

**Microchip****Filter specification****TFS 872****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 872.5 MHz without any tolerance or limit. 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	
<b>Insertion loss</b>		$a_e$	3,9 dB	dB	max. 5,0 dB
<b>Nominal frequency</b>		$f_N$	-		872,5 MHz
<b>Pass band PB</b>		PB	-		$f_N \pm 21,5$ MHz
<b>Pass band variation in PB</b>			1,2		max. 2,5 dB
<b>Pass band variation over any 15MHz range</b>			1,1 dB		max. 2,0 dB
<b>Absolute attenuation</b>		$a_{abs}$			
728 MHz .. 768 MHz			42 dB		min. 32 dB
1805 MHz .. 1850 MHz			57 dB		min. 32 dB
1910 MHz .. 1920 MHz			52 dB		min. 32 dB
1930 MHz .. 1990 MHz			49 dB		min. 32 dB
2010 MHz .. 2025 MHz			48 dB		min. 32 dB
2110 MHz .. 2170 MHz			43 dB		min. 32 dB
2496 MHz .. 2690 MHz			36 dB		min. 32 dB
3400 MHz .. 3800 MHz			34 dB		min. 25 dB
<b>Return loss in PB</b>			16 dB		min. 11 dB
<b>Input power level</b>			-		max. 15 dBm
<b>Operating temperature range</b>		OTR	-		- 40 °C ... + 85 °C
<b>Storage temperature range</b>			-		- 40 °C ... + 85 °C
<b>Temperature coefficient of frequency</b>		$TC_f$ *	-73 ppm/K		-

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

**Generated:**

---

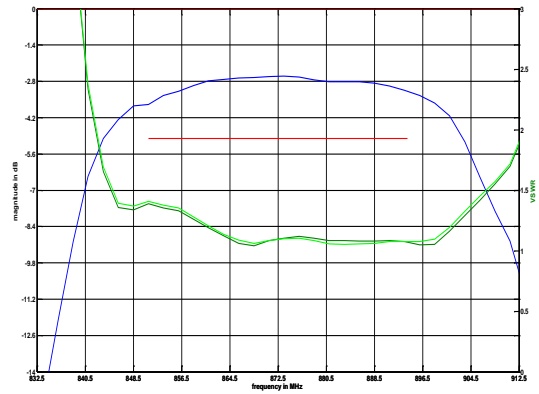
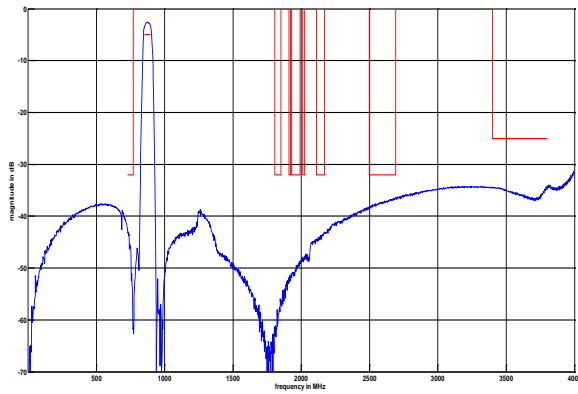
**Checked / Approved:**

---

**Microchip Frequency Technology GmbH**  
**Potsdamer Straße 18**  
**D 14 513 TELTOW / Germany**  
**Tel: (+49) 3328 4784-0 / Fax: (+49) 3328 4784-30**

