

VI TELEFILTER**Filter specification****TFS 150X - 1/2****1. Measurement condition**Ambient temperature T_A :

23 °C

Input power level:

0 dBm (typ.)

Max 10 dBm.

Typical terminating impedances in f_C :

for input:

110 Ω | -41,4 pF. (see sheet 2.§4.)

for output:

251 Ω | -16,5 pF. (see sheet 2.§4.)

(see sheet 2.)

2. Characteristics

Remark:

Reference level for the relative attenuation a_{rel} of the **TFS 150X** 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 **22,5 dB** filter attenuation level relative to the insertion loss a_e . The temperature coefficient of frequency T_{CF} 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 in the operating temperature range is not included in the production tolerance scheme.

Data	typ. value	tolerance / limit
Insertion loss (Reference level) a_e	34,0 dB	max 35 dB
Reference frequency f_C at ambient temperature (f_{CAT})	150,137 MHz	150,137 $\pm$ 0,100 MHz
Pass band	f_C -12,30 MHz ... f_C +12,30 MHz	
Amplitude ripple (p-p): f_C ... $f_C \pm 12,30$ MHz	0,7 dB	max 1 dB
1 dB - band width	25,07 MHz	
1,5 dB - band width	25,12 MHz	min 25 MHz
2 dB - band width	25,16 MHz	
3 dB - band width	25,23 MHz	
10 dB - band width	25,52 MHz	
22,5 dB - band width	25,76 MHz	max 25,8 MHz
Relative attenuation a_{rel}		
f_C	$f_C \pm 12,30$ MHz	- max 1,0 dB
$f_C \pm 12,30$ MHz	$f_C \pm 12,50$ MHz	- max 1,5 dB
$f_C \pm 12,90$ MHz	$f_C \pm 13,50$ MHz	25 dB min 22,5 dB
$f_C \pm 13,50$ MHz	$f_C \pm 25,00$ MHz	35...45 dB min 30,0 dB
$f_C \pm 25$ MHz	$f_C \pm 35$ MHz	45 dB min 22,5 dB
$f_C \pm 35$ MHz	$f_C \pm 50$ MHz	55 dB min 7,5 dB
$f_C \pm 50$ MHz	$f_C \pm 100$ MHz	60 dB
Group delay	2,36 μ s	max 3 μ s
Group delay ripple in any 200 kHz segment in pass band (p-p):	± 25 ns	$\pm$ max 50 ns
Deviation from linear phase (p-p) f_C ... $f_C \pm 12,50$ MHz	9°	
Triple transit attenuation compared to main signal	60 dB	
Input/Output return loss with matching network (S11/S22):	min (5/6) dB	
Crosstalk	50 dB	
Substrate material	LiTaO ₃	
Temperature coefficient of frequency (T_{CF})	-19 ppm/K	-22 ppm/K
Frequency deviation of f_C over temperature	$\Delta f_C(\text{Hz}) = T_{CF}(\text{ppm/K}) \times (T - T_0) \times f_{CAT}(\text{MHz})$	
Operating temperature range	+ 70 °C	
Storage temperature range	- 40 °C ... + 85 °C	
Permissible DC voltage V_{DC}		12 V
Permissible DC voltage V_{pp}		10 V

Generated:Wadim P. DunzowChecked/Approved:Dr. Bert Wall**VI TELEFILTER**

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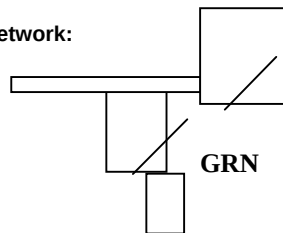
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VI TELEFILTER**Filter specification****TFS 150X - 1/2****3. Package**

Pin 1	Input
Pin 14	Input RF Return
Pin 8	Output
Pin 7	Output RF Return
Pin 2,9	Package Ground

4. 50 Ω matching network:

