Measurement condition

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

Remark:
The reference level for the relative attenuation a_{rel} of the TFS1662 is the maximum 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 1662.5 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.

D a t a		**typ. value**		**tolerance / limit**		
Insertion loss	a_e	1.5	dB	max.	3.5	dB
Nominal frequency	f_N	-			1662.5	MHz
Passband	PB	-		f_N ±	12.5	MHz
Passband variation	PBV	1.1	dB	max.	2.0	dB
Relative attenuation	a_{rel}	-				
1000 MHz … 1518 MHz		33	dB	min.	23	dB
1518 MHz … 1580 MHz		45	dB	min.	30	dB
1580 MHz … 1605 MHz		37	dB	min.	20	dB
1605 MHz … 1623 MHz		35	dB	min.	20	dB
1705 MHz … 1800 MHz		40	dB	min.	17	dB
1800 MHz … 3400 MHz		36	dB	min.	25	dB
Return loss within PB		14	dB	min.	8	dB
Input power level		-		max.	16	dBm
Operating temperature range	OTR	-			-40 °C ... +85 °C	
Storage temperature range		-			-55 °C ... +125 °C	
Temperature coefficient of frequency	TC_f *)	-42	ppm/K			

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

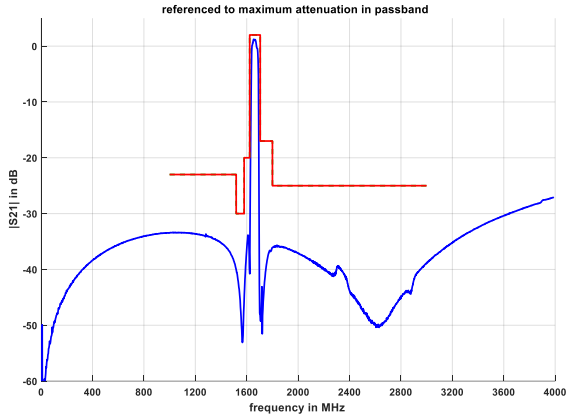
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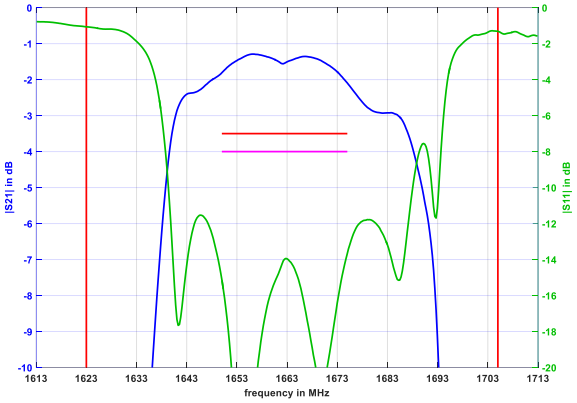
Checked / Approved:

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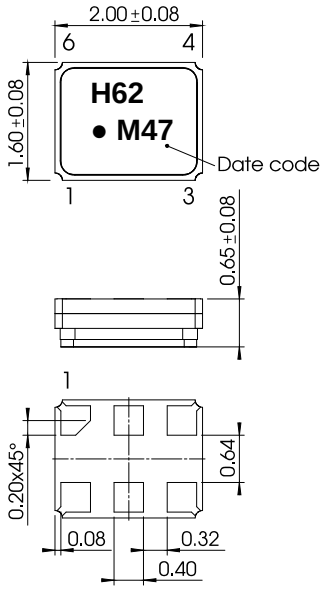
Filter characteristic





Construction and pin connection

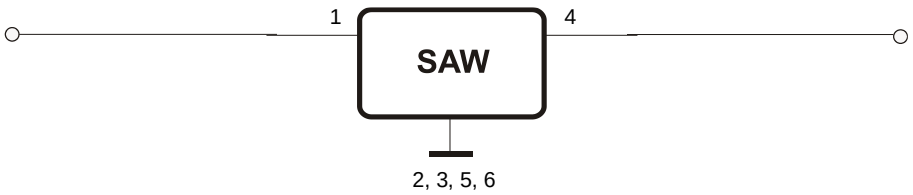
(All dimensions in mm)



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

Date code:	Year + week
M	2020
N	2021
P	2022
...	

