

VI TELEFILTER**Filter Specification****TFS 448****1/5****Measurement condition**

Ambient temperature:	23 °C
Input power level:	0 dBm
Terminating impedances *	
Input:	340 Ω -1,05 pF
Output:	340 Ω -1,05 pF

Characteristics

Remark:

Reference level for the relative attenuation a_{rel} of the TFS448 is the maximum of the pass band attenuation a_{max} . The maximum of the attenuation within the usable signal bandwidth is defined as the insertion loss a_e . The centre 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 nominal frequency f_N is fixed at 448,0125 MHz without tolerance. The given values for the relative attenuation have to be reached at the frequencies given below even if the centre frequency f_c is shifted due to the temperature coefficient of frequency TC_f in the operating temperature range and due to a production tolerance for the centre frequency f_c .

D a t a		typ. value	Variation / Limitation
Insertion loss (Reference level)	$a_e = a_{max}$	-	max. 5 dB
Nominal frequency	f_N	-	448,0125 MHz
Centre frequency	f_c	448,02 MHz	-
3 dB - bandwidth	BW	255 kHz	-
Usable signal bandwidth		-	min. $f_N \pm 10$ kHz
Relative attenuation $f_N + 910$ kHz	a_{rel}	60 dB	min. 52 dB
Temperature coefficient of frequency	TC_f **	-0,036 ppm/K ²	-
Frequency inversion temperature	T_0	+10 °C	-
Operating temperature range		-	- 10°C ... + 50°C
Storage temperature range		-	- 30°C ... + 85°C

*) The terminating impedances depend on parasitics and q-values of matching elements and the board used, and are to be understood as reference values only. Should there be additional questions do not hesitate to ask for an application note or contact our design team.

***) $\Delta f(\text{Hz}) = TC_f(\text{ppm/K}^2) \times (T - T_0)^2 \times f_{T_0}(\text{MHz})$

generated: _____

checked / approved: _____

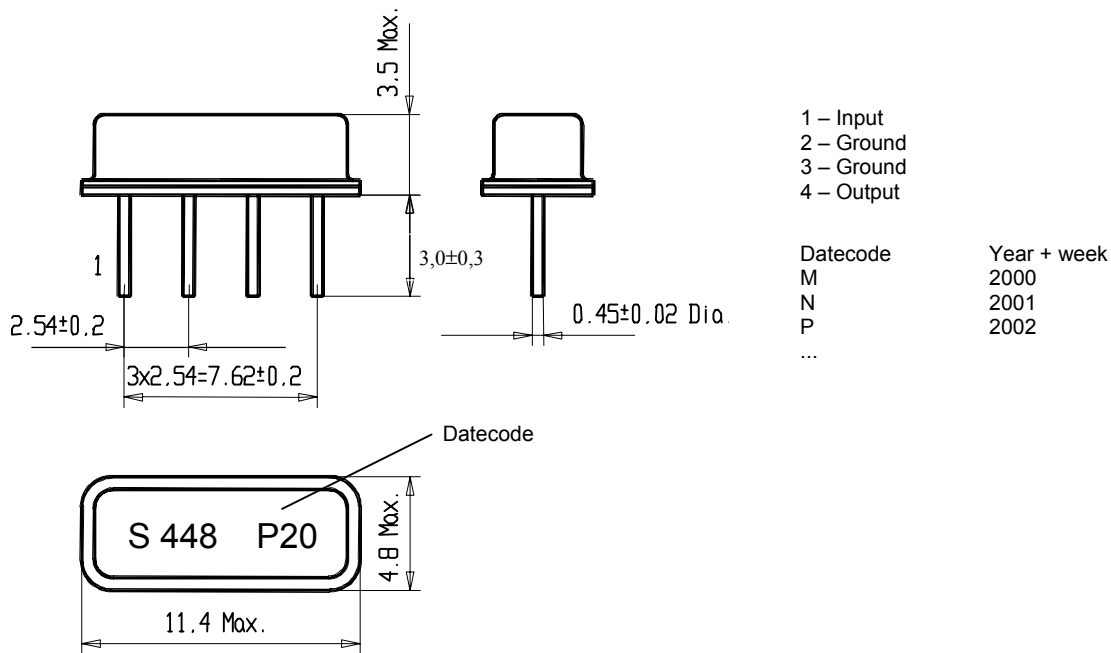
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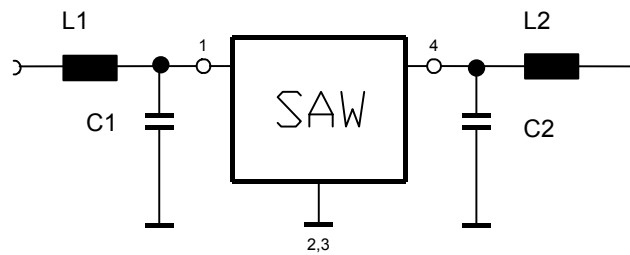
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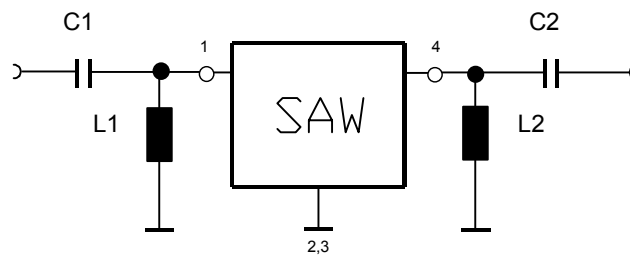
Construction and pin connection
(All dimensions in mm)



