Measurement condition

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

Characteristics

Remark:
The maximum attenuation in the passband is defined as the insertion loss a_e. The nominal frequency f_N is fixed at 1643.5 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	2,0	dB	max.	3,5	dB
Nominal frequency	f_N	-			1643,5	MHz
Passband	PB	-		f_N ±	17,0	MHz
Passband variation		1,0	dB	max.	2,0	dB
Absolute attenuation	a_{abs}					
1 MHz … 1525 MHz		30	dB	min.	25	dB
1525 MHz … 1559 MHz		39	dB	min.	30	dB
1559 MHz … 1606,5 MHz		16	dB	min.	10	dB
1680,5 MHz … 1850 MHz		19	dB	min.	10	dB
1850 MHz … 2110 MHz		38	dB	min.	30	dB
2110 MHz … 2700 MHz		40	dB	min.	20	dB
Return loss within PB		14	dB	min.	10	dB
Operating temperature range	OTR	-		- 40 °C ... + 85°C		
Storage temperature range		-		- 40 °C ... + 85°C		
Temperature coefficient of frequency	TC_f *	-42	ppm/K			

*) $\Delta f_C(Hz) = Tc_f(ppm/K) \times (T - T_o) \times f_{CAT}$ (MHz).

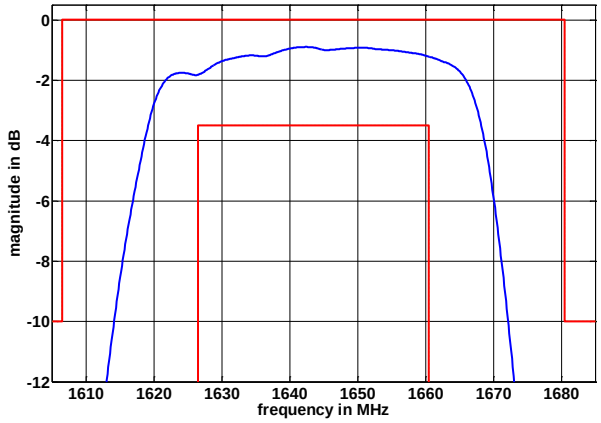
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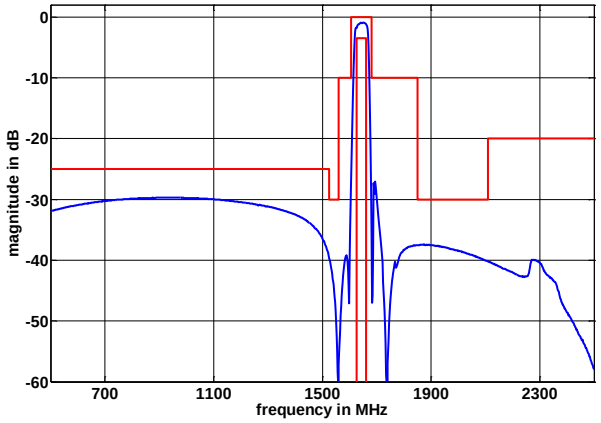
Checked / Approved:

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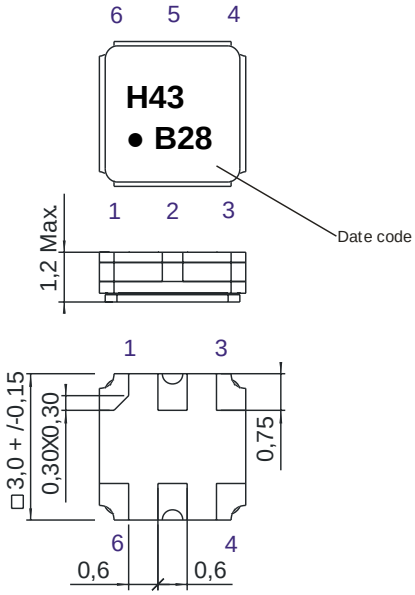
Filter characteristic





Construction and pin connection

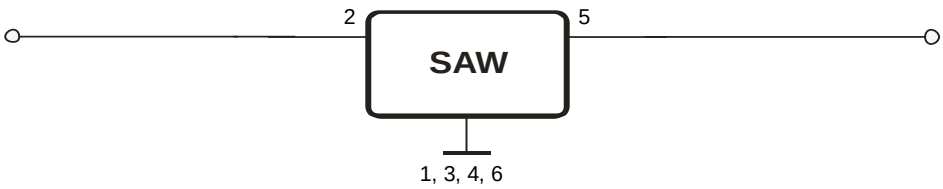
(All dimensions in mm)



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

Date code:	Year + week
B	2011
C	2012
D	2013
...	