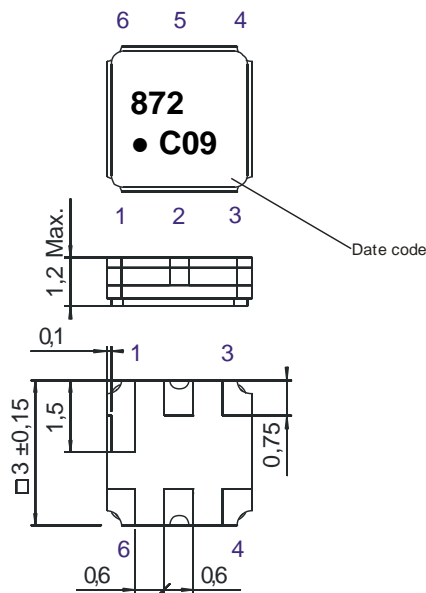
Microchip Frequency Technology GmbH reserves the right to make changes to the product(s) and/or information contained herein without notice. No liability is assumed as a result of their use or application. No rights under any patent accompany the sale of any such product(s) or information.

**Filter characteristic**



**Construction and pin connection**

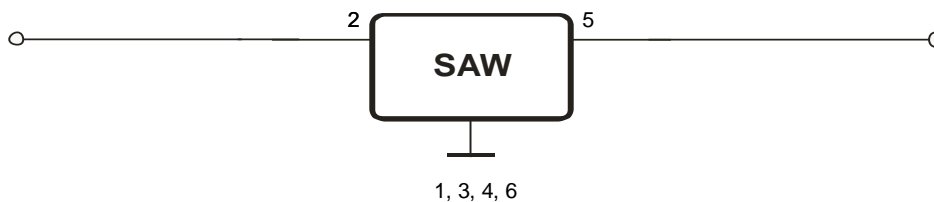
(All dimensions in mm)



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

Date code: Year + week  
 C 2012  
 D 2013  
 E 2014  
 ...

**50 Ω Test circuit**



**Microchip Frequency Technology GmbH**  
 Potsdamer Straße 18  
 D 14 513 TELTOW / Germany  
 Tel: (+49) 3328 4784-0 / Fax: (+49) 3328 4784-30

Microchip Frequency Technology GmbH reserves the right to make changes to the product(s) and/or information contained herein without notice. No liability is assumed as a result of their use or application. No rights under any patent accompany the sale of any such product(s) or information.

**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 / 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)

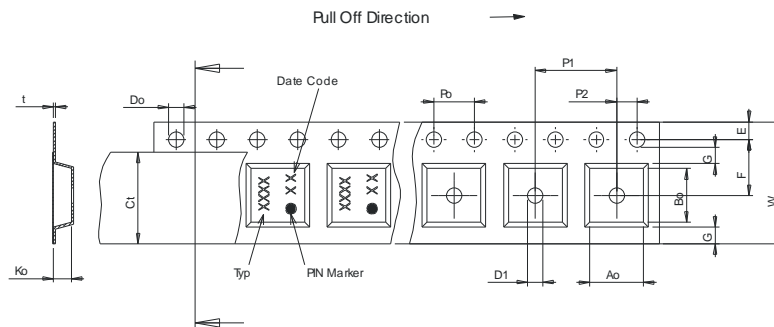
**Packing**

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:	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

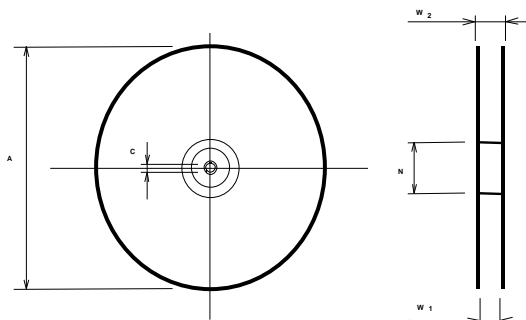
**Tape (all dimensions in mm)**

- 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.