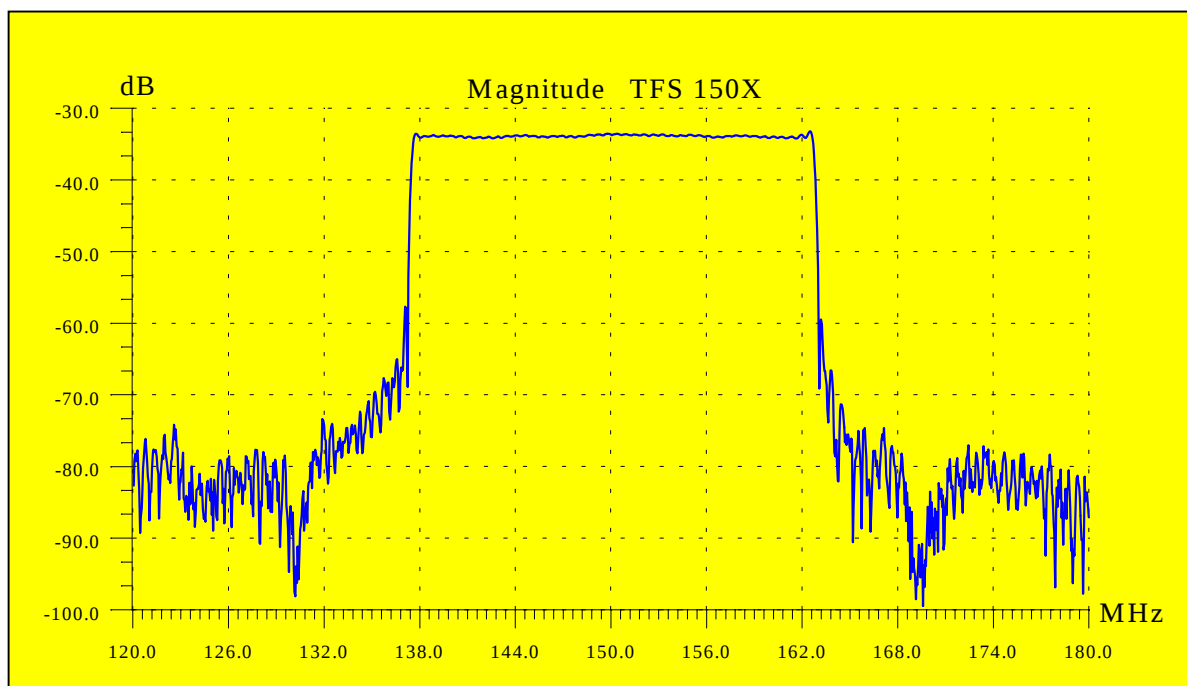
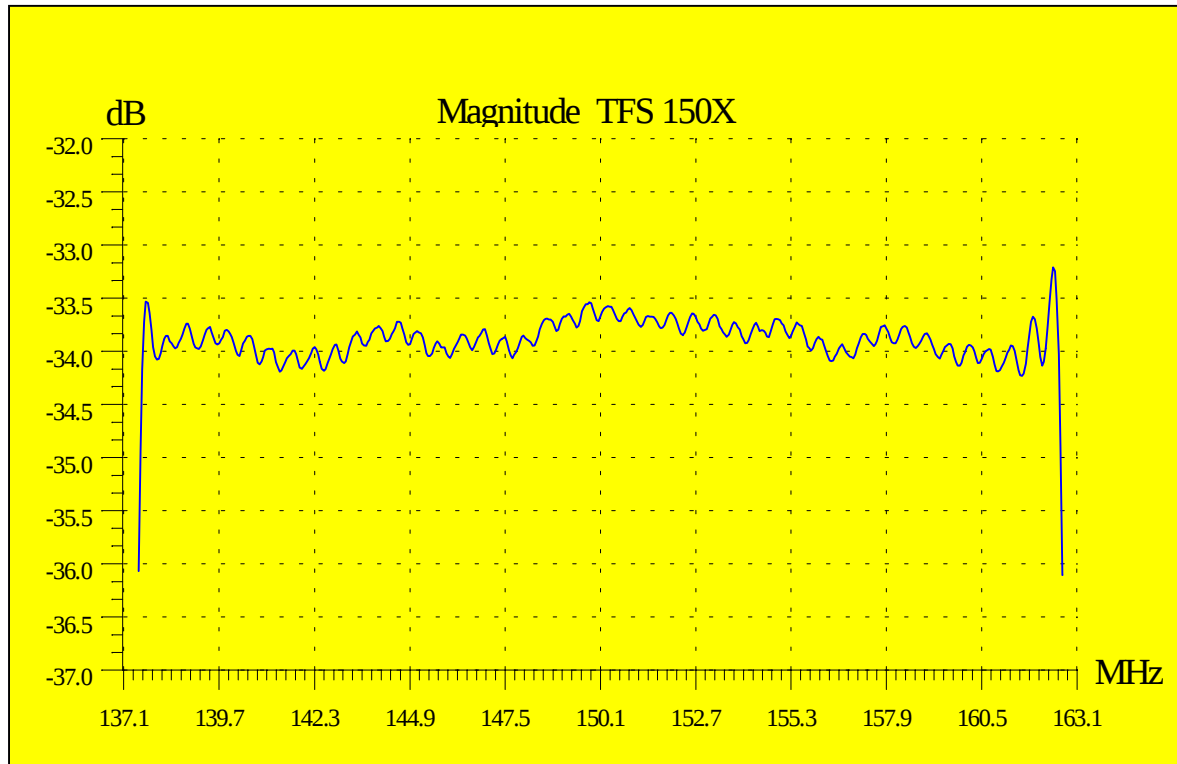
$L_1 \approx 13 \text{ nH}$	$C_1 \approx 68 \text{ pF.}$
$L_2 \approx 59 \text{ nH}$	$C_2 \approx 33 \text{ pF.}$



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