Measurement condition

Ambient temperature:	23	°C
Input power level:	0	dBm
Terminating impedance:		
Input:	150	Ω
Output:	150	Ω

Characteristics

Remark:
The nominal frequency f_N is fixed at 512,0 MHz. 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 512 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	1,6	dB		4,0	dB
Nominal frequency	f_N	-			512,0	MHz
Bandwidth	BW					
3 dB		12,16	MHz		-	
Relative attenuation	a_{rel}					
@ 102,4 MHz		62	dB	min.	50	dB
@ 204,8 MHz		64	dB	min.	50	dB
@ 307,2 MHz		62	dB	min.	50	dB
@ 409,6 MHz		65	dB	min.	50	dB
@ 614,4 MHz		61	dB	min.	50	dB
@ 716,8 MHz		65	dB	min.	46	dB
@ 819,2 MHz		66	dB	min.	50	dB
@ 921,6 MHz		61	dB	min.	50	dB
Input power level		-		max.	3	dBm
Operating temperature range	OTR	-		- 40 °C ... + 90 °C		
Storage temperature range		-		- 45 °C ... + 95 °C		
Temperature coefficient of frequency	TCf *	- 32	ppm/K		-	

*) $\Delta f(Hz) = TC_f(ppm/K) \times (T-T_0) \times f_{T0}(MHz)$.

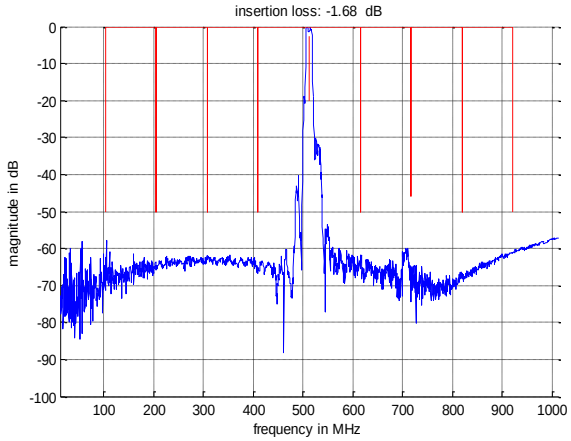
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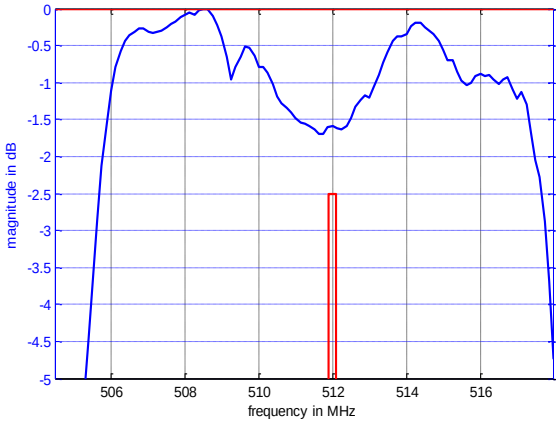
Checked / Approved:

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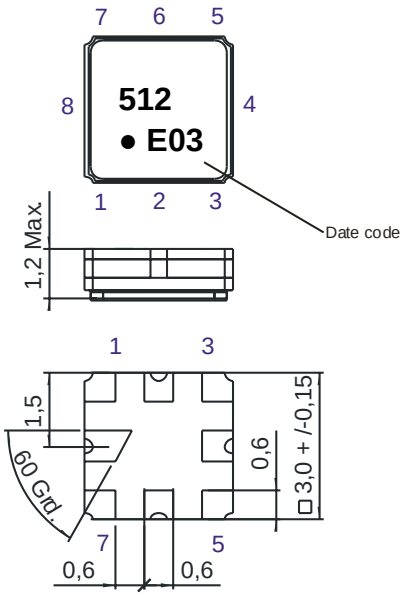
Filter characteristic





Construction and pin connection

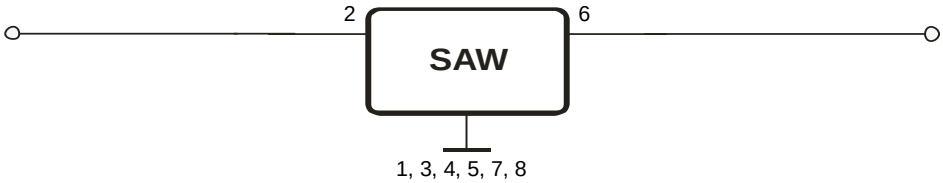
(All dimensions in mm)



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

Date code:	Year + week
E	2014
F	2015
G	2016
...	

