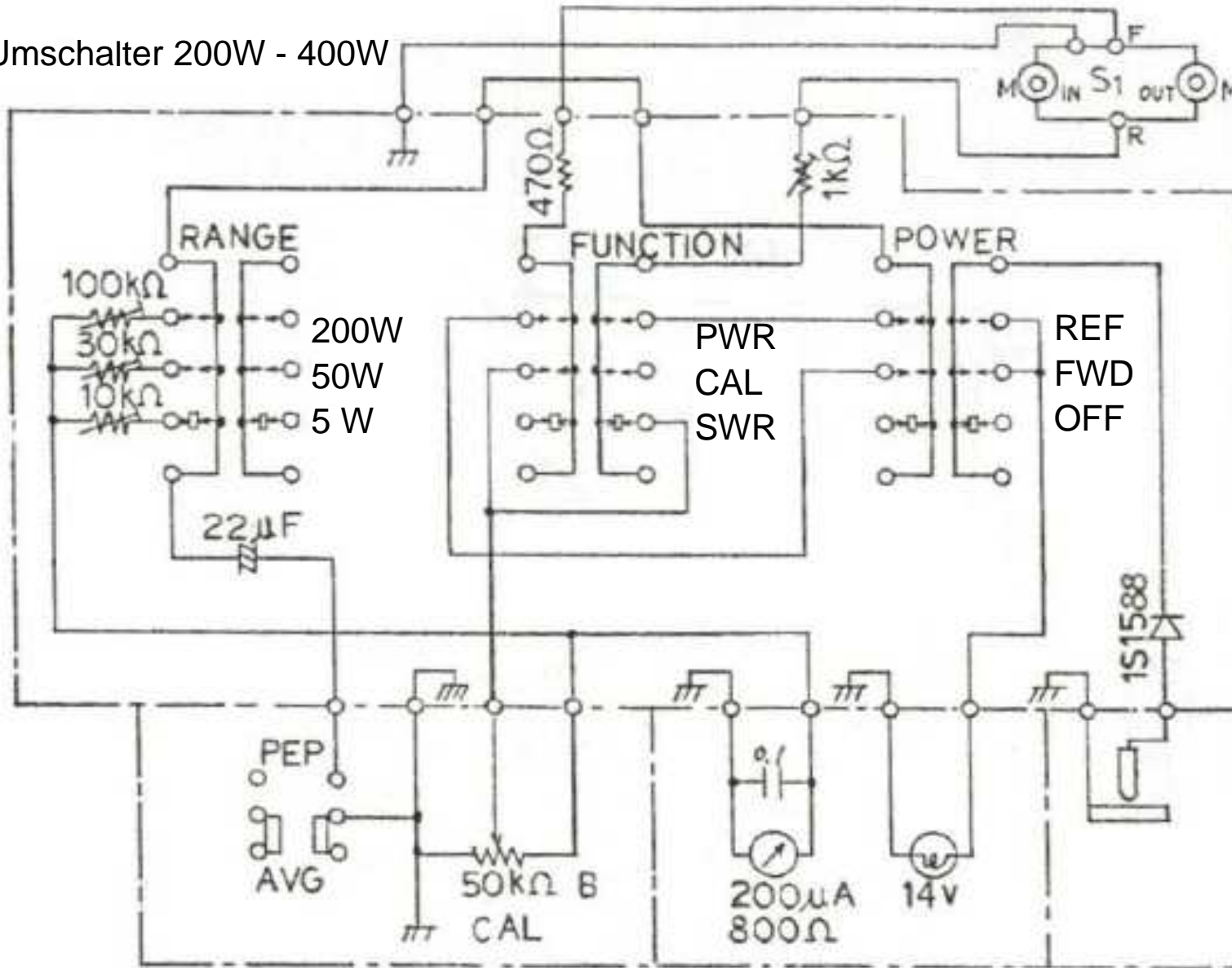
Umschalter : KW - VHF

Umschaltung
200 W - 400 W

SX / RS 600 / 400

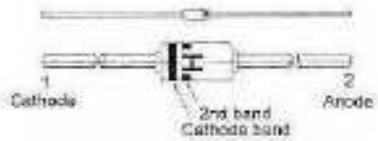
2x Sensor
mit Umschalter
HF und VHF

Umschalter 200W - 400W



D1 - D2 HITACHI 1SS108

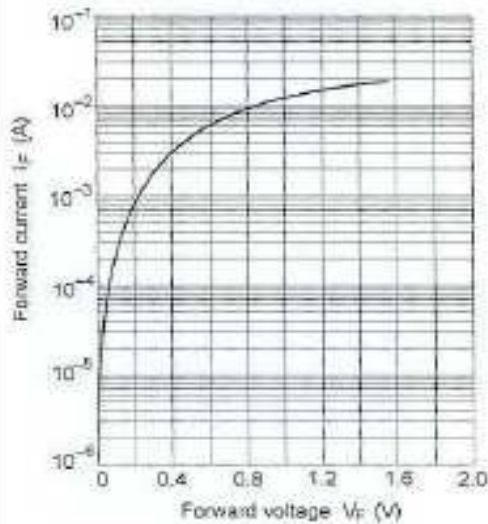
Silicon Schottky Barrier Diode
for Various Detector,
High Speed Switching



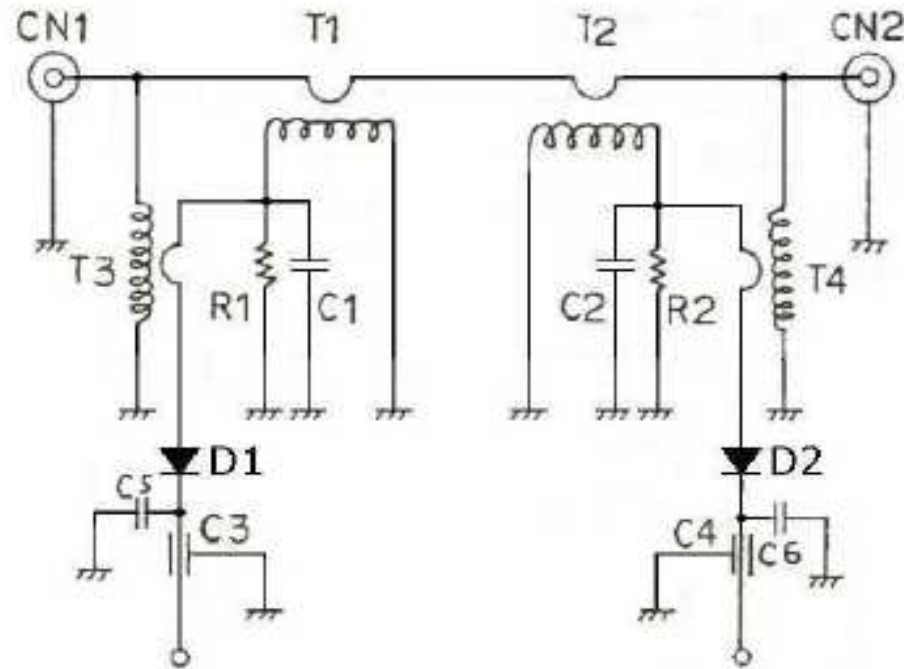
Electrical Characteristics (Ta = 25°C)

Item	Min	Max	Unit	Test Condition
Forward current	3.0	—	mA	V _F = 1V
Reverse current	—	100	μA	V _R = 10V
Capacitance	—	3.0	pF	V _a = 1V, f = 1MHz

Forward current vs. Forward voltage



Sensor für HF und VHF



T1, T2 バイアス巻 22T
T3 実右巻 23T
T4 実左巻 23T
コア材 BT41RB12007060

R1~R2 51Ω
C1, C2 8,2 pF CH
C3, C4 1000pF 貫通コン
D1, D2 1SS108
CN1, CN2 M型コネクタ
C5, C6 0.01μF セラミック

RS 600 / RS 400

T3 und T4 Spulendaten gegen HF-Innenleiter im KW-Messsensor:
Drahtlänge 41 cm, 0,5 mm, Kupferlackdraht,
ca. 19 Windungen. (23 Wdg.)
Diodendraht führt über ein Iso-Röhrchen **durch** die Spule,
T3 und T4 = 2 Spulen.