Measurement condition

Ambient temperature:	22	℃
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 1220.0 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**		
Insertion loss	a_e	3.8	dB	max.	8.0	dB
Nominal frequency	f_N				1220.0	MHz
Passband				f_N ±	100	kHz
Passband ripple		0.2	dB	max.	1.5	dB
Absolute attenuation	a_{abs}					
0.3 MHz ... 1180 MHz		53	dB	min.	45	dB
1180 MHz ... 1200 MHz		45	dB	min.	30	dB
1200 MHz ... 1207 MHz		43	dB	min.	16	dB
1207 MHz ... 1209 MHz		40	dB	min.	9	dB
1231 MHz ... 1233 MHz		24	dB	min.	9	dB
1233 MHz ... 1242 MHz		32	dB	min.	16	dB
1242 MHz ... 1400 MHz		50	dB	min.	45	dB
1400 MHz ... 1700 MHz		46	dB	min.	40	dB
1700 MHz ... 2000 MHz		41	dB	min.	35	dB
Group delay ripple within PB		10	ns	max.	100	ns
Operating temperature range	OTR				-55 ℃ … +100 ℃	
Storage temperature range					-55 ℃ ... +100 ℃	
Temperature coefficient of frequency	TC_f *	-36	ppm/K		-	
Input power level		-		max.	10	dBm

*) $\Delta fc(Hz) = T_{Cf}(ppm/K) \times (T-T_A) \times f_{cat}(MHz)$

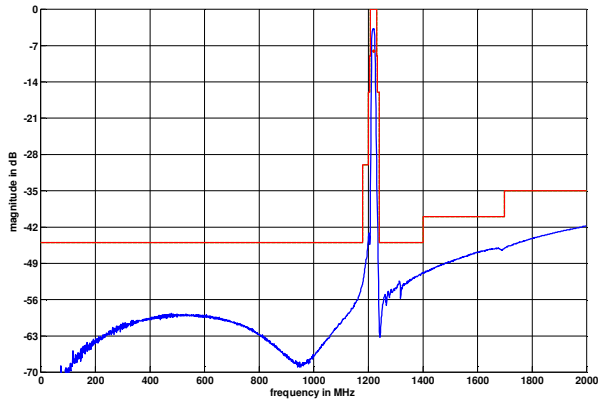
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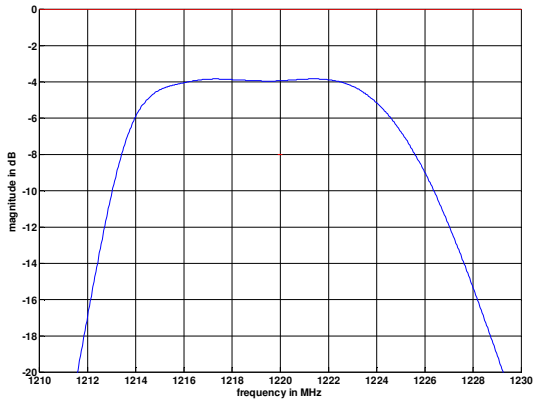
Checked / Approved:

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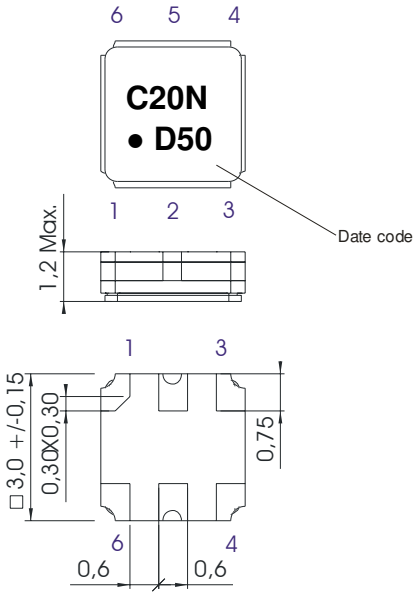
Filter Characteristic





Construction and pin connection

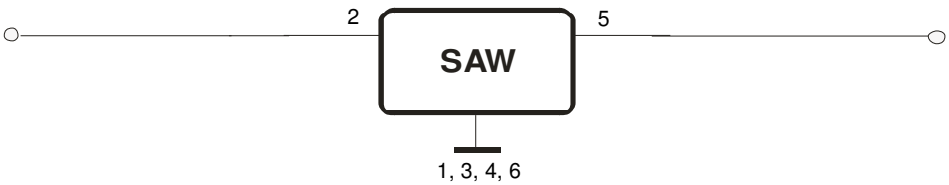
(All dimensions in mm)



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

Date code:	Year + week
D	2013
E	2014
F	2015
...	

