

**Microchip****Filter specification****TFS782A****1/5****Measurement condition**

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

**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 782 MHz without any tolerance or limit. The values of absolute attenuation  $a_{abs}$  are guaranteed over 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>Insertion loss</b>	$a_e$	1.5	dB	max. 2.7	dB	
<b>Nominal frequency</b>	$f_N$	-		782.0	MHz	
<b>Passband</b>	PB	-		$f_N \pm$	5.0	MHz
<b>Passband variation</b>	PBV	0.6	dB	max.	1.0	dB
<b>Absolute attenuation</b>	$a_{abs}$					
0.3 MHz ... 747.0 MHz		48	dB	min.	40	dB
747.0 MHz ... 757.0 MHz		43	dB	min.	35	dB
806.0 MHz ... 820.0 MHz		67	dB	min.	20	dB
820.0 MHz ... 894.0 MHz		56	dB	min.	40	dB
894.0 MHz ... 2000.0 MHz		35	dB	min.	30	dB
2000.0 MHz ... 3000.0 MHz		31	dB	min.	25	dB
<b>EOPR attenuation</b>	*)					
0.4 $\mu$ s ... 0.6 $\mu$ s		-		min.	30	dB
0.6 $\mu$ s ... 1.0 $\mu$ s		-		min.	45	dB
1.0 $\mu$ s ... 1.7 $\mu$ s		-		min.	62	dB
1.7 $\mu$ s ... 2.5 $\mu$ s		-		min.	65	dB
2.5 $\mu$ s ... 3.5 $\mu$ s		-		min.	70	dB
3.5 $\mu$ s ... 10.0 $\mu$ s		-		min.	75	dB
<b>Return loss within PB</b>		15	dB	min.	8	dB
<b>Input power level</b>		-		max.	5	dBm
<b>Operating temperature range</b>	OTR	-		-30 °C ... +80 °C		
<b>Storage temperature range</b>		-		-55 °C ... +125 °C		
<b>Temperature coefficient of frequency</b>	$TC_f$ **)	-44	ppm/K	-		

\*) EOPR = end of pulse response: the time domain response of the filter, after a CW input signal at 780MHz is switched off

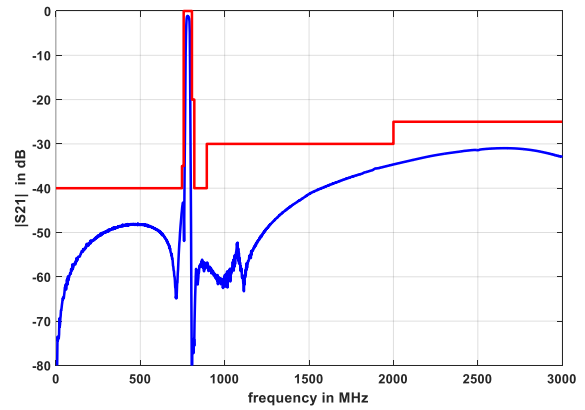
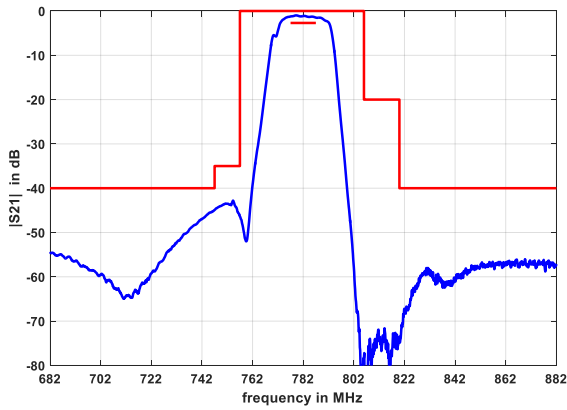
\*\*)  $\Delta f = TC_f(T - T_A)f_N$

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

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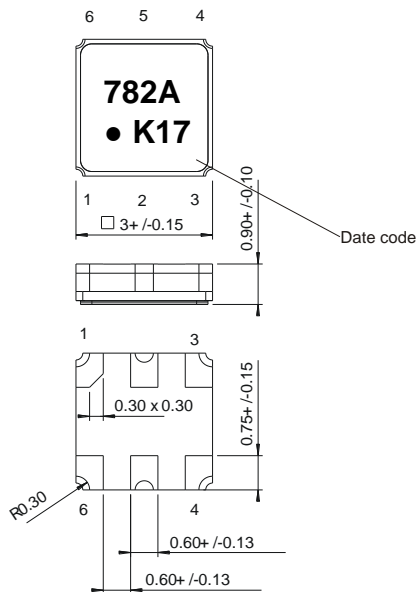
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**Filter characteristic**



**Construction and pin connection**

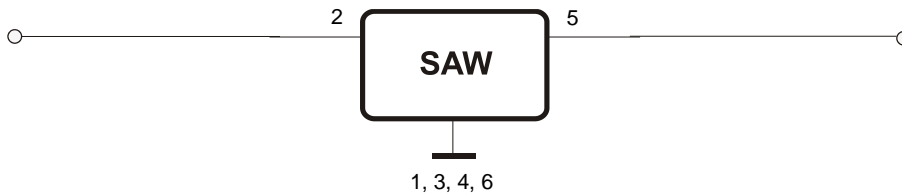
(All dimensions in mm)



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

Date code: Year + week  
 K 2018  
 L 2019  
 M 2020  
 ...