50 Ω test circuit 1



50 Ω test circuit 2



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Stability Characteristics

After the following tests the filter shall meet the whole specification:

1. Shock: 500g, 18 ms, half sine wave, 3 shocks each plane;
DIN IEC 68 T2 - 27
2. Vibration: 10 Hz to 500 Hz, 0,35 mm or 5g respectively, 1 octave per min, 10 cycles per plan, 3 plans;
DIN IEC 68 T2 - 6
3. Change of temperature: -55 °C to 125°C / 30 min. each / 10 cycles
DIN IEC 68 part 2 – 14 Test N
4. Resistance to solder heat (reflow): reflow possible: twice max.;
for temperature conditions, please refer to the attached "Air reflow temperature conditions" on page 4;

Air reflow temperature conditions

1st and 2nd air reflow profile

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

Chip-mount air reflow profile

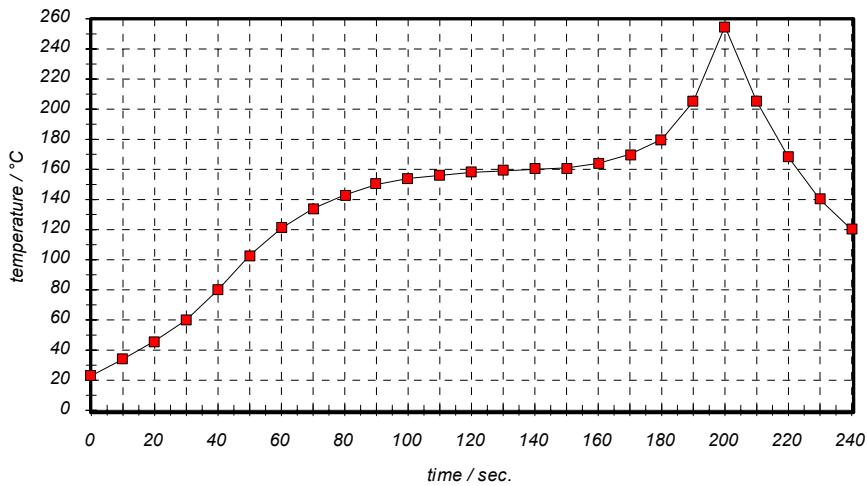


Table for temperature vs. time during the air reflow process

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

VI TELEFILTER**Filter Specification****TFS 448****5/5****History**

Version	Reason of Changes	Name	Date
1.0	Generate specification according to customer requirements.	Dr. Wall	01.03.2002
1.1	Change from development specification to filter specification. Define termination impedance. Correct typical data according to measurement results.	Dr. Wall	16.05.2002

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