150 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 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, see page 4: "Air reflow temperature conditions"

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

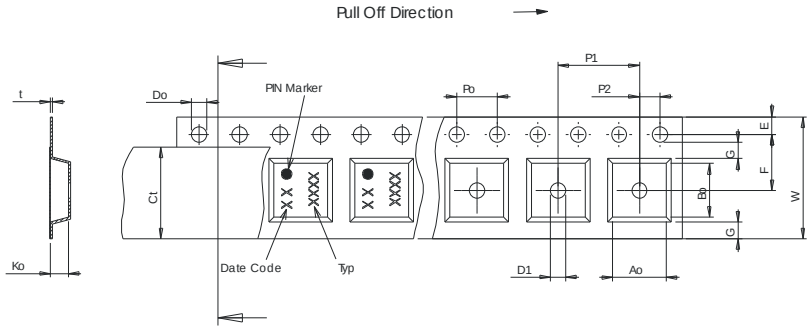
Packing

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:	9000
reel of empty components at start:	min. 300 mm
reel of empty components at start including leader:	min. 500 mm
trailer:	min. 300 mm

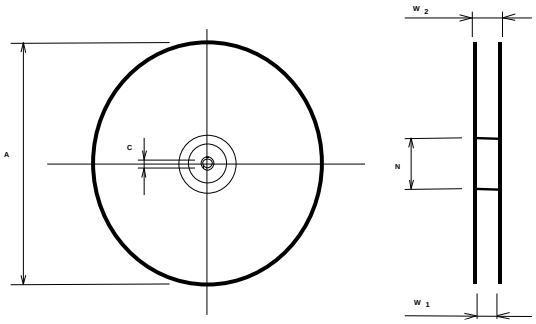
Tape (all dimensions in mm)

W	:	8,00 ± 0,3
Po	:	4,00 ± 0,1
Do	:	1,50 +0,1/-0
E	:	1,75 ± 0,1
F	:	3,50 ± 0,05
G(min)	:	0,75
P2	:	2,00 ± 0,05
P1	:	4,00 ± 0,1
D1(min)	:	1,50
Ao	:	3,25 ± 0,1
Bo	:	3,25 ± 0,1
Ct	:	5,5 ± 0,1



Reel (all dimensions in mm)

A	:	330
W1	:	8,4 +1,5/-0
W2(max)	:	14,4
N(min)	:	50
C	:	13,0 +0,5/-0,2



The minimum bending radius is 45 mm.

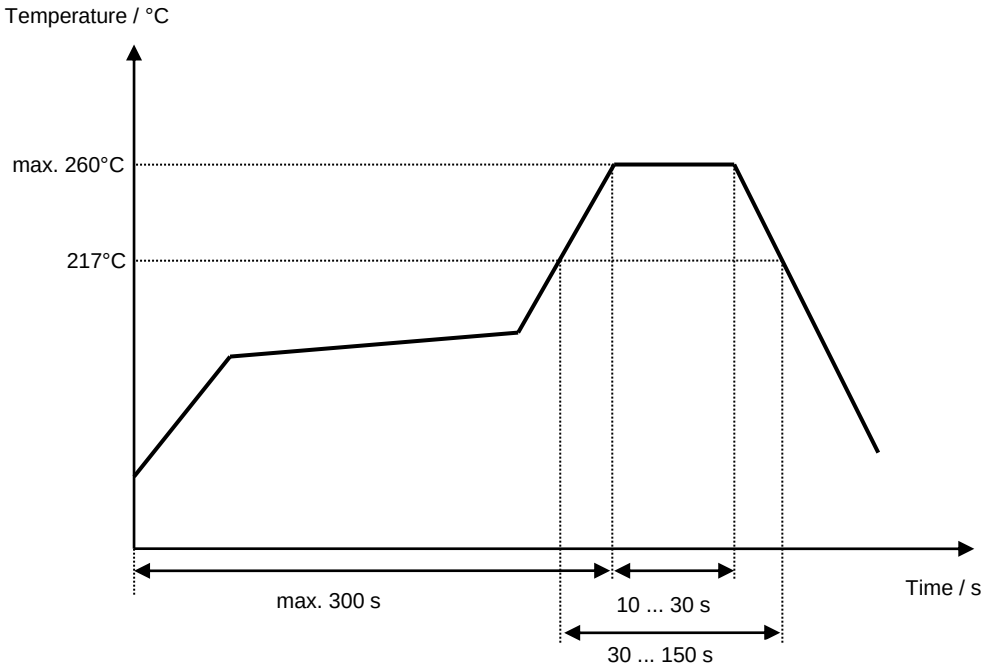
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Air reflow temperature conditions

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	12.03.2008
1.1	- Add typical values, add filter characteristic - Generation of filter specification	S. Channaa	21.07.2009
2.0	- Changed pull off direction from reel	Schönbein	29.05.2012
2.1	- Maximum input power updated	Kortenbeutel	16.01.2014

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