

VI TELEFILTER

Filter specification

TFS 1003

1/5

Measurement condition

Ambient temperature:	23	°C
Input power level:	0	dBm
Terminating impedance:		
Input:	50	Ω
Output:	50	Ω

Characteristics

Remark:

The maximum attenuation in the pass band is defined as the insertion loss a_e . The nominal frequency f_N is fixed at 1003 MHz without any tolerance or limit. Reference level for the relative attenuation a_{rel} of the TFS 1003 is the insertion loss a_e . The values of absolute attenuation a_{abs} 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	a_e	1,9 dB	max.	5,0 dB
Nominal frequency	f_N	-		1003,0 MHz
Passband	PB	-	$f_N \pm$	15,0 MHz
Passband ripple	p-p	1,3 dB	max.	2,7 dB
Relative attenuation	a_{rel}			
$f_N \pm 15$ MHz		1,3 dB	max.	2,7 dB
$f_N - 993$ MHz ... $f_N - 61$ MHz		33 dB	min.	30 dB
$f_N - 61$ MHz ... $f_N - 39$ MHz		45 dB	min.	20 dB
$f_N - 39$ MHz ... $f_N - 36$ MHz		44 dB	min.	14 dB
$f_N + 36$ MHz ... $f_N + 37$ MHz		61 dB	min.	13 dB
$f_N + 37$ MHz ... $f_N + 81$ MHz		40 dB	min.	15 dB
Absolute attenuation	a_{abs}			
$f_N + 81$ MHz ... $f_N + 556$ MHz		39 dB	min.	35 dB
$f_N + 556$ MHz ... $f_N + 1997$ MHz		35 dB	min.	10 dB
VSWR in PB		1,8 : 1	max.	2,5 : 1
Input power level		-	max.	10 dBm
DC voltage		-	max.	10 V
Operating temperature range	OTR	-		- 40 °C ... + 85 °C
Storage temperature range		-		- 40 °C ... + 85 °C
Temperature coefficient of frequency	TC_f^*	- 42 ppm/K		-

*) $\Delta f_C(\text{Hz}) = TC_f(\text{ppm/K}) \times (T - T_o) \times f_{CAT}$

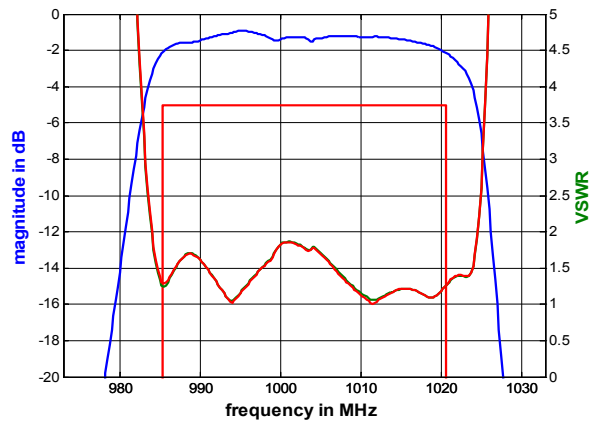
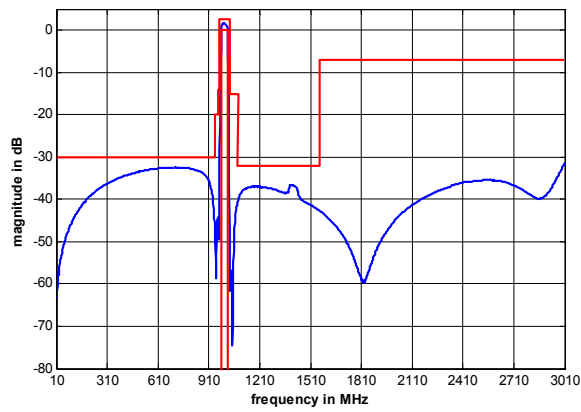
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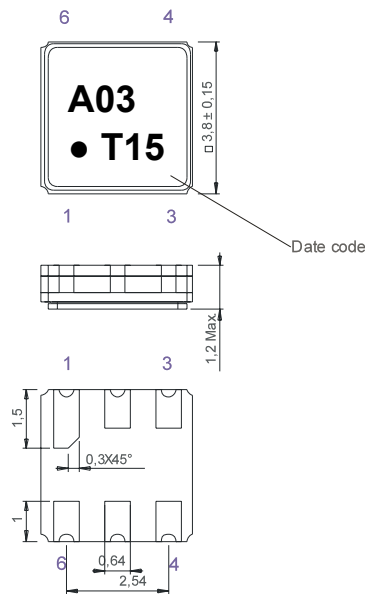
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Filter characteristic



Construction and pin connection

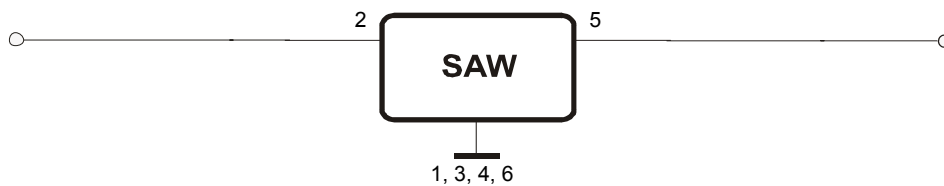
(All dimensions in mm)



