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 1227.6 MHz without any tolerance or limit. The values of absolute attenuation a_{abs} 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 within PB1	a_{e1}	2.4	dB	max.	4.0	dB
Insertion loss within PB2	a_{e2}	1.5	dB	max.	2.0	dB
Nominal frequency	f_N	-			1227.6	MHz
Passband 1	PB_1	-		f_N ±	12.0	MHz
Passband 2	PB_2	-		f_N ±	5.0	MHz
Passband variation within PB1	PBV_1	0.4	dB	max.	1.0	dB
Absolute attenuation	a_{abs}					
0.3 MHz … 1127.0 MHz		43	dB	min.	32	dB
1127.0 MHz … 1167.0 MHz		49	dB	min.	42	dB
1167.0 MHz … 1177.0 MHz		46	dB	min.	32	dB
1197.6 MHz		25	dB	min.	6	dB *)
1257.6 MHz		35	dB	min.	11	dB **)
1277.0 MHz … 1287.0 MHz		55	dB	min.	32	dB
1287.0 MHz … 1327.0 MHz		54	dB	min.	42	dB
1327.0 MHz … 3000.0 MHz		37	dB	min.	32	dB
Group delay ripple within PB1	GDR_1	35	ns	max.	50	ns
Group delay ripple within PB2	GDR_2	12	ns	max.	30	ns
VSWR within PB		1.6 : 1		max.	2 : 1	
Input power level in PB		-		max.	15	dBm
Operating temperature range	OTR	-		-45 °C ... +85 °C		
Storage temperature range		-		-55 °C ... +125 °C		
Temperature coefficient of frequency	TC_f ***)	-42	ppm/K			

*) stop band attenuation between 1177.0 MHz and 1197.6 MHz decreases linearly from 32 dB to 6 dB
**) stop band attenuation between 1257.6 MHz and 1277.0 MHz increases linearly from 11 dB to 32 dB
***) $\Delta f = TC_f(T - T_A)f_N$

Generated:

Checked / Approved:

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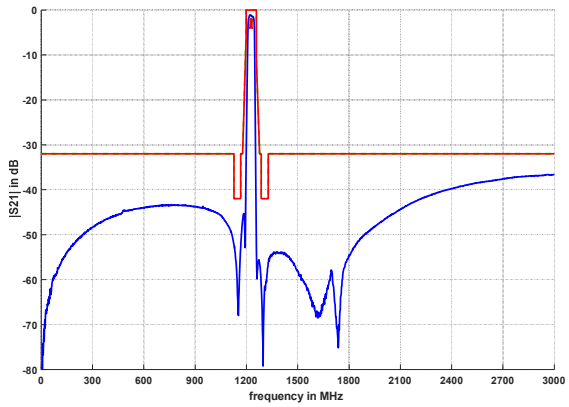
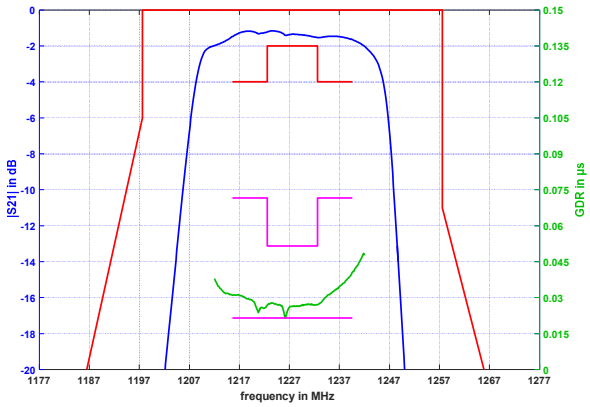
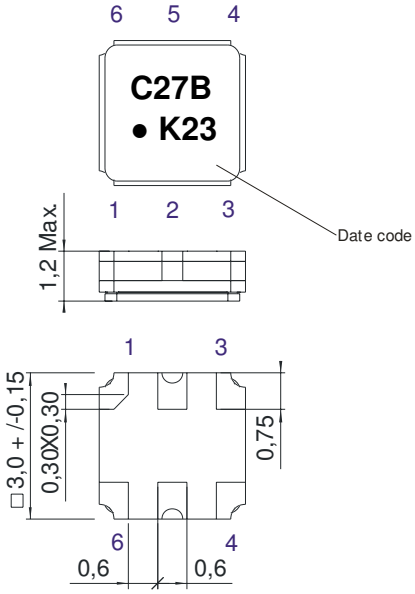
Filter characteristic