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;

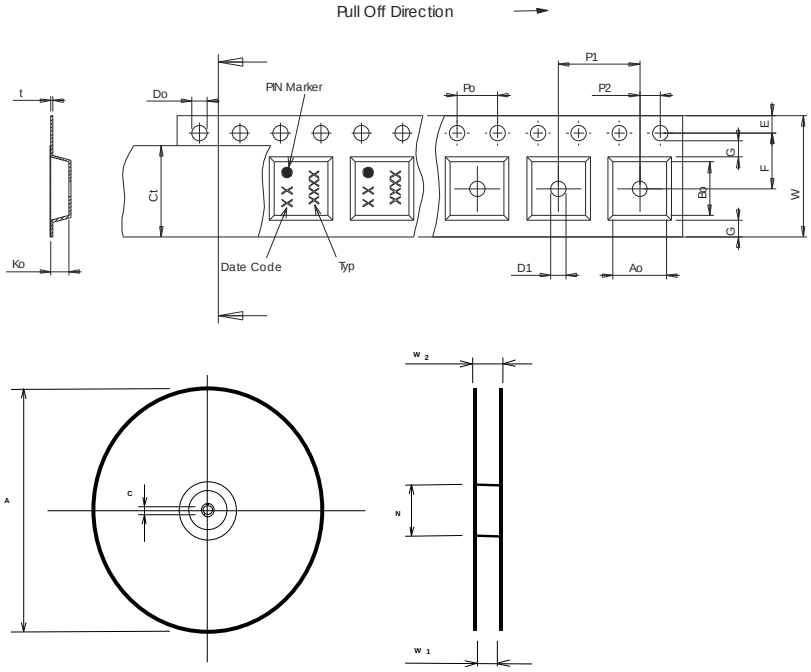
5. SAW devices are Electrostatic Discharge (ESD) sensitive devices.

This filter is RoHS compliant (2011/65/EU+2015/863/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/-0.1
Po	:	4.00	±0.1
Do	:	1.55	±0.05
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)	:	1.00	
Ao	:	1.80	±0.05
Bo	:	2.25	±0.05
Ct	:	5.30	±0.1
Ko	:	0.90	±0.05
t	:	0.30	±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.

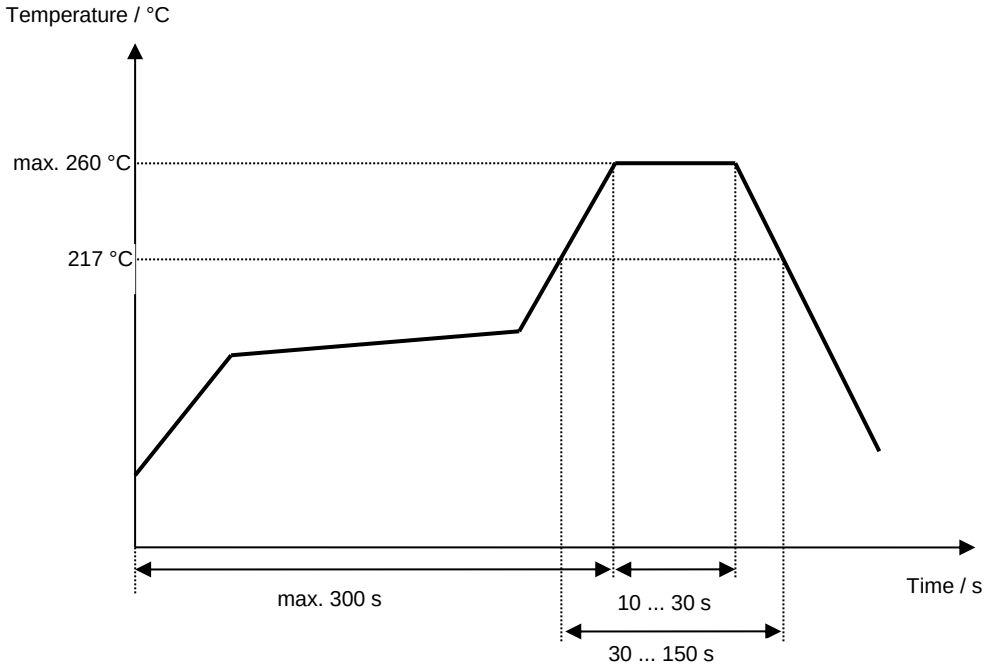
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Air reflow temperature conditions

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	C. Noack	08.05.2017
1.1	- Change data table (input power level)	C. Noack	30.05.2017
1.2	- Changed to filter specification - added typical values and filter characteristics	P. Jaster	19.11.2020

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