Measurement condition

Ambient temperature: 23 °C
Input power level: 0 dBm
Terminating impedance: *
Input: 170 Ω || -5,6 pF
Output: 226 Ω || -4,7 pF

Characteristics

Remark:
The reference level for the relative attenuation a_{rel} of the TFS 590 is the minimum of the pass band attenuation. This value is defined as the insertion loss a_e. The nominal frequency f_N is fixed at 590 MHz without any tolerance. The values of relative attenuation a_{rel} are guaranteed for the whole operating temperature range. The frequency shift of the filter in the operating temperature range is included in the production tolerance scheme.

D a t a		**typ. Value**		**tolerance / limit**		
Insertion loss within PB (reference level)	a_e	6,0	dB	max.	7,5	dB
Nominal frequency	f_N	-			590,0	MHz
Centre frequency	f_C	590,0	MHz			
Passband	PB			f_N ±	195	kHz
Pass band ripple		0,4	dB	max.	1,0	dB
Bandwidth 1 dB	BW	634	kHz	min.	390	kHz
Relative attenuation	a_{rel}					
f_N - 20,0 MHz ... f_N - 1,4 MHz		45	dB	min.	40,0	dB
f_N + 1,4 MHz ... f_N + 20,0 MHz		45	dB	min.	40,0	dB
Operating temperature range	OTR	-		- 25 °C ... + 75 °C		
Storage temperature range		-		- 40 °C ... + 85 °C		
Frequency inversion temperature		18	°C			
Temperature coefficient of frequency	TC_f **	-0,035	ppm/K²		-	

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

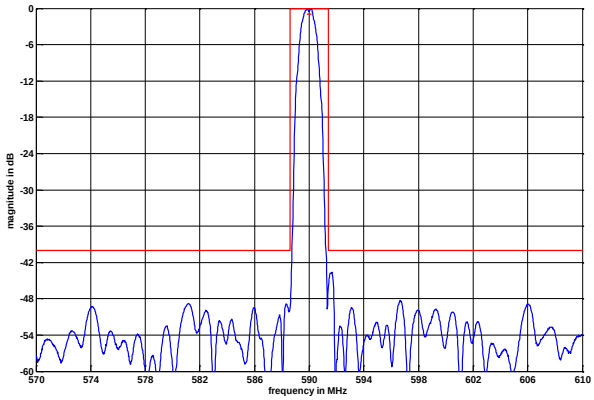
Generated:

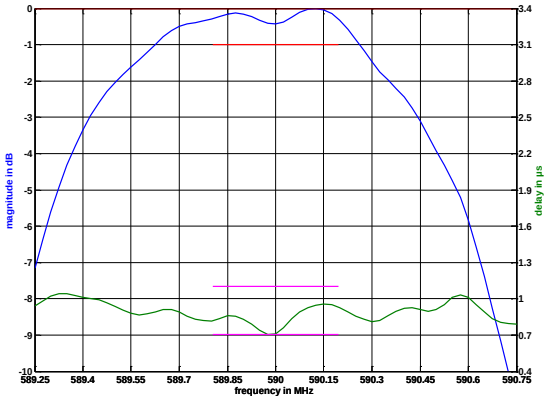
Checked / Approved:

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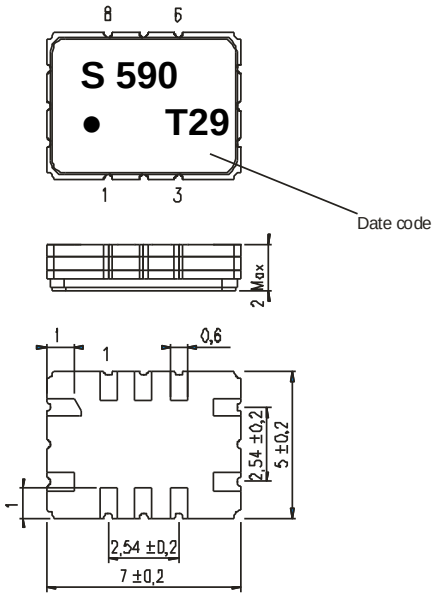
Filter characteristic





Construction and pin connection

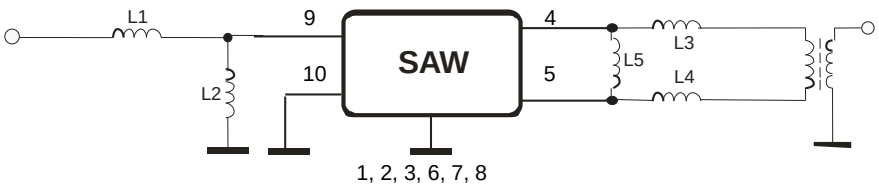
(All dimensions in mm)



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

Date code:	Year + week
T	2005
U	2006
V	2007
...	

