unMeasurement condition

Ambient temperature: 23 °C
Input power level: 0 dBm
Terminating impedance: *
Input: 84 Ω || -20,1 pF
Output: 112 Ω || -16,6 pF

Characteristics

Remark:
The reference level for the relative attenuation a_{rel} of the TFS 325C 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 325 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 (reference level)	a_e	12	dB	max.	14	dB
Nominal frequency	f_N	-			325	MHz
Passband	PB	-		f_N ±	5	MHz
Pass band ripple		0,22	dB	max.	1	dB
Relative attenuation	a_{rel}					
f_N … f_N ± 5	MHz	1,2	dB	max.	2	dB
f_N ± 7,5 MHz … f_N ± 12	MHz	4,5	dB	min.	3	dB
f_N ± 12 MHz … f_N ± 13	MHz	40	dB	min.	30	dB
f_N ± 13 MHz … f_N ± 25	MHz	52	dB	min.	40	dB
f_N - 315 MHz … f_N - 105	MHz	65	dB	min.	50	dB
f_N - 105 MHz … f_N - 25	MHz	52	dB	min.	45	dB
f_N + 25 MHz … f_N + 30	MHz	45	dB	min.	40	dB
f_N + 30 MHz … f_N + 50	MHz	40	dB	min.	35	dB
f_N + 50 MHz … f_N + 55	MHz	45	dB	min.	40	dB
f_N + 55 MHz … f_N + 80	MHz	40	dB	min.	35	dB
f_N + 80 MHz … f_N + 175	MHz	50	dB	min.	40	dB
Group delay within PB		0,32	µs	max.	1	µs
Group delay ripple within PB		20	ns	max.	75	ns
Phase linearity within PB		4,1	deg		-	
Operating temperature range	OTR	-		- 40 °C ... + 85°C		
Storage temperature range		-		- 40 °C ... + 85°C		
Temperature coefficient of frequency	TC_f **	-18	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.
**) $\Delta f(Hz) = TC_f(ppm/K) \times (T-T_0) \times f_{T_0}(MHz)$

Generated:

Checked / Approved:

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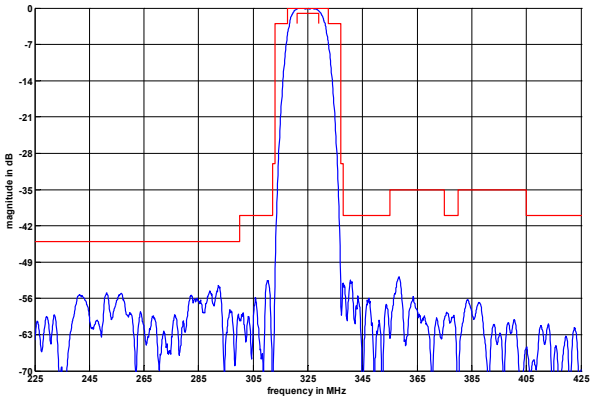
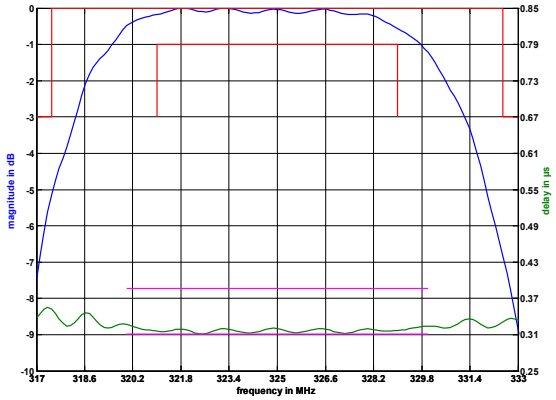
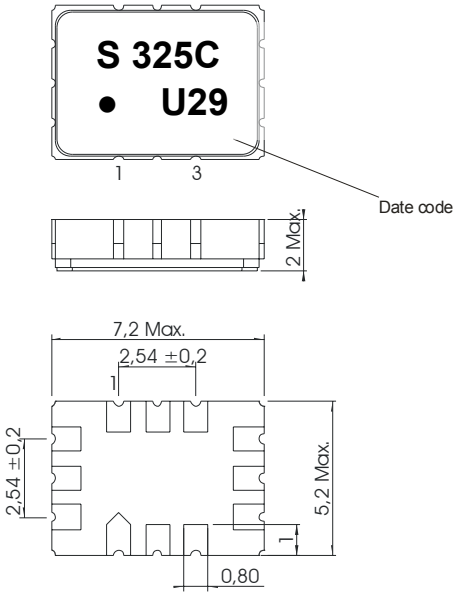
Filter characteristic





Construction and pin connection

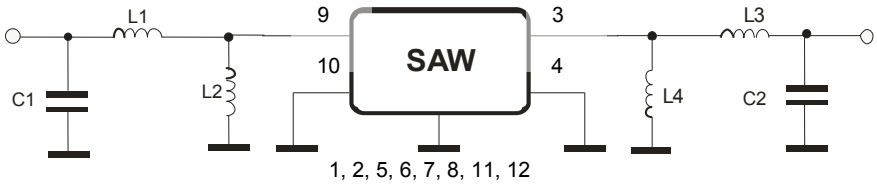
(All dimensions in mm)



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

Date code:	Year + week
U	2006
V	2007
W	2008
...	

