Measurement condition

Ambient temperature T_A: 23 °C
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 689 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 within OTR					a_e	3.4	dB	max.	4.5	dB
Nominal frequency					f_N	-			689	MHz
Passband					*PB*			f_N ±	26	MHz
Passband variation						1.2	dB	max.	2	dB
Absolute attenuation					a_{abs}					
0.3	MHz	…	470	MHz		27	dB	min.	21	dB
470	MHz	…	608	MHz		26	dB	min.	20	dB
608	MHz	…	617	MHz		33	dB	min.	15	dB
617	MHz	…	644	MHz		26	dB	min.	10	dB
739	MHz	…	746	MHz		17	dB	min.	10	dB
746	MHz	…	758	MHz		37	dB	min.	15	dB
758	MHz	…	775	MHz		42	dB	min.	20	dB
775	MHz	…	1680	MHz		26	dB	min.	20	dB
1680	MHz	…	3800	MHz		27	dB	min.	15	dB
Return loss within PB						12	dB	min.	10	dB
Group delay ripple in PB						14	ns	max.	25	ns
Input power level						-		max.	17	dBm
Operating temperature range					OTR	-			-30 °C … +105 °C	
Storage temperature range						-			-55 °C ... +125 °C	
Temperature coefficient of frequency					TC_f *	-72	ppm/K			

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

Generated:

Checked / Approved:

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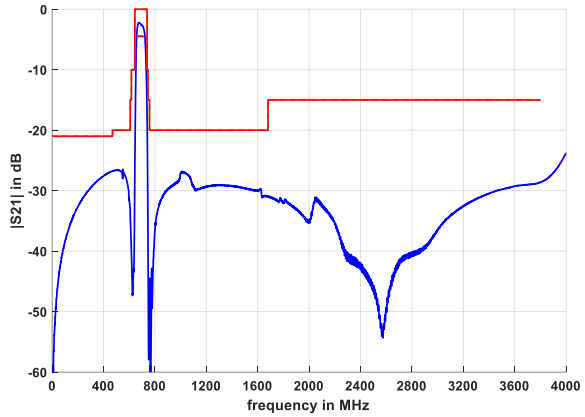
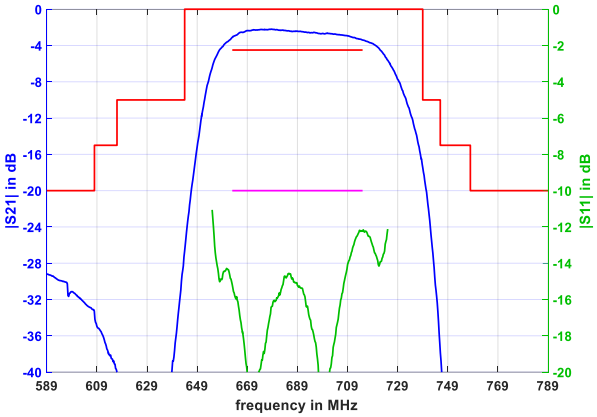
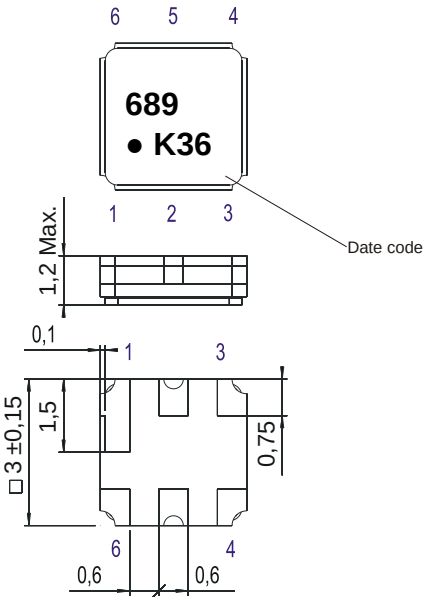
Filter characteristic





Construction and pin connection

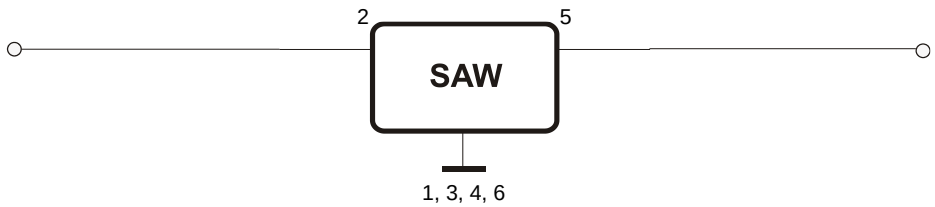
(All dimensions in mm)



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

Date code:	Year + week
K	2018
L	2019
M	2020
...	

