Measurement condition

Ambient temperature T_A: 23 °C
Input power level: 0 dBm.
Terminating impedances : 100 Ω // -4,0 pF
100 Ω // -4,0 pF

Characteristics

Remark:
Reference level for the relative attenuation a_{rel} of the **TFS 454** 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 centre frequency f_o is the arithmetic mean value of the upper and lower frequencies at the **3dB** filter attenuation level relative to the insertion loss a_e. The nominal frequency f_N is fixed at **454,00 MHz** without tolerance. The given values for the relative attenuation a_{rel} and for the group delay ripple 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**		**tolerance / limit**		
Insertion loss (reference level)	$a_e = a_{min}$	3,5 -	MHz	max.	4,5 -	MHz
Nominal frequency	f_N				454	MHz
Centre frequency	f_C	454	MHz			
Bandwidth	BW	9,5	MHz	min.	4,0	MHz
Relative attenuation f_N - 42,8 MHz	a_{rel}	60	dB	min.	55	dB
Operating temperature range	OTR	-		- 10 °C ... + 50°C		
Storage temperature range		-		- 40 °C ... + 85°C		
Temperature coefficient of frequency	TC_f **	-32	ppm/K			

*) 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.
** $\Delta f_C(Hz) = Tc_f(ppm/K) \times (T - T_A) \times f_{CAT}$ (MHz)

Generated:

Checked / Approved:

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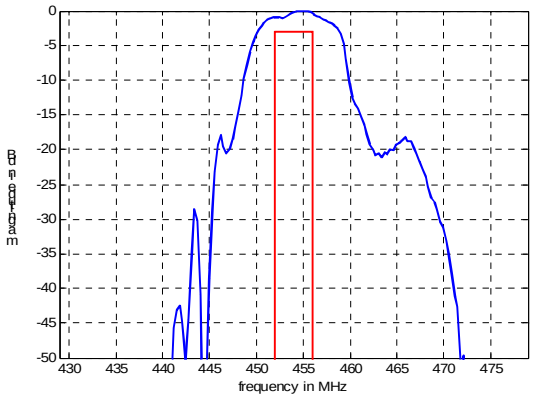
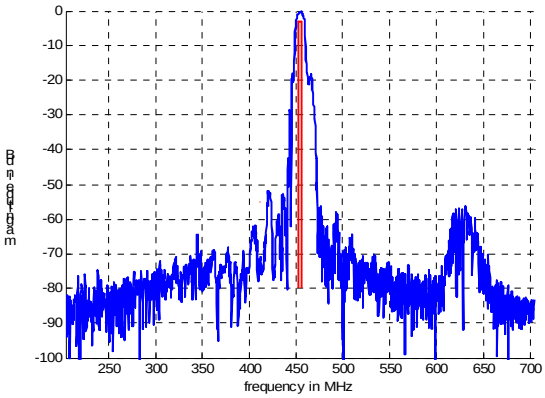
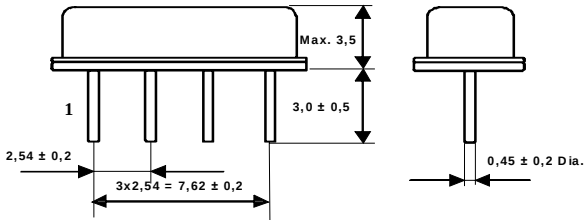
Filter characteristic



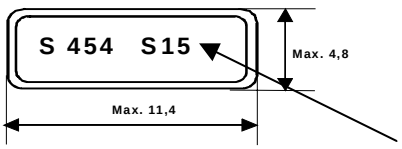


Construction and pin connection

(All dimensions in mm)



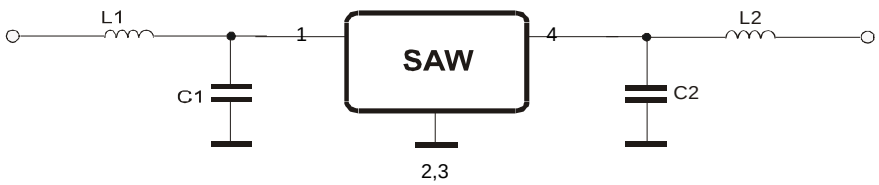
1	Input
2	Ground
3	Ground
4	Output



Date code

Date code:	Year + week
S	2004
T	2005
U	2006
...	

50 Ohm Test circuit



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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 5 g 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 refer to the attached "Air reflow temperature conditions" on page 4;

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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.	

Air reflow profile

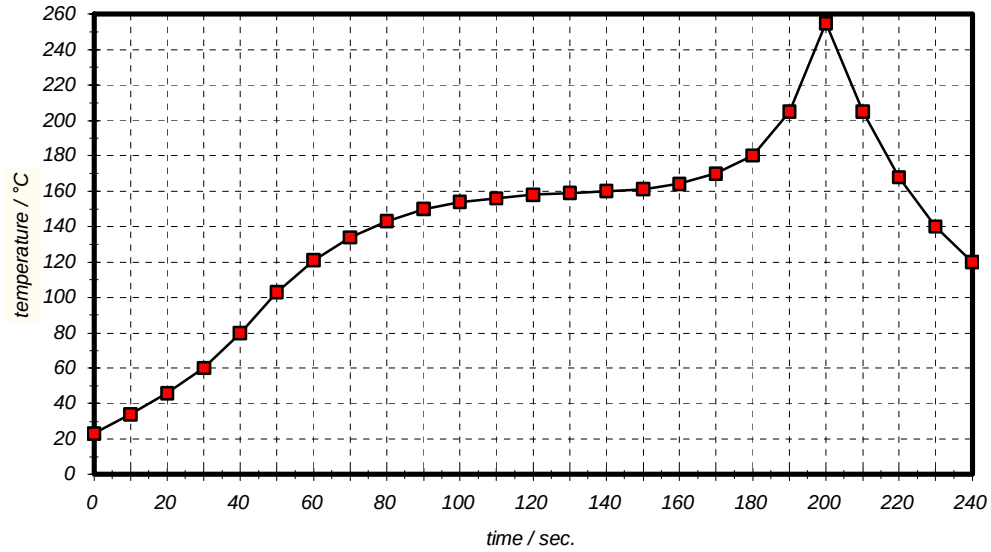

Table for temperature vs. time during the air reflow process

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

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History

Version	Reason of Changes	Name	Date
1.0	generated specification according to customer requierment	S. Sabah	23.06.2000
1.1	correct of terminating impedances	Dr. Sabah	31.07.2003
1.2	add filter characteristic change centre - and nominal frequency	Noack	07.04.2004

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