Measurement condition :

Ambient temperature T_A: 23 °C.
Input power level: 0 dBm.
Terminating impedances in f_C *) :
for input: 2,9 kOhm ‖ -3,8 pF
for output: 2,9 kOhm ‖ -3,8 pF
External coil: 820 nH

Characteristics

Remark:
Reference level for the relative attenuation a_{rel} of the TFS70Y 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 in the operating temperature range is not included in the production tolerance scheme.

D a t a		**typ. value**		**tolerance / limit**		
Insertion loss (reference level)	a_e	3,7	dB	max.	6,0	dB
Centre frequency (at ambient temperature T_A)	f_c	70,002	MHz		70,0± 0,015	MHz
Relative attenuation	a_{rel}					
f_N - 35 kHz … f_N + 35 kHz		0,8	dB	max.	1	dB
f_N ± 35 kHz … f_N ± 47 kHz		2	dB	min.	3	dB
f_N ± 60 kHz … f_N ± 90 kHz		2,5	dB	min.	1	dB
f_N ± 90 kHz … f_N ± 450 kHz		10	dB	min.	3	dB
f_N ± 450 kHz … f_N ± 500 kHz		45	dB	min.	35	dB
f_N ± 500 kHz … f_N ± 10 MHz		43	dB	min.	40	dB
Temperature coefficient of frequency	TCf 2nd order **)	- 0,043	ppm/K^2		-	
Turn over temperature	T0	25	°C		-	
Operating temperature range	OTR	-		- 5 °C ... + 70 °C		
Storage temperature range		-		- 55 °C ... + 90 °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.
**) Δf_C(Hz) = Tc_f(ppm/K) x (T - T_o)² x $\mathbf{f_{To}}$ (MHz)

Generated:

Checked / Approved:

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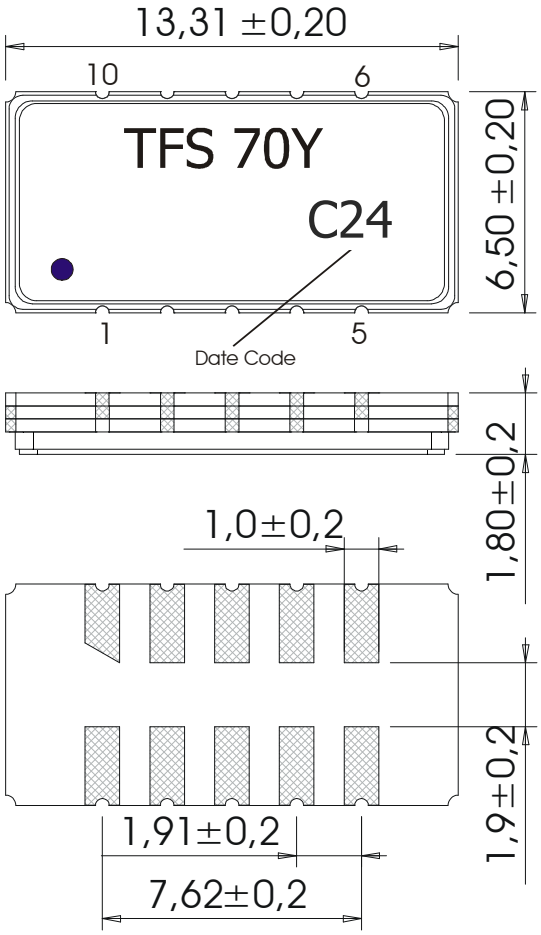
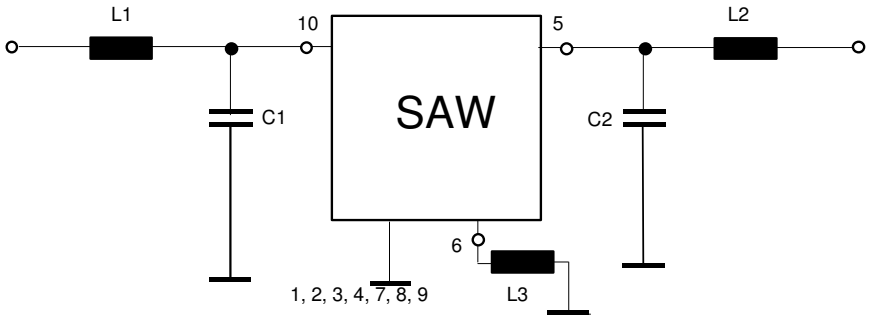
Construction and pin connection
(All Dimensions in mm)