50 Ω Test circuit



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Stability characteristics, reliability

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

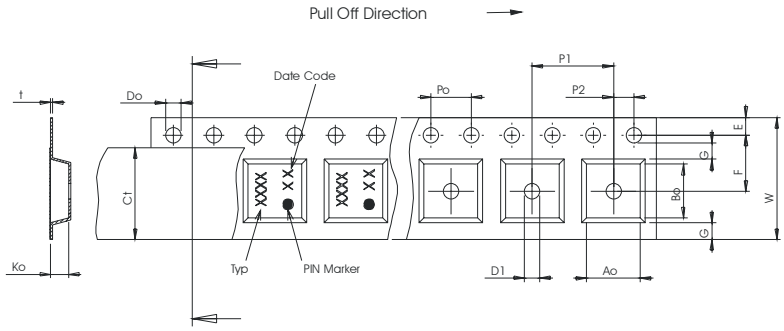
1. Shock:	500g, 1 ms, half sine wave, 3 shocks each plane; DIN IEC 68 T2 - 27
2. Vibration:	10 Hz to 500 Hz, 0,35 mm or 5 g respectively, 1 octave per min, 10 cycles per plan, 3 plans; DIN IEC 68 T2 - 6
3. Change of temperature:	-55 °C to 125°C / 30 min. each / 10 cycles DIN IEC 68 part 2 – 14 Test N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

This filter is RoHS compliant (2002/95/EG, 2005/618/EG)

Packing

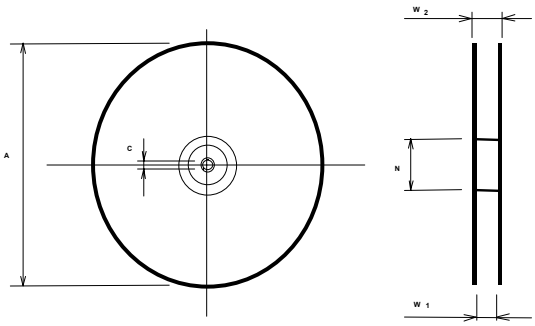
Tape & Reel: IEC 286 – 3, with exception of value for N and minimum bending radius;
tape type II, embossed carrier tape with top cover tape on the upper side;

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	: 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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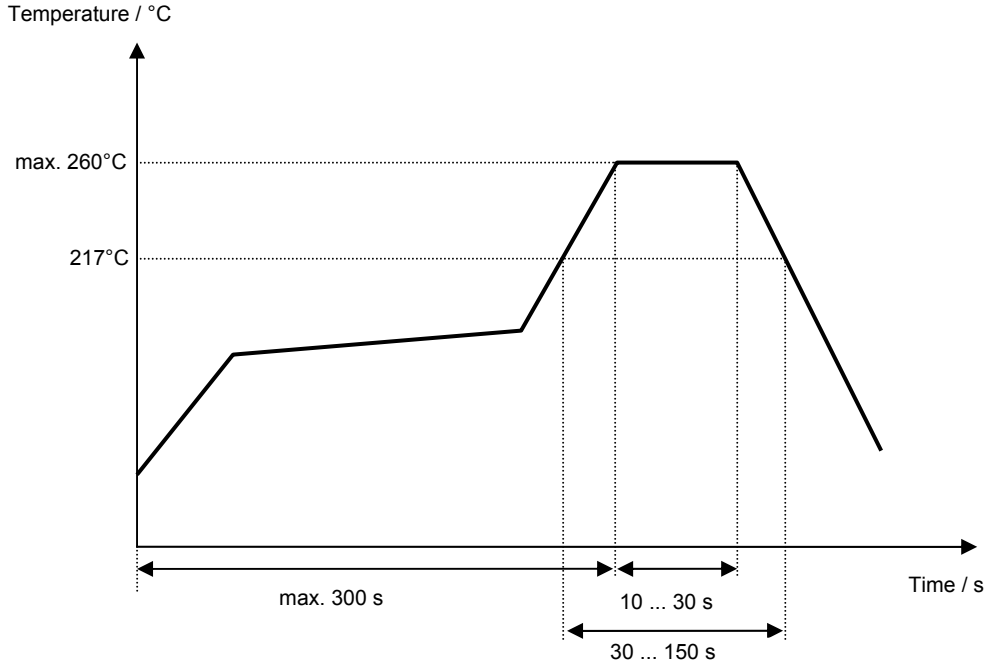
Air reflow temperature conditions

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	Alawneh	15.05.2006
1.1	Pinning modified	Alawneh	06.06.2006
1.2	Add 40 dB rejection level	Strehl	14.06.2006
1.3	Change data	Strehl	30.06.2006
1.4	- terminating impedances, typical values, filter characteristics and matching configuration added - limits of relative attenuations changed	Pfeiffer	20.07.2006
1.5	- correct pin connection and test circuit	Noack	02.08.2006
1.6	- test circuit corrected	Pfeiffer	22.08.2006

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