

**VI TELEFILTER****Filter Specification – RV04****TFS 100B****1/3****1. Measurement condition**

Ambient temperature  $T_A$ : 23 °C  
 Input power level: 0 dBm.

Terminating impedances in  $f_C$ :  
 for input: 77,40  $\Omega$  | - 3,218 pF.  
 for output: 77,40  $\Omega$  | - 3,218 pF.

**2. Characteristics**

Remark:

Reference level for the relative attenuation  $a_{rel}$  of the **TFS 100B** is the minimum of the pass band attenuation  $a_{min}$ . The minimum of the pass band attenuation  $a_{min}$  is defined as the insertion loss  $a_e$ . The reference frequency  $f_C$  is the arithmetic mean value of the upper and lower frequencies at the 3 dB filter attenuation level relative to the insertion loss  $a_e$ . The temperature coefficient of frequency  $Tc_f$  is valid both for the reference frequency  $f_C$  and the frequency response of the filter in the operating temperature range. **The frequency shift of the filter band width in the operating temperature range (OTR) is included in the production tolerance scheme.**

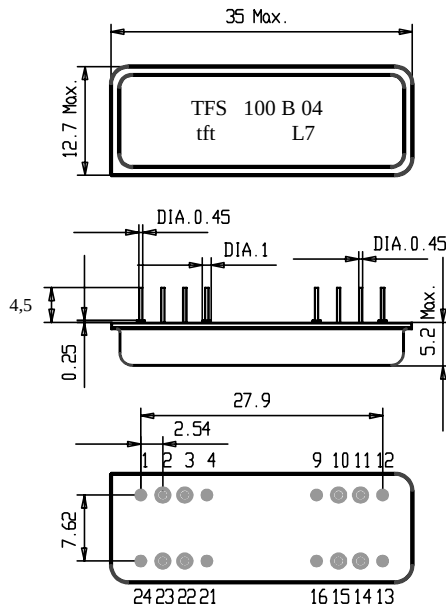
| Data                                                                                    | typ. value                                                                                      |            | tolerance / limit |       |
|-----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|------------|-------------------|-------|
| Insertion loss (Reference level) <b>a<sub>e</sub></b>                                   | 23,5                                                                                            | dB         | max. 25           | dB    |
| Centre frequency <b>f<sub>C</sub></b> at ambient temperature ( <b>f<sub>CAT</sub></b> ) | 99,90                                                                                           | MHz        | 99,90 ±0,10       | MHz   |
| Pass band ( <b>PB</b> ) at ambient temperature :                                        | f <sub>C</sub> - 4,8 MHz ... f <sub>C</sub> + 4,8 MHz                                           |            |                   |       |
| Amplitude ripple (p-p): f <sub>C</sub> ... f <sub>C</sub> ± 4,9 MHz                     | 0,8...1,1                                                                                       | dB         | max. 1,30         | dB    |
| Bandwidth :                                                                             | at T <sub>A</sub>                                                                               |            | in OTR            |       |
| 1,3 dB - band width                                                                     | 9,92                                                                                            | MHz        | min. 9,80         | MHz   |
| 3 dB - band width                                                                       | 10,11                                                                                           | MHz        | min. 10,00        | MHz   |
| 33 dB - band width                                                                      | 10,73                                                                                           | MHz        | max. 10,80        | MHz   |
| 40 dB - band width                                                                      | 10,77                                                                                           | MHz        | max. 11,20        | MHz   |
| 45 dB - band width                                                                      | 11,03                                                                                           | MHz        | max. 12,00        | MHz   |
| Relative attenuation <b>a<sub>rel</sub></b> :                                           |                                                                                                 |            |                   |       |
| f <sub>C</sub>                                                                          | f <sub>C</sub> ± 4,9 MHz                                                                        | -          | max.1,3           | dB    |
| f <sub>C</sub> ± 4,9 MHz                                                                | f <sub>C</sub> ± 5,0 MHz                                                                        | -          | max. 3            | dB    |
| f <sub>C</sub> ± 5,4 MHz                                                                | f <sub>C</sub> ± 5,6 MHz                                                                        | -          | min. 33           | dB    |
| f <sub>C</sub> ± 5,6 MHz                                                                | f <sub>C</sub> ± 6,0 MHz                                                                        | 46...50    | min. 43           | dB    |
| f <sub>C</sub> ± 6,0 MHz                                                                | f <sub>C</sub> ± 19,1 MHz                                                                       | 50...60 dB | min. 48           | dB    |
| f <sub>C</sub> ± 19,1 MHz                                                               | f <sub>C</sub> ± 95 MHz                                                                         | 55...70 dB | min. 50           | dB    |
| Group delay ( mean value in PB ):                                                       | 3,29                                                                                            | µs         | max. 3,4          | µs    |
| Group delay ripple in PB (p-p):                                                         | 130...150                                                                                       | ns         | max. 170          | ns    |
| Deviation from linear phase in PB:                                                      | 8,2 ° (p-p)...1,5 °(r.m.s.)                                                                     |            |                   |       |
| Triple transit attenuation compared to main signal:                                     | 50                                                                                              | dB         |                   |       |
| Crosstalk:                                                                              | 70...75                                                                                         | dB         |                   |       |
| Temperature coefficient of frequency ( <b>T<sub>Cf</sub></b> )                          | -88                                                                                             |            | -94               | ppm/K |
| Frequency deviation of f <sub>C</sub> over temperature                                  | Δf <sub>C</sub> (Hz) = T <sub>Cf</sub> (ppm/K) x (T - T <sub>A</sub> ) x f <sub>CTA</sub> (MHz) |            |                   |       |
| Operating temperature range (OTR) :                                                     | - 25 °C ... + 80 °C                                                                             |            |                   |       |
| Storage temperature range (STR) :                                                       | - 40 °C ... + 85 °C                                                                             |            |                   |       |

