

**Measurement condition**

Ambient temperature $T_0$ :	23 °C
Input power level:	0 dBm
Terminating impedance:	
Input:	50 $\Omega$
Output:	50 $\Omega$

**Characteristics**

Remark:

The reference level for the relative attenuation  $a_{rel}$  is the minimum attenuation in the pass band PB2. The maximum attenuation in the pass band PB1 and PB2 is defined as the insertion loss  $a_{e1}$  and  $a_{e2}$ . The nominal frequencies  $f_{N1}$  and  $f_{N2}$  are fixed at 920.95MHz and 927.00MHz, respectively without any tolerance or limit. The values of relative attenuation  $a_{rel}$  are guaranteed for the whole operating temperature range. The frequency shift of the filter within the operating temperature range is included in the production tolerance scheme.

<b>D a t a</b>		<b>typ. value</b>	<b>tolerance / limit</b>
<b>Nominal frequency 1</b>	$f_{N1}$	-	920.95 MHz
<b>Passband 1</b>	PB1	-	$f_{N1} \pm 12.50$ kHz
<b>Insertion loss within PB1</b>	$a_{e1}$	2.8 dB	max. 3.50 dB
<b>Nominal frequency 2</b>	$f_{N2}$	-	927.00 MHz
<b>Passband 2</b>	PB2	-	$f_{N2} \pm 812.50$ kHz
<b>Insertion loss within PB2 (reference level)</b>	$a_{e2}$	2.4 dB	max. 3.00 dB
<b>Relative attenuation</b>	$a_{rel}$		
880.0 MHz ... 914.8 MHz		29 dB	min. 14 dB
<b>Input power level</b>	*)	-	max. 20 dBm
<b>Operating temperature range</b>	OTR	-	0 °C ... + 40 °C
<b>Operational temperature range</b>		-	- 10 °C ... + 55 °C
<b>Storage temperature range</b>		-	- 40 °C ... + 85 °C
<b>Temperature coefficient of frequency</b>	$TC_f$ **)	-36 ppm/K	

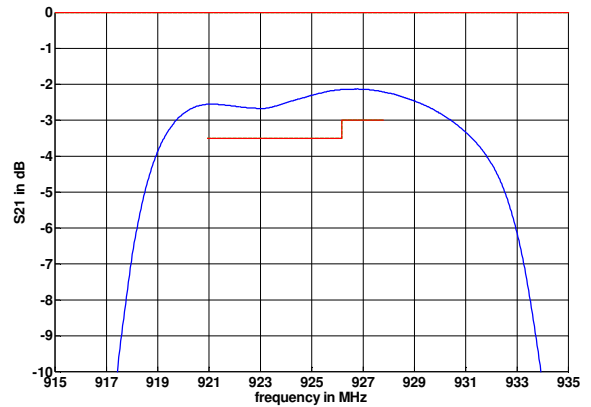
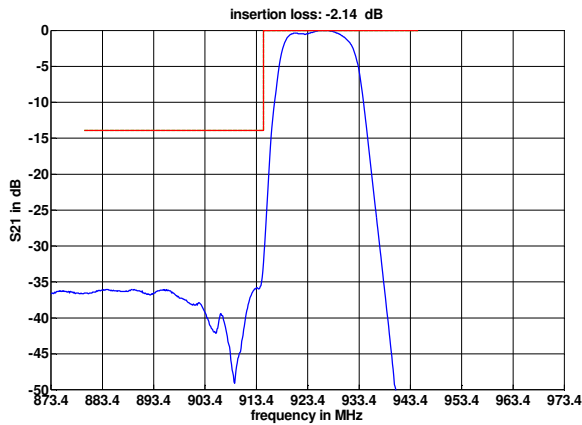
\*) @914.8MHz with duty cycle 1:8

\*\*)  $\Delta f_c(\text{Hz}) = TC_f(\text{ppm/K}) \times (T - T_0) \times f_{CAT}(\text{MHz})$ **Generated:****Checked / Approved:**

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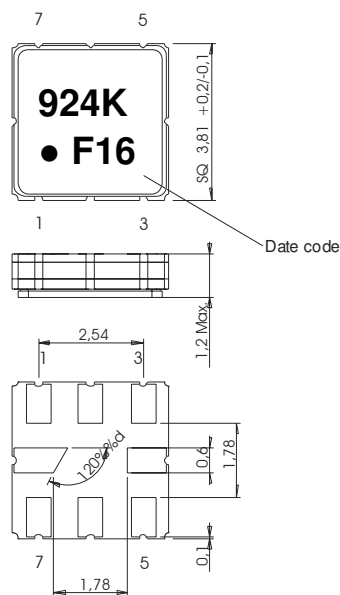
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**Filter characteristic**



**Construction and pin connection**

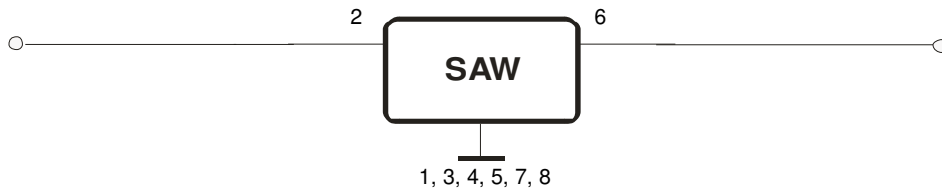
(All dimensions in mm)



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

Date code: Year + week  
 F 2015  
 G 2016  
 H 2017  
 ...

