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 1278.75 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}	2.6	dB	max.	4.0	dB
Insertion loss within PB2				a_{e2}	1.5	dB	max.	2.0	dB
Nominal frequency				f_N	-			1278.75	MHz
Passband 1				PB1	-		f_N ±	15.0	MHz
Passband 2				PB2	-		f_N ±	5.0	MHz
Passband variation within PB1				PBV1	0.4	dB	max.	1.0	dB
Absolute attenuation				a_{abs}					
0.3	MHz	…	1178.0	MHz	40	dB	min.	32	dB
1178.0	MHz	…	1218.0	MHz	45	dB	min.	42	dB
1218.0	MHz	…	1228.0	MHz	45	dB	min.	32	dB
			1238.75	MHz	35	dB	min.	17	dB *)
			1318.75	MHz	54	dB	min.	17	dB **)
1328.0	MHz	…	1338.0	MHz	53	dB	min.	32	dB
1338.0	MHz	…	1378.0	MHz	51	dB	min.	42	dB
1378.0	MHz	…	3000.0	MHz	38	dB	min.	32	dB
Group delay ripple within PB1				GDR1	35	ns	max.	50	ns
Group delay ripple within PB2				GDR2	11	ns	max.	30	ns
VSWR within PB					1.8 : 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 1228.0 MHz and 1238.75 MHz decreases linearly from 32 dB to 17 dB
**) stop band attenuation between 1318.75 MHz and 1328.0 MHz increases linearly from 17 dB to 32 dB
***) $\Delta f = TC_f(T - T_A)f_N$

Generated:

Checked / Approved:

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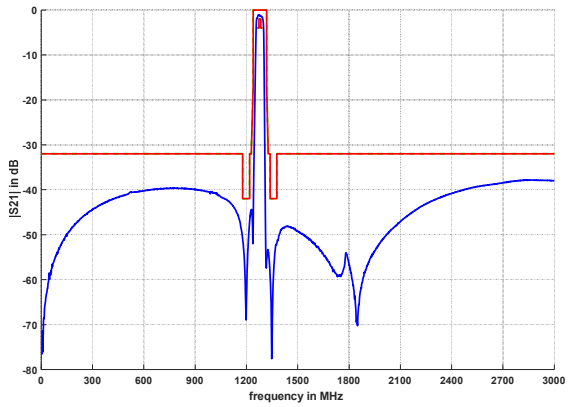
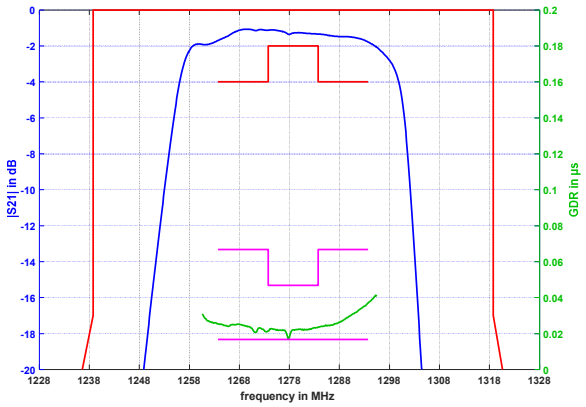
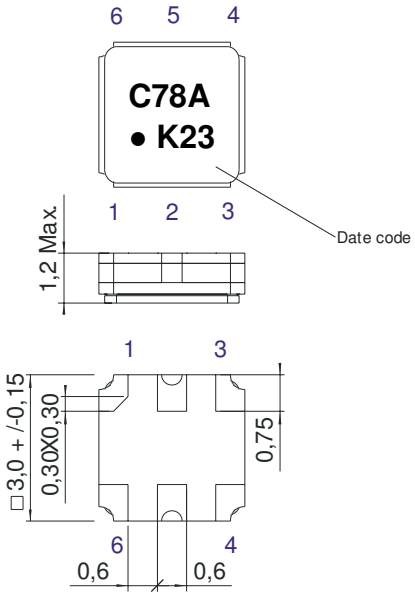
Filter characteristic





Construction and pin connection

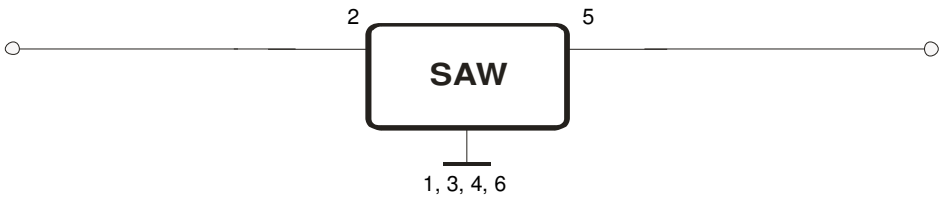
(All dimensions in mm)