1	Input RF-Return
2	Ground
3	Ground
4	Ground
5	Output
6	External Coil
7	Ground
8	Ground
9	Ground
10	Input

Date code	Year + week
C	2012
D	2013
E	2014
...	

50 Ω Matching Network



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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 plane, 3 planes; 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;

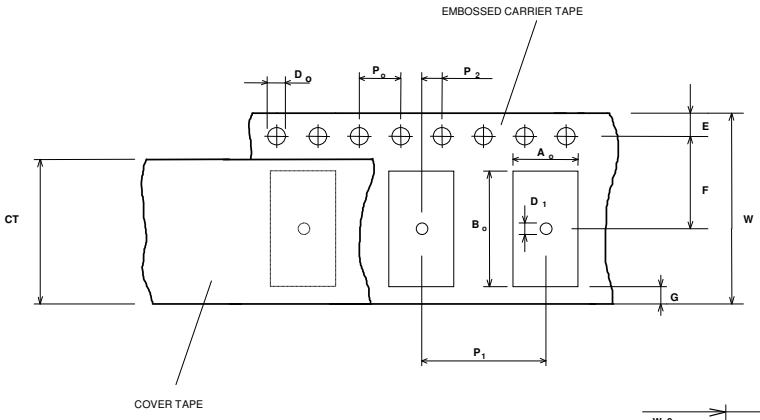
Packing

Tape & Reel: DIN IEC 286 – 3, with exception of value for N and minimum bending radius;
tape type II, embossed carrier tape with top cover tape on the upper side;

max. pieces of filters per reel:	1700
reel of empty components at start:	min 300 mm
reel of empty components at start including leader:	min 500 mm
trailer	min 300 mm

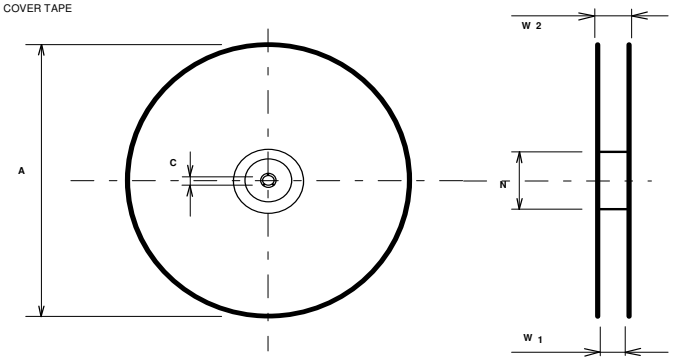
Tape (all dimensions in mm)

W	:	24	+ 0,3/ -0,1
Po	:	4	± 0,1
Do	:	1,5	+ 0,1
E	:	1,75	± 0,1
F	:	11,5	± 0,1
G (min)	:	0,6	
P2	:	2	± 0,1
P1	:	12	± 0,1
D1(min)	:	1,5	
Ao	:	7,1	± 0,1
Bo	:	13,9	± 0,
CT	:	21,5	± 0,1



Reel (all dimensions in mm):

A	:	330
W1	:	24,4 +2
W2 (max)	:	30,4
N (min)	:	60
C	:	13 +0,5/-0,2



The minimum bending radius is 45 mm. The mounting surface of the filters faces the bottom side of the embossed carrier tape. Markings on the filters can be read if the upper side of the carrier tape is regarded with the sprocket holes on its right.

