

Microchip**Filter specification****TFS2155****1/5****Measurement condition**

Ambient temperature:	23	°C
Input power level:	0	dBm
Terminating impedance:		
Input:	50	Ω
Output:	50	Ω

Characteristics

Remark:

The reference level for the relative attenuation a_{rel} of the TFS 2155 is the minimum attenuation in the pass band. The maximum attenuation in the pass band is defined as the insertion loss a_e . The nominal frequency f_N is fixed at 2155.0 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.

<i>D a t a</i>	<i>typ. value</i>		<i>tolerance / limit</i>	
Insertion loss	a_e	3.5 dB	max.	4.2 dB
Nominal frequency	f_N	-		2155.0 MHz
Passband	PB	-	$f_N \pm$	45.0 MHz
Pass band variation		0.7 dB	max.	1.5 dB
Relative attenuation	a_{rel}			
50 MHz ... 1400 MHz		31 dB	min.	22 dB
1400 MHz ... 1910 MHz		35 dB	min.	25 dB
1910 MHz ... 1985 MHz		29 dB	min.	27 dB
1985 MHz ... 1995 MHz		29 dB	min.	25 dB
2300 MHz ... 2310 MHz		35 dB	min.	20 dB
2310 MHz ... 3700 MHz		30 dB	min.	25 dB
3700 MHz ... 4500 MHz		23 dB	min.	20 dB
5300 MHz ... 5700 MHz		18 dB	min.	15 dB
Return loss in PB		14 dB	min.	9 dB
Input power level in PB	**)	-	max.	13 dBm
Operating temperature range	OTR	-		- 40 °C ... + 95 °C
Storage temperature range		-		- 45 °C ... + 95 °C
Temperature coefficient of frequency	TC_f *)	-76 ppm/K		

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

**)

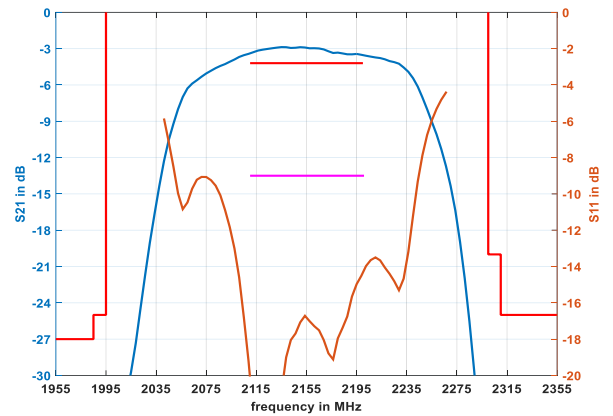
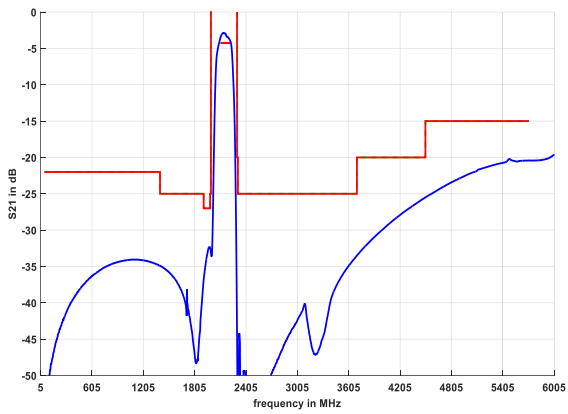
- 13.0 dBm continuous power over 100000 hrs @85°C
- 18.0 dBm continuous power over 1000 hrs @85°C
- 24.5 dBm continuous power over 2 hrs @85°C

Generated:**Checked / Approved:**

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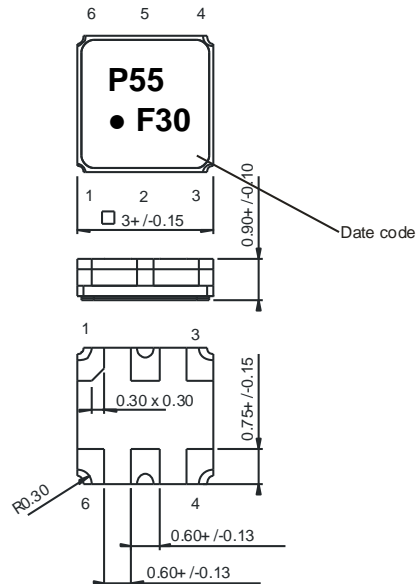
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Filter characteristic



