

Microchip**Filter specification****TFS 2105****1/5****Measurement condition**

Ambient temperature T_A : 23 °C
 Input power level: 0 dBm

Terminating impedance:

Source: 50 Ω
 Load: 50 Ω

Input: 49.8 Ω || -0.4 pF
 Output: 49.8 Ω || -0.4 pF

Characteristics

Remark:

The reference level for the relative attenuation a_{rel} of the TFS2105 is the minimum attenuation in the passband. The maximum attenuation in the passband is defined as the insertion loss a_e . The nominal frequency f_N is fixed at 2105 MHz without any tolerance or limit. The values of relative attenuation a_{rel} 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.

Data**typ. value****tolerance / limit**

Insertion loss in PB	a_e	4.5	dB	max.	5.0	dB
Nominal frequency	f_N	-			2105.0	MHz
Passband	PB	-			$f_N \pm 90.0$	MHz
Passband variation		1.3	dB	max.	2.0	dB
Passband variation in any 20 MHz segment within PB		0.6	dB	max.	1.0	dB
Relative attenuation	a_{rel}					
500 MHz ... 1850 MHz		22	dB	min.	20	dB
2800 MHz ... 4000 MHz		29	dB	min.	25	dB
Input power level		-		max.	15	dBm
Operating temperature range	OTR	-			- 40 °C ... + 85 °C	
Storage temperature range		-			- 40 °C ... + 85 °C	
Temperature coefficient of frequency	TC_f *)	-76	ppm/K			

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

Generated:**Checked / Approved:**

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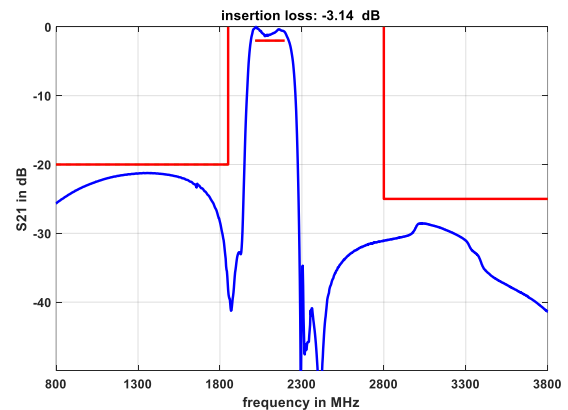
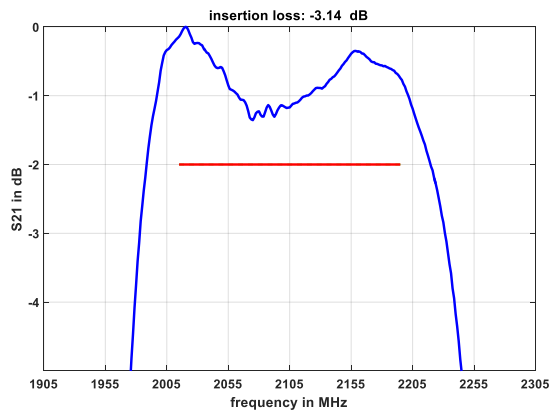
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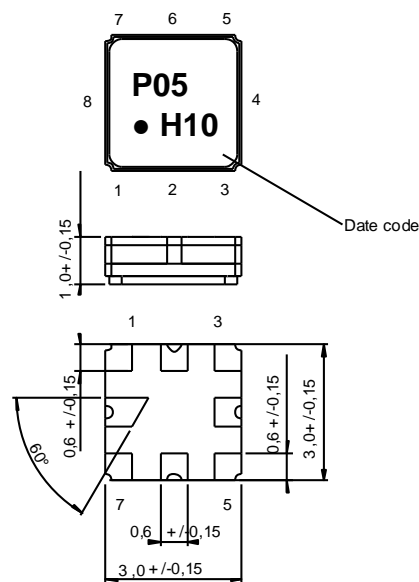
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Filter characteristic



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

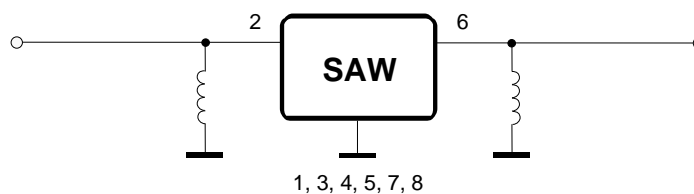
H 2016

J 2017

K 2018

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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 2000 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, see page 4: "Air reflow temperature conditions"
5. ESD SAW devices are electrostatic discharge (ESD) sensitive devices