50 Ohm Test circuit



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Stability characteristics

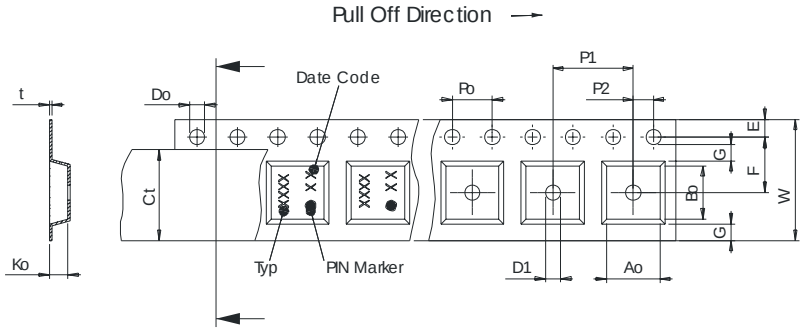
After the following tests the filter shall meet the whole specification:

1. Shock:	500g, 1 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;

Packing

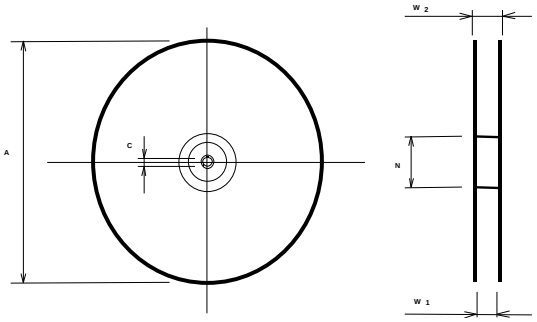
Tape & Reel: IEC 286 – 3, with exeption of value for N and minimum bending radius;
tape type II, embossed carrier tape with top cover tape on the upper side;

max. pieces of filters peer reel:	3000
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	:	16,00	± 0,3
Po	:	4,00	± 0,1
Do	:	1,50	+0,1/-0
E	:	1,75	± 0,1
F	:	7,50	± 0,1
G(min)	:	0,60	
P2	:	2,00	± 0,1
P1	:	8,00	± 0,1
D1(min)	:	1,50	
Ao	:	5,50	± 0,1
Bo	:	7,50	± 0,1
Ct	:	13,5	± 0,1



Reel (all dimensions in mm)

A	:	330	
W1	:	16,4	+2/-0
W2(max)	:	22,4	
N(min)	:	50	
C	:	13,0	+0,5/-0,2

The minimum bending radius is 45 mm.

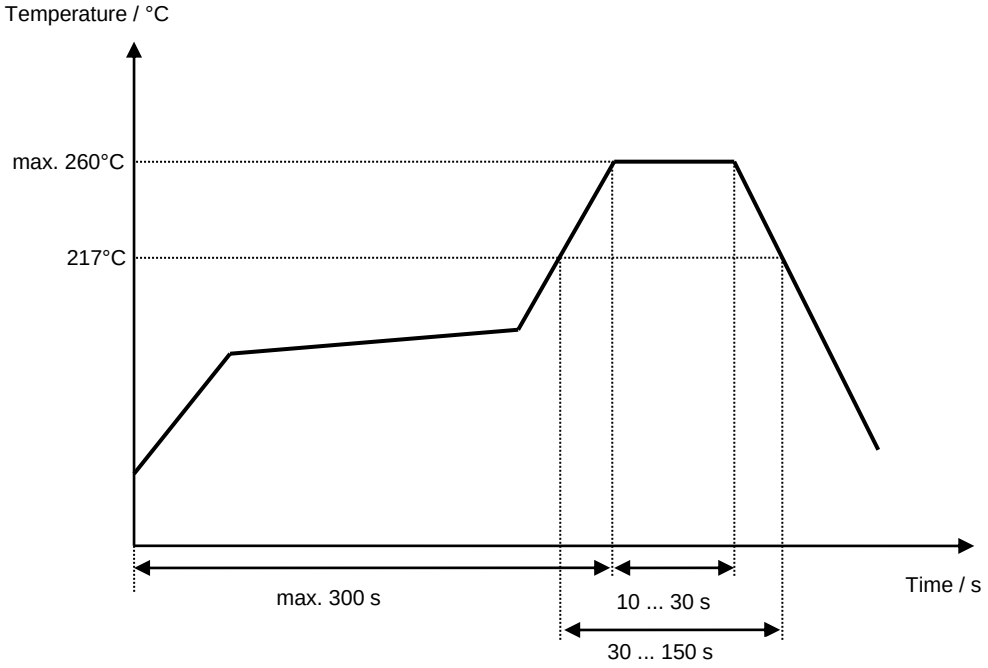
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Air reflow temperature conditions

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	Generation of development specification	Strehl	20.04.2005
1.1	Correct operating temperature range	Strehl	09.05.2005
1.2	pinning changed ➔ input single ended / output balanced driven	Pfeiffer	13.05.2005
1.3	- terminating impedance, typical values and filter characteristic added - matching configuration modified - insertion loss: limit changed	Pfeiffer	15.07.2005

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