Construction and pin connection

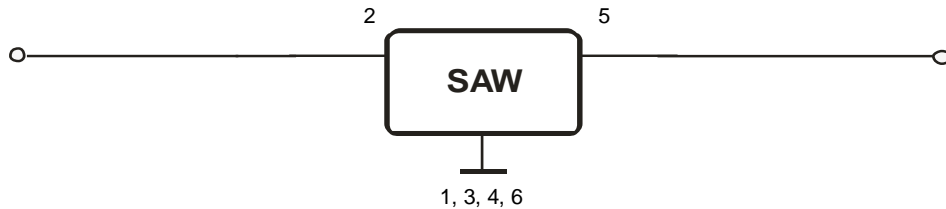
(All dimensions in mm)



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

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

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)

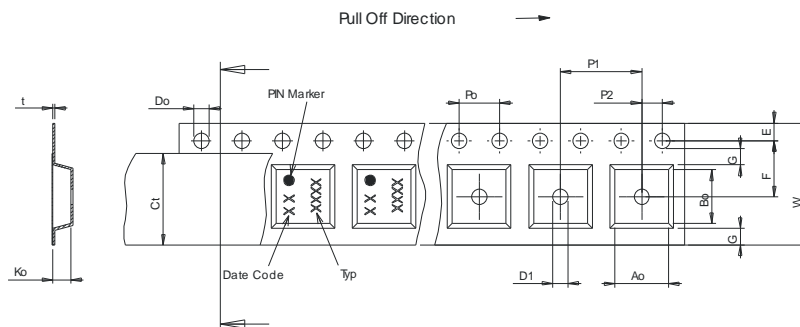
Packing

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

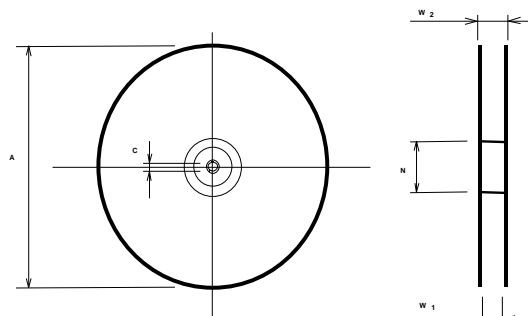
Tape (all dimensions in mm)

- 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.

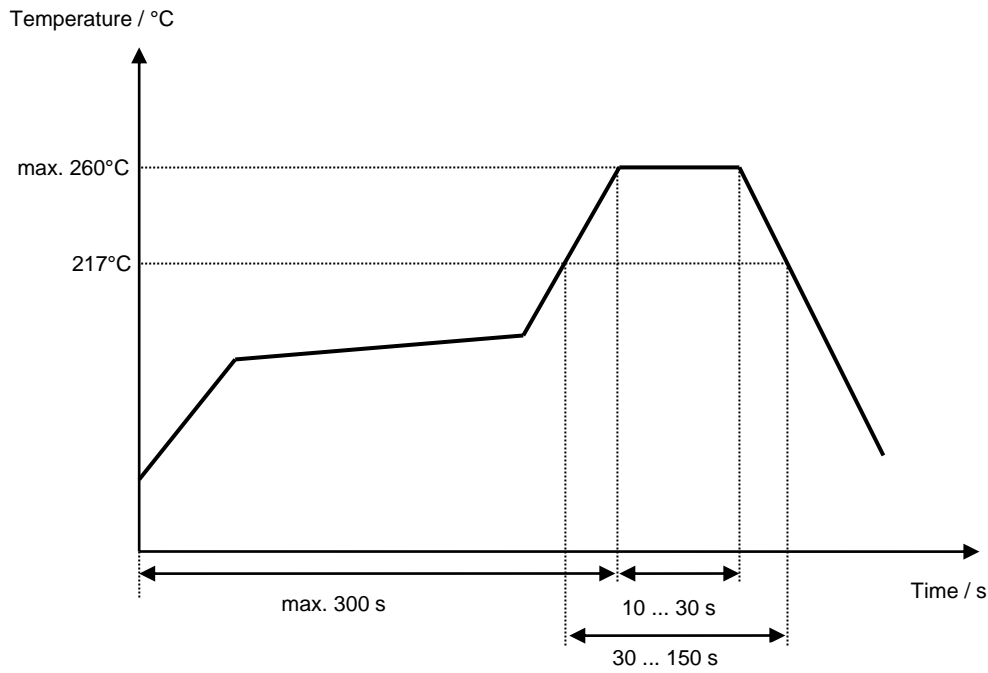
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Air reflow temperature conditions

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



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History

Version	Reason of Changes	Name	Date
1.0	- Generation of development specification	Abutaimah	04.03.2015
1.1	– generation of filter specification, relaxation in stopband attenuation and loss	Döricht	20.07.2015