**50 Ohm Test circuit**



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**Stability characteristics, reliability**

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

- 1. Shock: 500 g, 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)

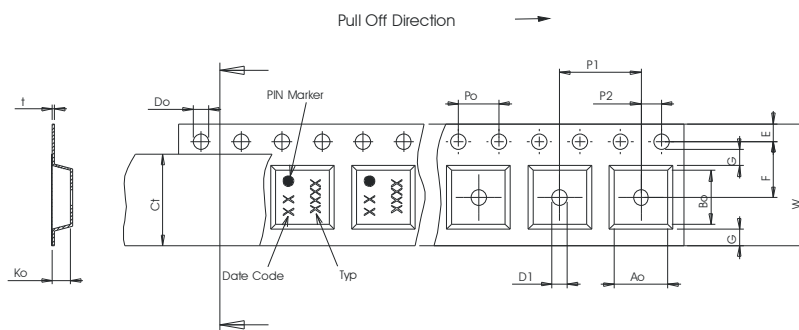
**Packing**

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

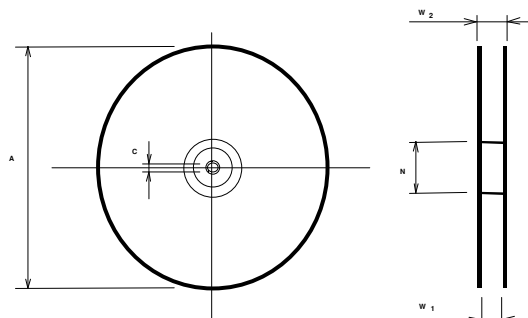
**Tape (all dimensions in mm)**

- W : 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 : 9.2 ± 0.1



**Reel (all dimensions in mm)**

- A : 330 or 180
- 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.

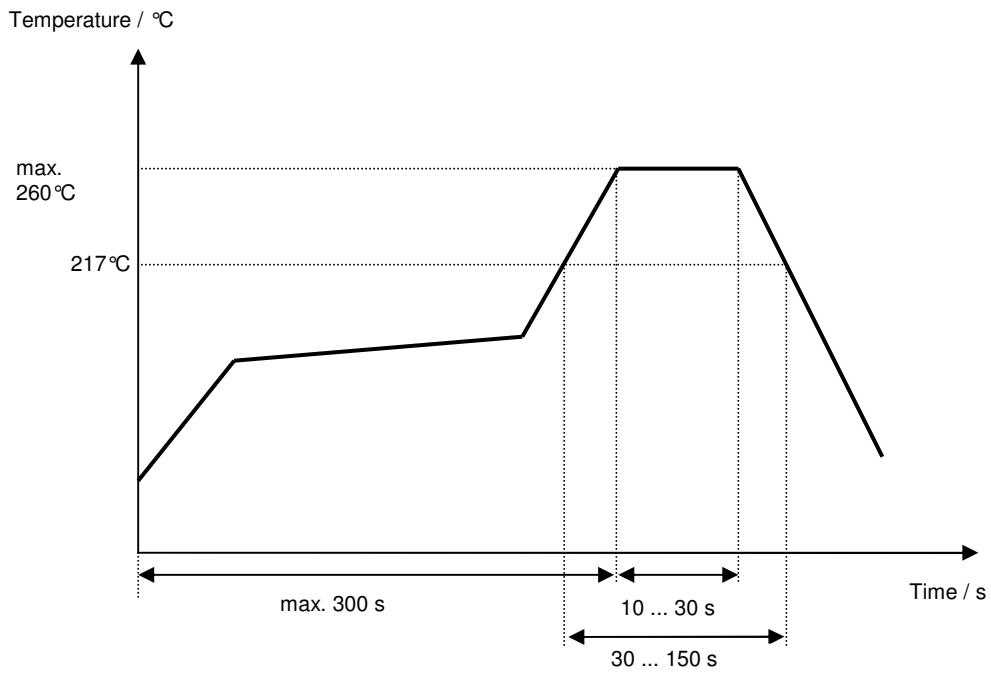
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**Air reflow temperature conditions**

<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**



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**History**

<b>Version</b>	<b>Reason of Changes</b>	<b>Name</b>	<b>Date</b>
1.0	Generation of development specification	S.Springfeldt	06.02.2015
2.0	Change to 3.8x3.8 package due to customer's request	S.Springfeldt	02.03.2015
2.1	Generation of filter specification	S.Springfeldt	16.04.2015