Measurement condition

Ambient temperature:		25	°C
Input power level:		0	dBm
Terminating impedance: *)	input:	2123 Ω //	-3.14 pF
	output:	2190 Ω //	-3.13 pF

Characteristics

Remark:
The nominal frequency f_N is fixed at 315MHz. The insertion loss a_e is defined as loss value determined at f_N. Reference level for the relative attenuation a_{rel} of the TFS 315F is the insertion loss a_e. All specified data are met within the operating temperature range.

D a t a		**typ. value**		**tolerance / limit**		
Insertion loss (reference level)	a_e	10.6 -	dB	max.	14 -	dB
Nominal frequency	f_N	-			315	MHz
Pass band	PB	-		f_N	± 2.1	MHz
Relative attenuation	a_{rel}					
f_N ... f_N ± 2.1 MHz		0.7	dB	max.	1	dB
f_N - 4.6 MHz ... f_N - 100 MHz		45	dB	min.	36	dB
f_N + 4.85 MHz ... f_N + 100 MHz		45	dB	min.	36	dB
Group delay ripple in PB		75	ns	max.	200	ns
Input power level		-		max.	10	dBm
Operating temperature range	OTR	-		- 40 °C.... + 85 °C		
Storage temperature range		-		- 40 °C.... + 85 °C		
Frequency inversion temperature		40	°C		-	
Temperature coefficient of frequency	TC_f **	-0.04	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.
**) $\Delta f(Hz) = TC_f(ppm/K) \times (T-T_0)^2 \times f_{To}(MHz)$.

generated:

checked / approved:

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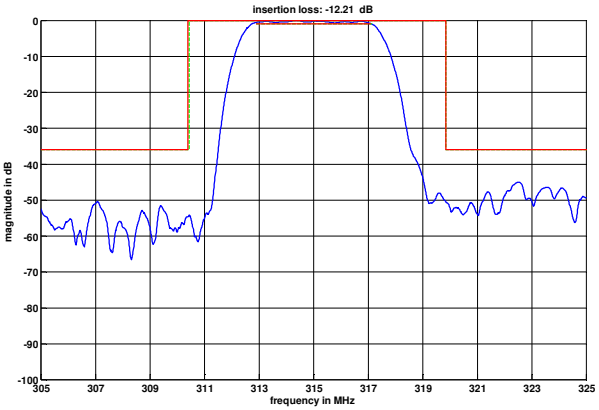
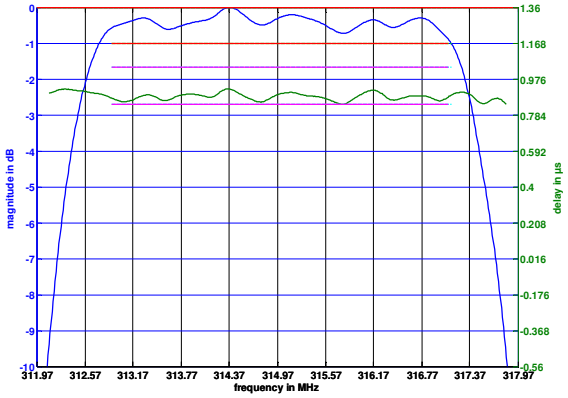
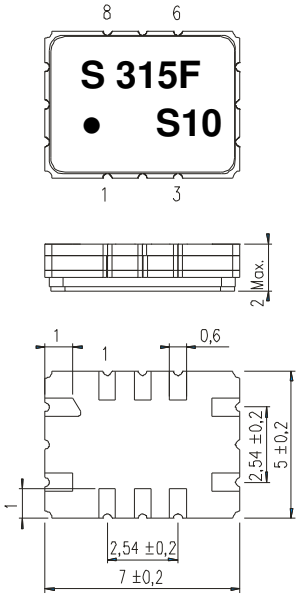
Filter characteristic





Construction and pin connection

(All dimensions in mm)

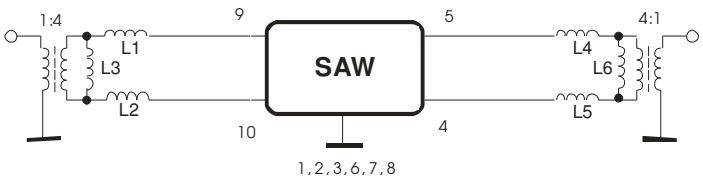


1	Ground
2	Ground
3	Ground
4	Output
5	Output
6	Ground
7	Ground
8	Ground
9	Input
10	Input

Date code: Year + week

E	2014
F	2015
G	2016
...	