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

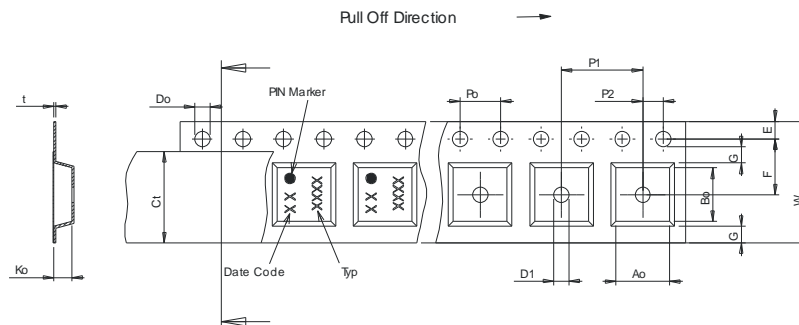
Packing

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;

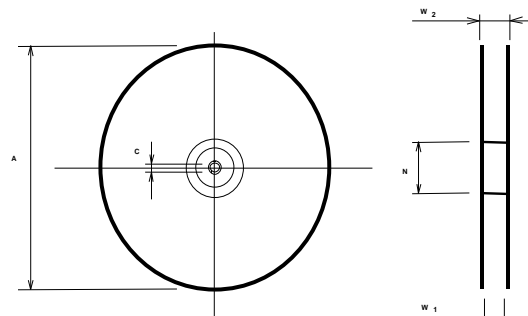
max. pieces of filters per reel: 3000
reel of empty components at start: min. 300 mm
reel of empty components at start including leader: min. 500 mm
trailer: min. 300 mm

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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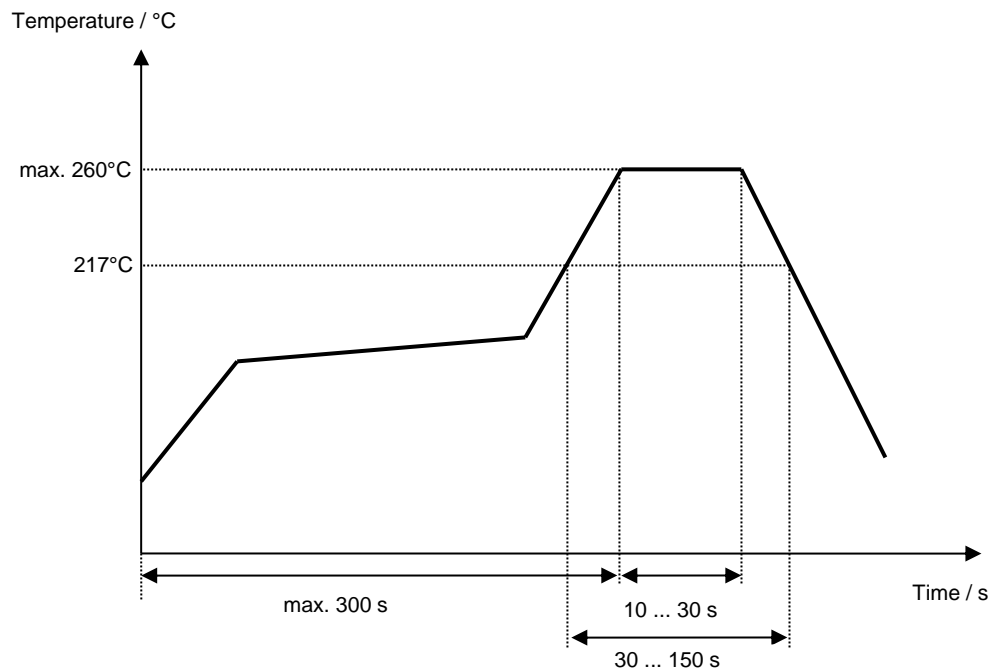
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Air reflow temperature conditions

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

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Microchip**Filter specification****TFS 2105****5/5****History**

Version	Reason of Changes	Name	Date
1.0	- Generation of development specification	A. Molke	02.10.2015
1.1	- Update of maximum input power level	A. Molke	12.10.2015
2.0	- Passband variation relaxed	A. Molke	01.03.2016
3.0	- Passband variation in 20 MHz segments included - Change from development spec to filter spec - Typical values added - Filter characteristic added - Update of test circuit	A. Molke	09.03.2016

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