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)

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;

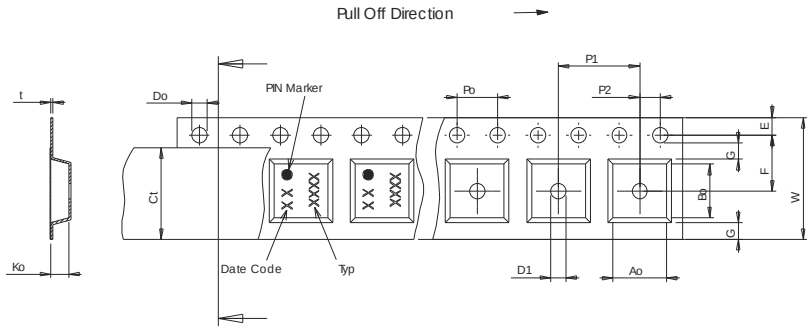
reel of empty components at start:	min. 300 mm
reel of empty components at start including leader:	min. 500 mm
trailer:	min. 300 mm

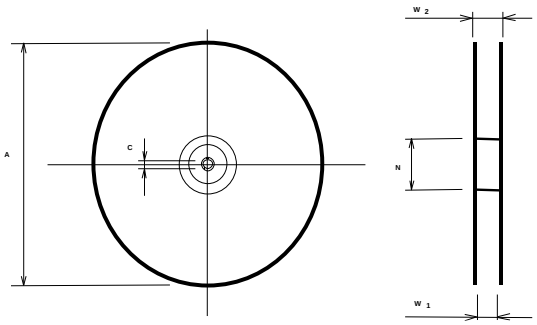
Tape (all dimensions in mm)

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	:	5.30	±0.1
Ko	:	1.50	±0.1
t	:	0.25	±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.

Air reflow temperature conditions

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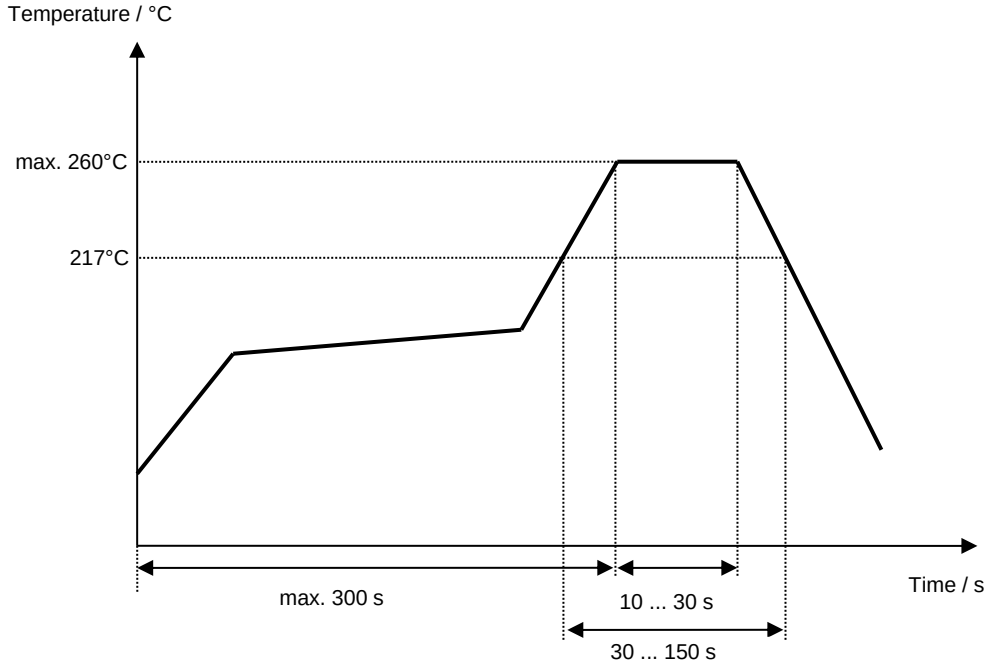
Conditions	**Exposure**
Average ramp-up rate (30°C to 217°C)	less than 3°C/second
> 100°C	between 300 and 600 seconds
> 150°C	between 240 and 500 seconds
> 217°C	between 30 and 150 seconds
Peak temperature	max. 260°C
Time within 5°C of actual peak temperature	between 10 and 30 seconds
Cool-down rate (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	S. Springfeldt	25.09.2017
2.0	- Generation of filter specification (relaxation of insertion loss)	S. Springfeldt	03.09.2018

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