

**Microchip****Filter specification****TFS 1000****1/5****Measurement condition**

Ambient temperature:	23	°C
Input power level:	0	dBm
Terminating impedance:		
Input:	50 $\Omega$	
Output:	50 $\Omega$	

**Characteristics**

## Remark:

The nominal frequency  $f_N$  is fixed at 1000 MHz. The insertion loss  $a_e$  is defined as loss value determined at  $f_N$ . All specified data are met within the operating temperature range.

<b>D a t a</b>		<b>typ. value</b>		<b>tolerance / limit</b>		
<b>Insertion loss</b>	$a_e$	2.3	dB	max.	5.0	dB
<b>Nominal frequency</b>	$f_N$	-			1000	MHz
<b>Centre frequency</b>	$f_c$	1000	MHz		-	
<b>Bandwidth</b>	BW					
3 dB		35.29	MHz		-	
<b>Absolute attenuation</b>	$a_{abs}$					
@ 125 MHz		80	dB	min.	50	dB
@ 250 MHz		70	dB	min.	50	dB
@ 375 MHz		61	dB	min.	50	dB
@ 500 MHz		56	dB	min.	50	dB
@ 625 MHz		52	dB	min.	40	dB
@ 750 MHz		49	dB	min.	40	dB
@ 875 MHz		46	dB	min.	40	dB
<b>Operating temperature range</b>	OTR	-			-40 °C ... + 90 °C	
<b>Storage temperature range</b>		-			-45 °C ... + 95 °C	
<b>Temperature coefficient of frequency</b>	$TC_f$ *	-46	ppm/K		-	

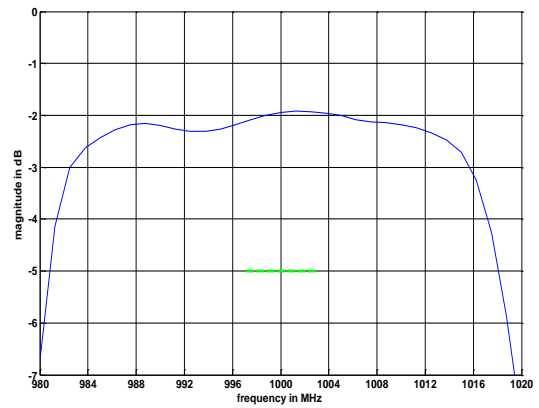
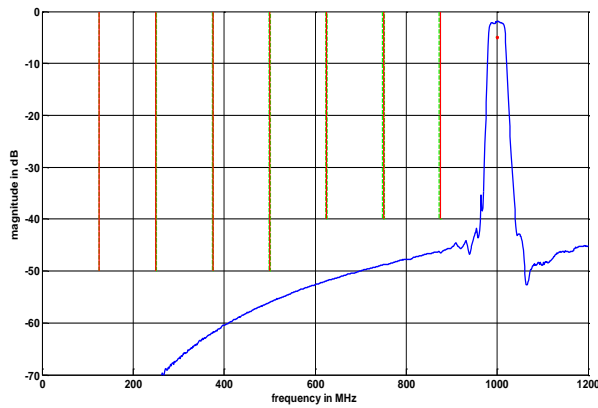
\*)  $\Delta f(\text{Hz}) = TC_f(\text{ppm/K}) \times (T - T_0) \times f_{T0}(\text{MHz})$ .

**Generated:****Checked / Approved:**

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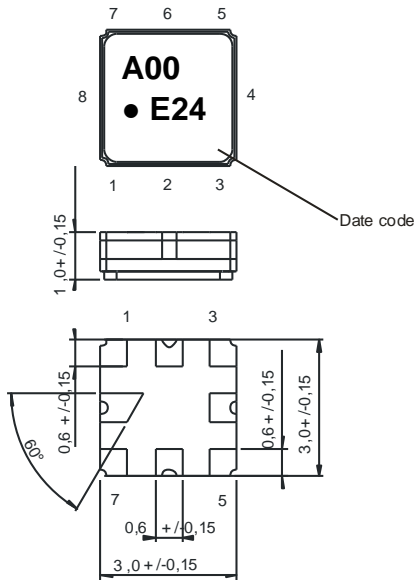
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**Filter characteristic**



**Construction and pin connection**

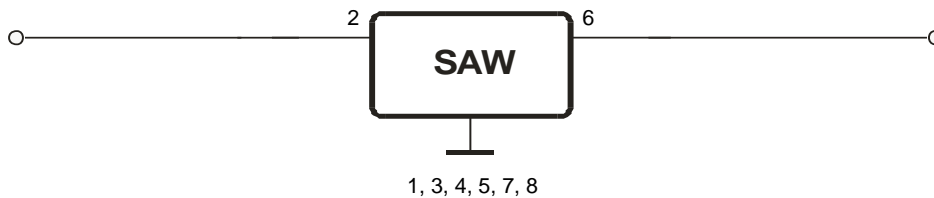
(All dimensions in mm)