Construction and pin connection

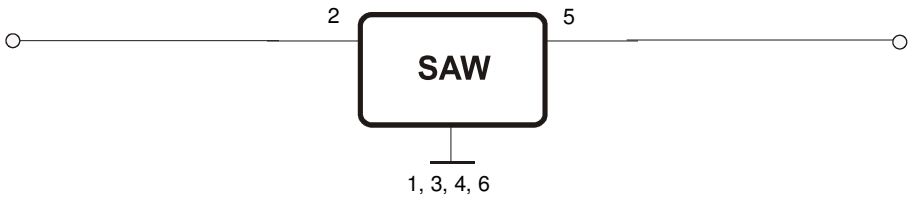
(All dimensions in mm)



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;

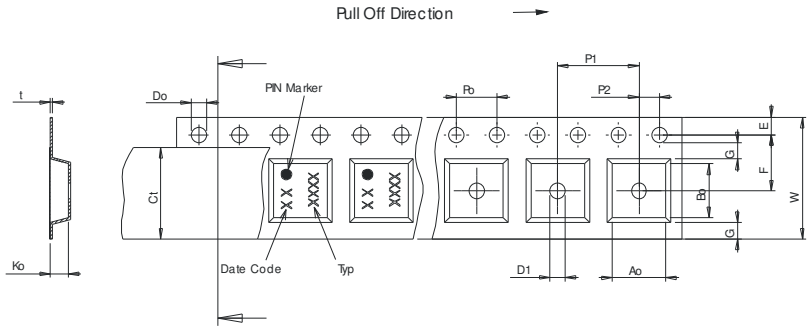
5. SAW devices are Electrostatic Discharge (ESD) sensitive devices.

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

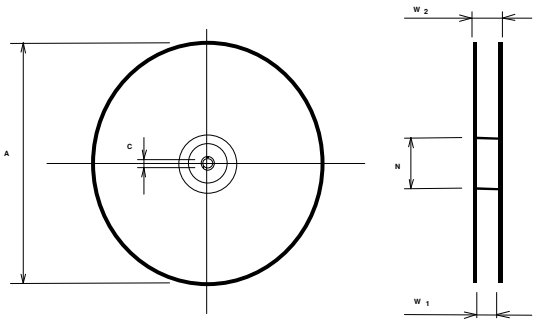


Tape (all dimensions in mm)

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.

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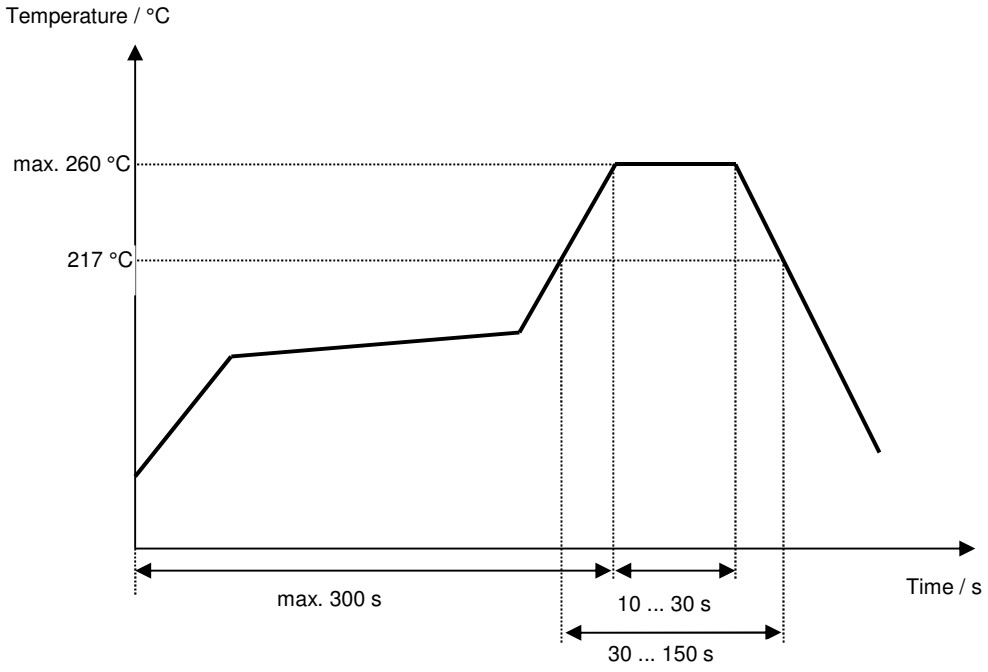
Air reflow temperature conditions

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	09.07.2010
2.0	- Change of data table according to new customer requirements	Noack	23.07.2010
3.0	- Change of data table according to new customer requirements	Noack	27.07.2010
4.0	- Change alignment of tape and reel - Add typical values and filter characteristic - Generation of filter specification	Noack	03.05.2011
5.0	- updated data table - updated package drawing - updated filter characteristics - updated stability characteristics - updated Tape & Reel	P. Jaster	07.06.2018
6.0	- updated filter characteristic - updated package	P. Jaster	11.06.2018

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