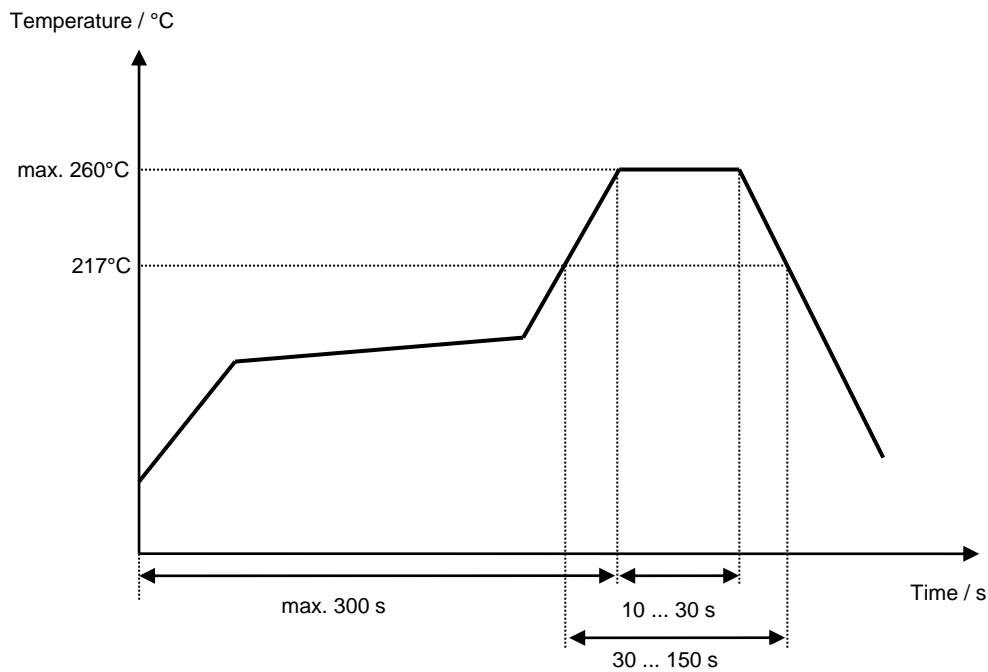
**Microchip Frequency Technology GmbH**  
**Potsdamer Straße 18**  
**D 14 513 TELTOW / Germany**  
**Tel: (+49) 3328 4784-0 / Fax: (+49) 3328 4784-30**

Microchip Frequency Technology GmbH reserves the right to make changes to the product(s) and/or information contained herein without notice. No liability is assumed as a result of their use or application. No rights under any patent accompany the sale of any such product(s) or information.

**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 Frequency Technology GmbH**  
**Potsdamer Straße 18**  
**D 14 513 TELTOW / Germany**  
**Tel: (+49) 3328 4784-0 / Fax: (+49) 3328 4784-30**

Microchip Frequency Technology GmbH reserves the right to make changes to the product(s) and/or information contained herein without notice. No liability is assumed as a result of their use or application. No rights under any patent accompany the sale of any such product(s) or information.

**Microchip****Filter specification****TFS 872****5/5****History**

<b>Version</b>	<b>Reason of Changes</b>	<b>Name</b>	<b>Date</b>
1.0	- Generation of development specification	S.Springfeldt	26.11.2009
1.1	- Generation of filter specification	S.Springfeldt	12.02.2010
2.0	- Change of package, insertion loss, return loss and pass band ripple, updating the typical parameters	S.Springfeldt	09.03.2010
2.1	- Reworked input power level from 0dBm up to 15dBm	S.Springfeldt	29.03.2010
2.2	- Change of typical values	S.Springfeldt	21.06.2010
2.3	- Change of storage temperature	S.Springfeldt	13.05.2011
2.4	- Correcting 50 $\Omega$ test circuit	S.Springfeldt	01.03.2012

---

**Microchip Frequency Technology GmbH**  
**Potsdamer Straße 18**  
**D 14 513 TELTOW / Germany**  
**Tel: (+49) 3328 4784-0 / Fax: (+49) 3328 4784-30**

---

Microchip Frequency Technology GmbH reserves the right to make changes to the product(s) and/or information contained herein without notice. No liability is assumed as a result of their use or application. No rights under any patent accompany the sale of any such product(s) or information.