50 Ω Test circuit



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Stability characteristics, reliability

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

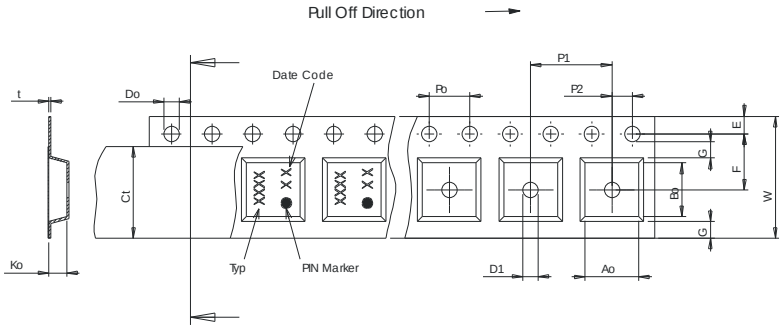
1. Shock:	500g, 1 ms, half sine wave, 3 shocks each plane; DIN IEC 68 T2 - 27
2. Vibration:	10 Hz to 500 Hz, 0,35 mm or 5 g respectively, 1 octave per min, 10 cycles per plane, 3 planes; DIN IEC 68 T2 - 6
3. Change of temperature:	-55 °C to 125°C / 30 min. each / 10 cycles DIN IEC 68 part 2 – 14 Test N
4. Resistance to solder heat (reflow):	reflow possible: three times max.; for temperature conditions, see page 4: "Air reflow temperature conditions"
5. ESD	ANSI/ESD S20.20-1999**,** class 1A for HBM

This filter is RoHS compliant (2002/95/EG, 2005/618/EG)

Packing

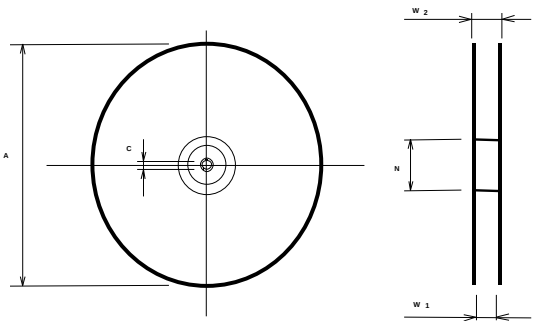
Tape & Reel: IEC 286 – 3, with exception of value for N and minimum bending radius;
tape type II, embossed carrier tape with top cover tape on the upper side;

max. pieces of filters per reel:	9000
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	:	5,5 ± 0,1



Reel (all dimensions in mm)

A	:330	
W1	: 8,4	+1,5/-0
W2(max)	: 14,4	
N(min)	: 50	
C	: 13,0	+0,5/-0,2

The minimum bending radius is 45 mm.

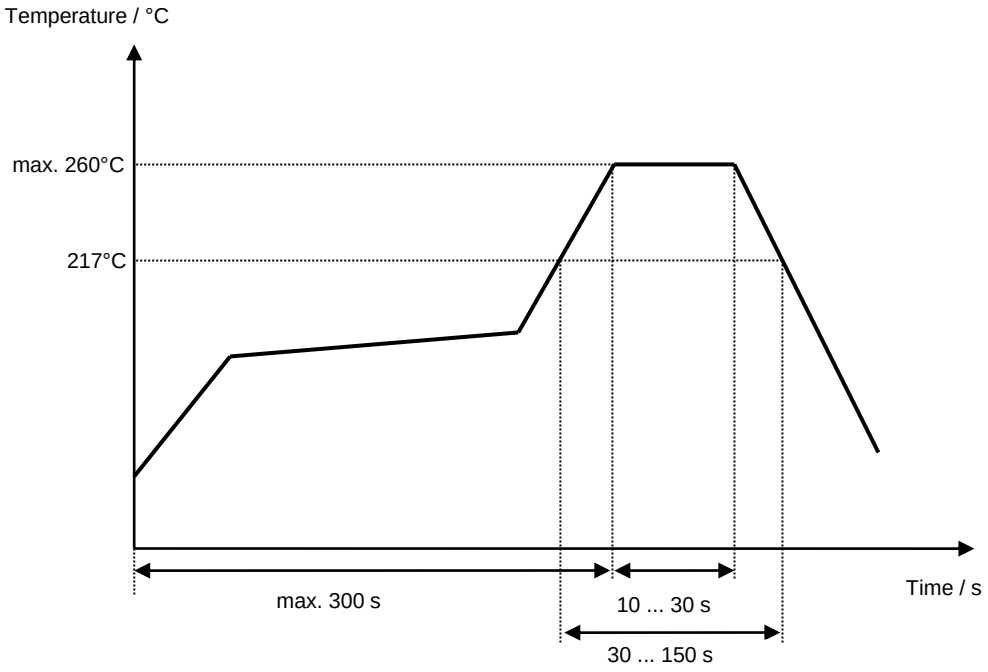
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Air reflow temperature conditions

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	Noack	18.11.2010
2.0	- Change stop band rejection - Add typical values and filter characteristic - Generation of filter specification	Noack	19.01.2011
3.0	- Limits for absolute attenuation changed (1559 – 1606,5 MHz and 1680,5 – 1850 MHz) - Typical values and filter characteristic updated	Molke	08.07.2011

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