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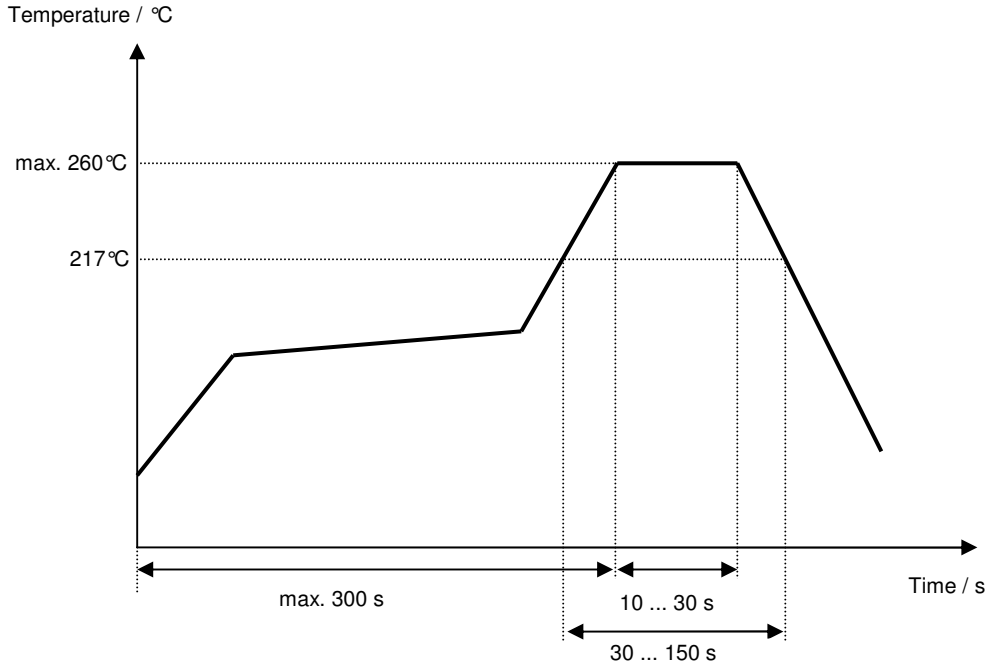
Air reflow temperature conditions

Conditions	**Exposure**
Average ramp-up rate (30°C to 217°C)	less than 3°C/second
> 100°C	between 300 and 600 seconds
> 150°C	between 240 and 500 seconds
> 217°C	between 30 and 150 seconds
Peak temperature	max. 260°C
Time within 5°C of actual peak temperature	between 10 and 30 seconds
Cool-down rate (Peak to 50°C)	less than 6°C/second
Time from 30°C to Peak temperature	no greater than 300 seconds

Chip-mount air reflow profile



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History

Version	Reason of Changes	Name	Date
1.0	- Generate development specification	Steiner	30.07.2002
1.1	- Change package to 15*6,5 mm. - Add second package option (11*5 mm) - Change pass band width. - Correct typo for stop band definition. - Remove group delay limits. - Introduce centre frequency limits. - Change remark for characteristic.	Dr. Wall	20.12.2002
2.0	- Change from development specification to preliminary specification. - Remove package version 1. - Change 1 dB bandwidth from ± 40 kHz to ± 35 kHz minimum. - Change 3 dB bandwidth from ± 60 kHz to ± 47 kHz minimum. - Change insertion loss from 10 dB to 6 dB maximum. - Add typical values. - Add termination impedances. - Add packing information.	Dr. Wall	13.05.2003
3.0	- Change from preliminary specification to filter specification. - Change from 11*5 to 13*6,5 mm package. - Change pinning. - Change packing information. - Change termination impedances. - Add typical values.	Dr. Wall	06.06.2003
4.0	- Change 1dB limit line from ±35 kHz to ±30kHz+ add 1,5 dB pass band limit - format and reflow profile update	Martens	15.04.2010
5.0	- Change 1dB limit line to ±35 kHz (status of v3.0) - remove 1,5 dB pass band limit	Martens	21.04.2010
5.1	- Changed storage temperature range	Raura	14.06.2012

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