- 1 Ground
- 2 Input
- 3 Ground
- 4 Ground
- 5 Output
- 6 Ground

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

50 Ω 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;

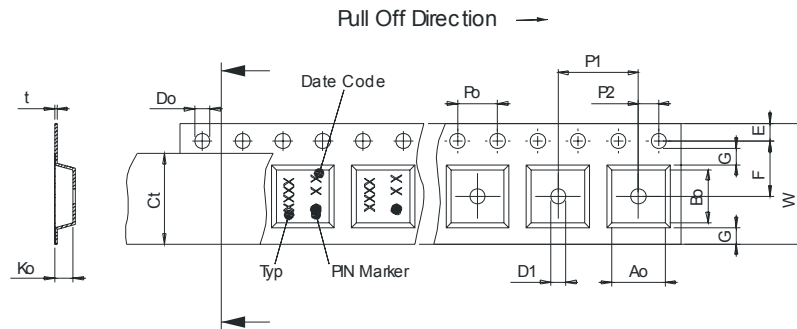
Packing

Tape & Reel: IEC 286 – 3, with 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 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

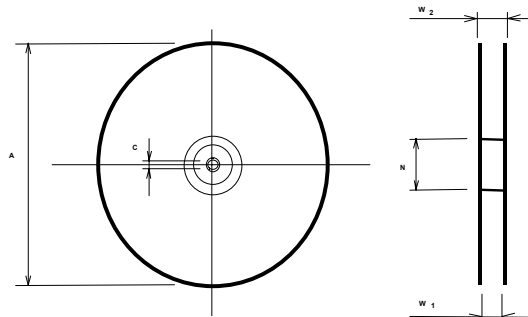
Tape (all dimensions in mm)

- W : 12,00 ± 0,3
- Po : 4,00 ± 0,1
- Do : 1,50 +0,1/-0
- E : 1,75 ± 0,1
- F : 5,50 ± 0,05
- G(min) : 0,75
- P2 : 2,00 ± 0,05
- P1 : 8,00 ± 0,1
- D1(min) : 1,50
- Ao : 4,30 ± 0,1
- Bo : 4,30 ± 0,1
- Ct : 9,5 ± 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.

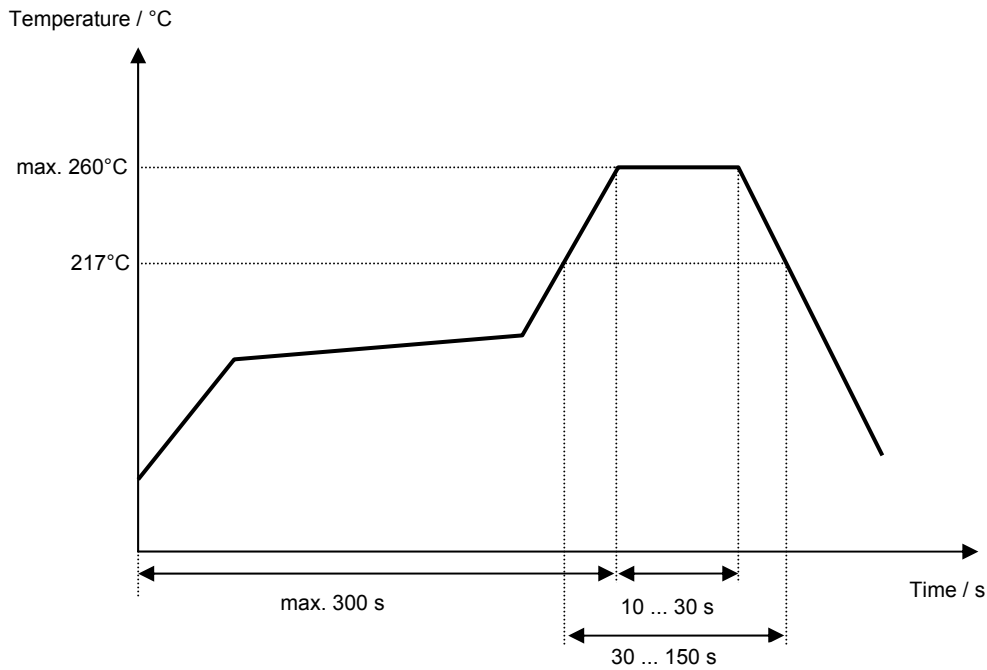
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Air reflow temperature conditions

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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VI TELEFILTER**Filter specification****TFS 1003****5/5****History**

Version	Reason of Changes	Name	Date
1.0	- Generation of development specification	Strehl	08.09.2004
1.1	- Change of characteristics text	Martens	27.10.2004
1.2	- Change reflow profile ; - Add typical value and filter characteristic; - Generation of filter specification	Noack	05.04.2005

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