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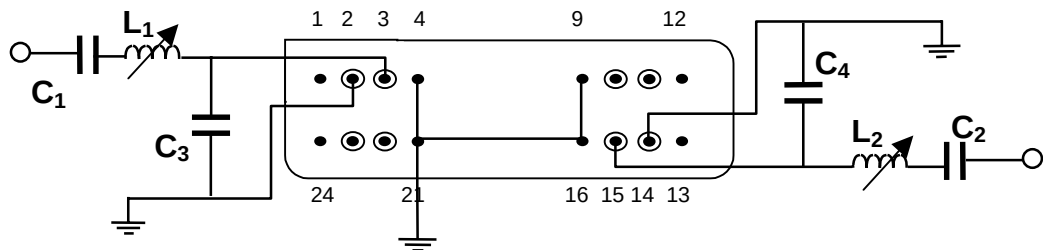
### 3 Construction and pin connection

(All dimensions in mm)



|                         |                         |
|-------------------------|-------------------------|
| 1 Package Ground        | 13 Package Ground       |
| 2 Input RF Return       | 14 Output RF Return     |
| 3 Input                 | 15 Output               |
| 4 Package Ground        | 16 Package Ground       |
| 9 Package Ground        | 21 Package Ground       |
| 10 Ground               | 22 Not Connected Ground |
| 11 Not Connected Ground | 23 Not Connected Ground |
| 12 Package Ground       | 24 Package Ground       |

### 4. 50 $\Omega$ - Matching network :



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## 5. Soldering temperature conditions :

1st and 2nd soldering temperature profile

|                     |                     |                      |                  |
|---------------------|---------------------|----------------------|------------------|
| <b>Name:</b>        | pre-heating periods | main-heating periods | peak temperature |
| <b>Temperature:</b> | 150 °C - 170 °C     | over 200 °C          | 255 °C ± 5 °C    |
| <b>Time:</b>        | 60 sec. - 90 sec.   | 20 sec. - 25 sec.    |                  |

**Soldering temperature profile**

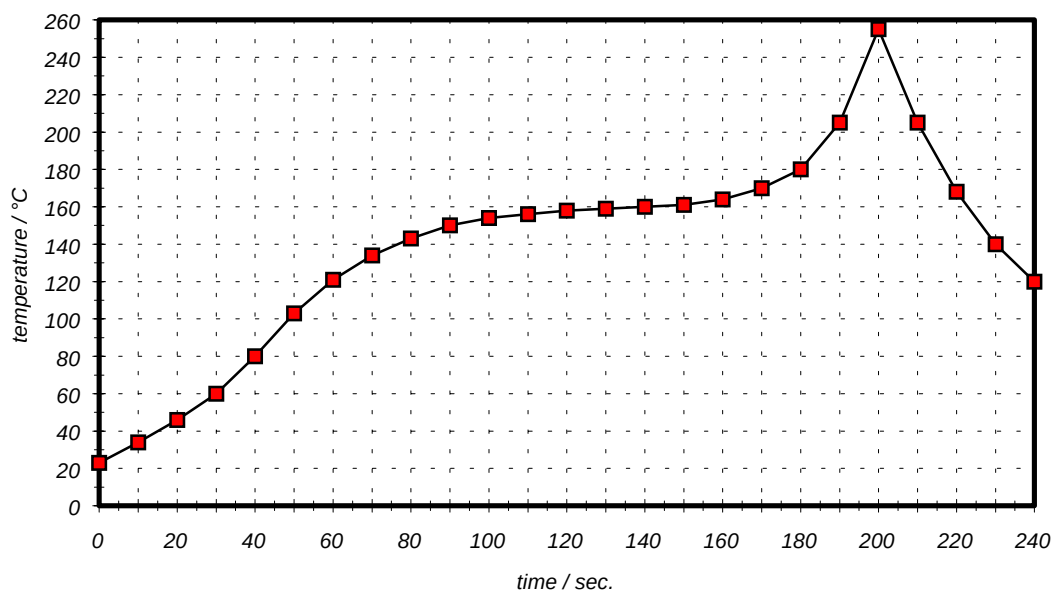


Table for temperature vs. time during the soldering process

Tolerance of temperatures: ± 5 °C

| time / sec. | temperature / °C | time / sec. | temperature / °C |
|-------------|------------------|-------------|------------------|
| 0           | 23               | 140         | 160              |
| 10          | 34               | 150         | 161              |
| 20          | 46               | 160         | 164              |
| 30          | 60               | 170         | 170              |
| 40          | 80               | 180         | 180              |
| 50          | 103              | 190         | 205              |
| 60          | 121              | 195         | 230              |
| 70          | 134              | 200         | 255              |
| 80          | 143              | 205         | 230              |
| 90          | 150              | 210         | 205              |
| 100         | 154              | 215         | 180              |
| 110         | 156              | 220         | 165              |
| 120         | 158              | 230         | 140              |
| 130         | 159              | 240         | 120              |

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