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)

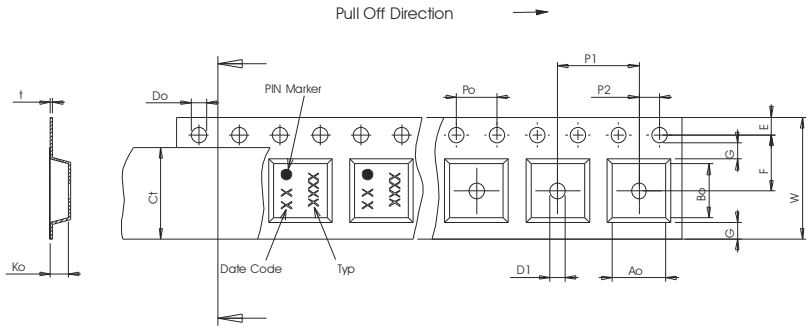
Packing

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

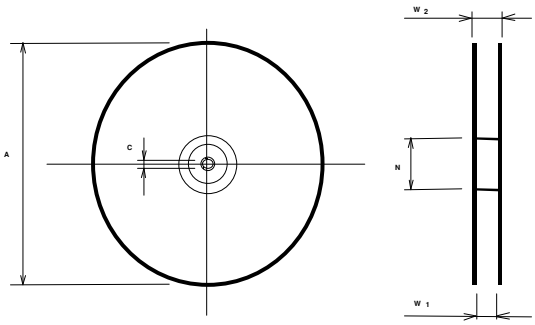
Tape (all dimensions in mm)

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	:	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.

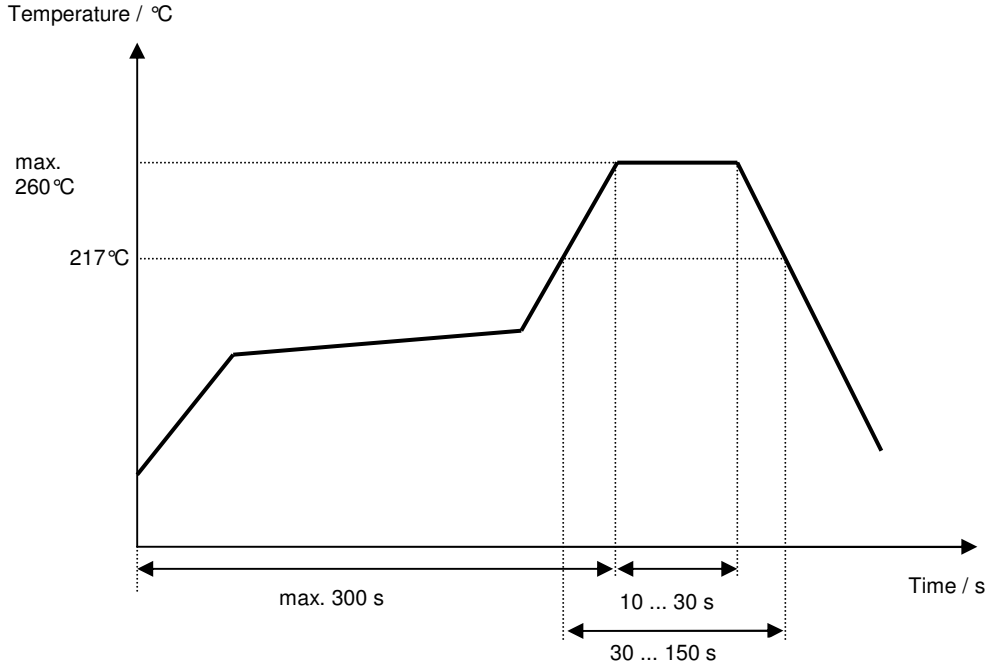
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Air reflow temperature conditions

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 filter specification.	Schönbein	18.01.2013
2.0	OTR and storage temperature range extended to -55°C … +100°C. Pass band width reduced from +/-1MHz to +/-100kHz. Reliability section updated.	Schönbein	11.06.2013
2.1	Generation of filter specification.	Schönbein	16.12.2013

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