50 Ω Test circuit



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Stability characteristics

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

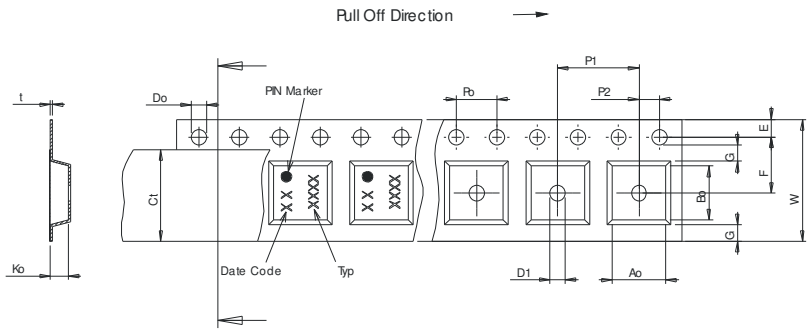
1. Shock:	500g, 18 ms, half sine wave, 3 shocks each plane; DIN IEC 68 T2 - 27
2. Vibration:	10 Hz to 500 Hz, 0.35 mm or g respectively, 1 octave per min, 10 cycles per plane, 3 planes; DIN IEC 68 T2 - 6
3. Change of temperature:	-55 °C to 125°C / 15 min. each / 100 cycles DIN IEC 68 part 2 – 14 Test N
4. Resistance to solder heat (reflow):	reflow possible: three times max.; for temperature conditions refer to the attached "Air reflow temperature conditions" on page 4;
5. ESD	ANSI/ESD S20.20-1999**,** class 1A for HBM

This filter is RoHS compliant (2011/65/EU)

Packing

Tape & Reel: 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:	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

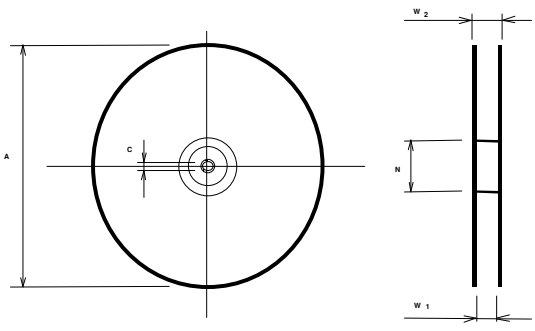


Tape (all dimensions in mm)

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	: 12.4	+2/-0
W2(max)	: 18.4	
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

1st and 2nd air reflow profile

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

Chip-mount air reflow profile

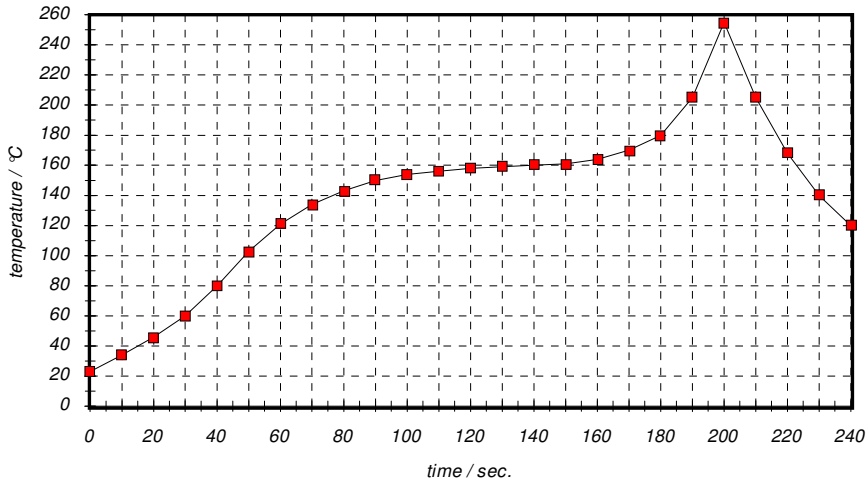

Table for temperature vs. time during the air reflow process

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

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History

Version	Reason of Changes	Name	Date
1.0	generation of specification	Pfeiffer	11.03.2003
1.1	terminating impedance, matching configuration and typical valuel added	Pfeiffer	05.03.2004
1.2	correct typo in remarks section. Add new change of temperature conditions. Add new ESD & ROHS conditions	TCUK	23.09.2013
2.0	Relaxed attenuation level in stop band from 40dB to 36 dB. Changed 50Ω test circuit. Changed tape & reel info.	TCUK	25.03.2014

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