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

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

**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 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;

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

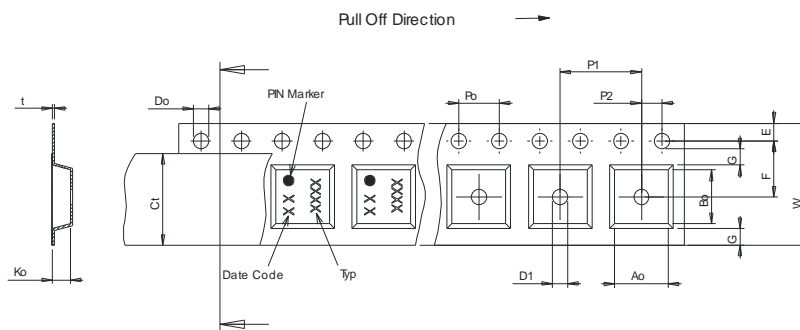
**Packing**

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

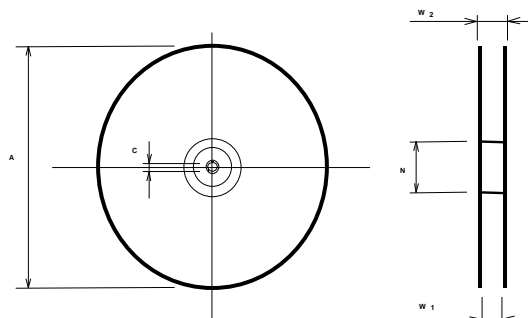
**Tape (all dimensions in mm)**

- W : 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 : 5,3 ± 0,1



**Reel (all dimensions in mm)**

- A : 330 or 180
- W1 : 8,4 +1,5/-0
- W2(max) : 14,4
- N(min) : 60
- C : 13,0 ± 0,2



The minimum bending radius is 45 mm.

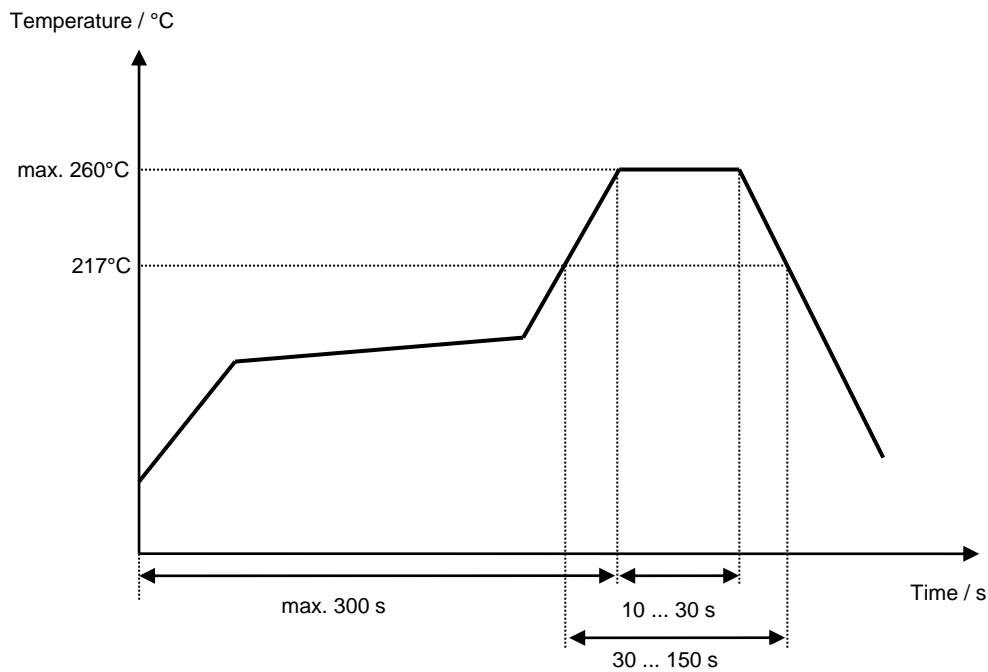
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**Air reflow temperature conditions**

<b>Conditions</b>	<b>Exposure</b>
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**



**Microchip****Filter specification****TFS 1000****5/5****History**

<b>Version</b>	<b>Reason of Changes</b>	<b>Name</b>	<b>Date</b>
1.0	Generation of development specification	S. Channaa	06.10.2009
1.1	Change insertion loss and attenuation	S. Channaa	21.10.2009
1.2	Add typical values and filter characteristic Change stability, generation of filter specification	S. Channaa	11.03.2010
2.0	Changed pull off direction from reel	Schönbein	29.05.2012
2.1	Filter characteristics plots corrected	Schönbein	12.06.2014

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