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;

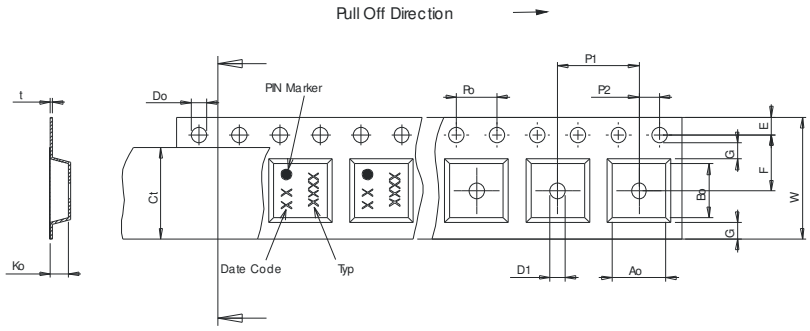
5. SAW devices are Electrostatic Discharge (ESD) sensitive devices.

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

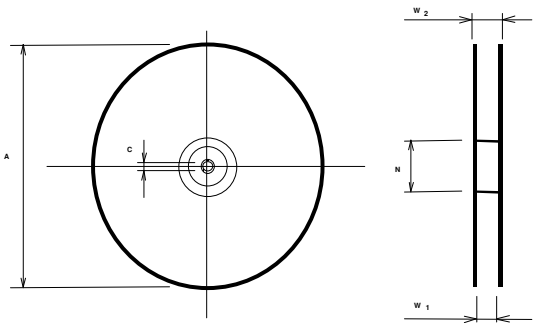


Tape (all dimensions in mm)

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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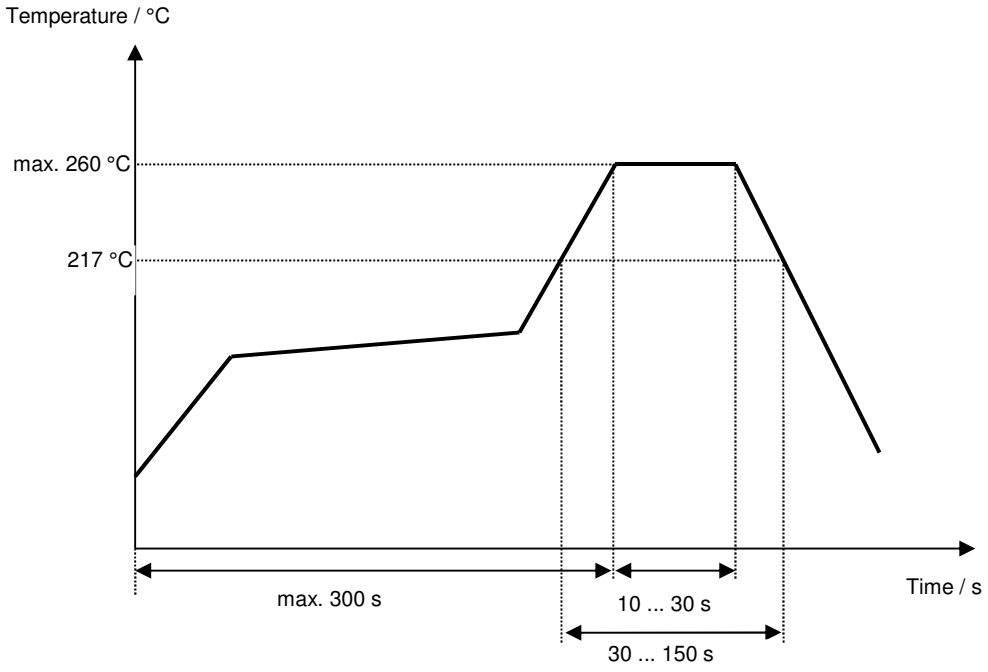
Air reflow temperature conditions

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 alignment of tape and reel - Add typical values and filter characteristic - Generation of filter specification	Noack	03.05.2011
4.0	- updated data table - updated package drawing - updated stability characteristics - updated Tape & Reel	P. Jaster	07.06.2018
5.0	- updated filter characteristic - updated package	P. Jaster	11.06.2018

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