**50 Ω 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 60068 T2 - 27
2. Vibration: 10 Hz to 2000 Hz. 0.35 mm or 5 g respectively. 1 octave per min. 10 cycles per plane. 3 planes; DIN IEC 60068 T2 - 6
3. Change of temperature: -55 °C to 125 °C / 15 min. each / 100 cycles  
DIN IEC 60068 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;
5. SAW devices are Electrostatic Discharge (ESD) sensitive devices.

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

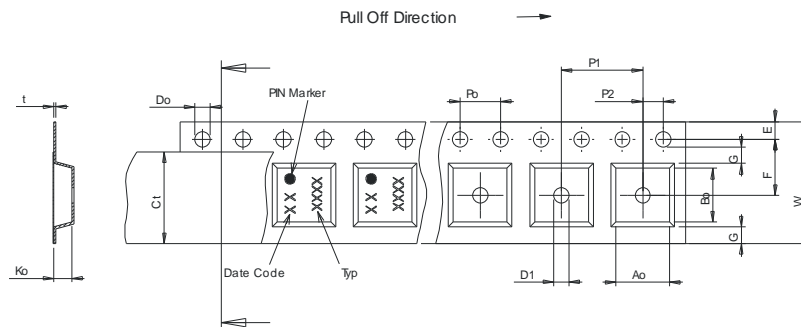
**Packing**

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;

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

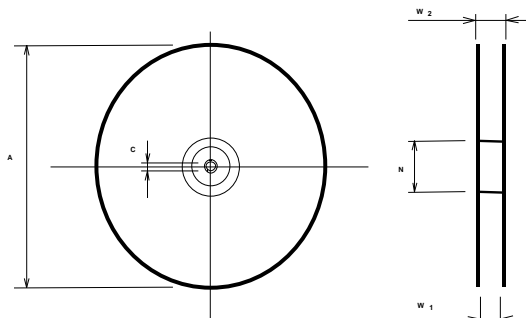
**Tape (all dimensions in mm)**

- 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 : 5.30 ±0.1
- Ko : 1.50 ±0.1
- t : 0.25 ±0.05



**Reel (all dimensions in mm)**

- A : 330 or 180
- W1 : 8.40 +1.5/-0
- W2(max) : 14.40
- N(min) : 60.00
- C : 13.0 ±0.2



The minimum bending radius is 45 mm.

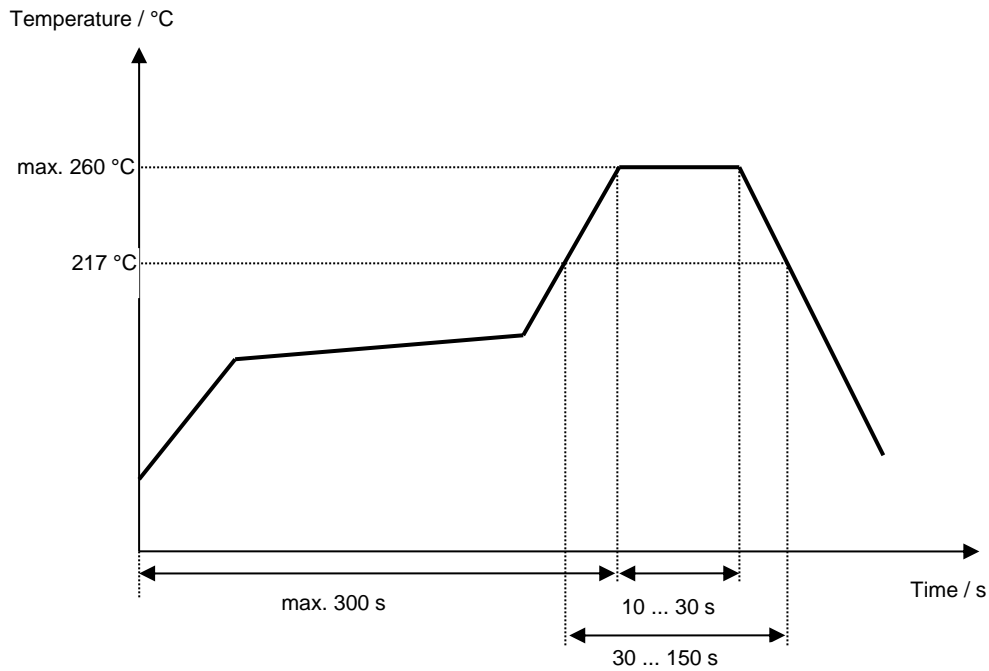
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**Air reflow temperature conditions**

<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**



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**Microchip****Filter specification****TFS782A****5/5**

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**History**

<b>Version</b>	<b>Reason of Changes</b>	<b>Name</b>	<b>Date</b>
1.0	- generation of filter specification	Molke	22.02.2012
2.0	- updated data table - added EOPR - updated storage temperature range, typos, formula for $\Delta f$ - updated construction, stability characteristics and Tape & Reel	Jaster	11.04.2018
2.1	- typo on extension of time domain corrected	Jaster	12.04.2018
3.0	- update of EOPR limits in data table - tighter limits in upper stopband (820 MHz – 869 MHz)	Molke	24.04.2018

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