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 passband is defined as the insertion loss a_e. The nominal frequency f_N is fixed at 499 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		1.5	dB	max.	4.0	dB
Nominal frequency	f_N		-			499.0	MHz
Passband	PB		-		f_N ±	13.0	MHz
Passband variation			0.9	dB	max.	1.5	dB
Absolute attenuation	a_{abs}						
0.3 MHz … 425.0 MHz			53	dB	min.	40	dB
425.0 MHz … 474.0 MHz			17	dB	min.	10	dB
526.0 MHz … 580.0 MHz			18	dB	min.	10	dB
580.0 MHz … 800.0 MHz			49	dB	min.	40	dB
800.0 MHz … 1000.0 MHz			61	dB	min.	50	dB
Group delay ripple within PB			17	ns	max.	200	ns
Input power level			-		max.	10	dBm
Operating temperature range	OTR		-		-20 °C ... +55 °C		
Storage temperature range			-		-55 °C ... +125 °C		
Temperature coefficient of frequency	TC_f	*)	-76	ppm/K			

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

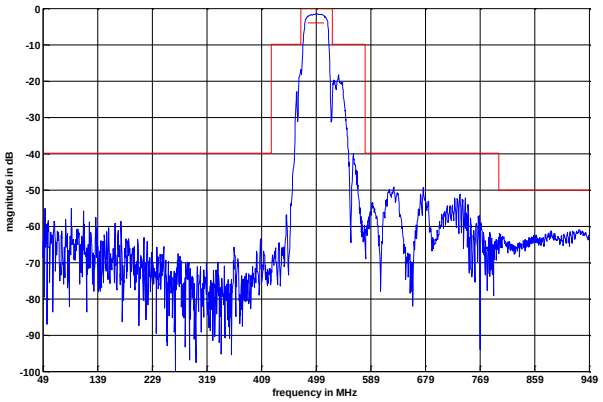
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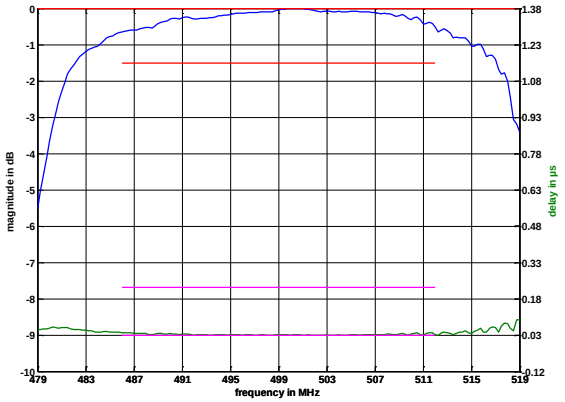
Checked / Approved:

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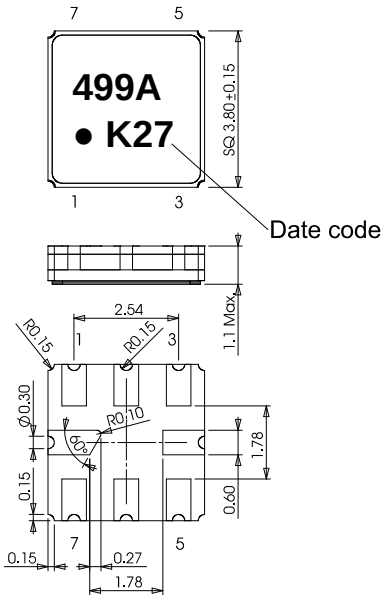
Filter characteristic





Construction and pin connection

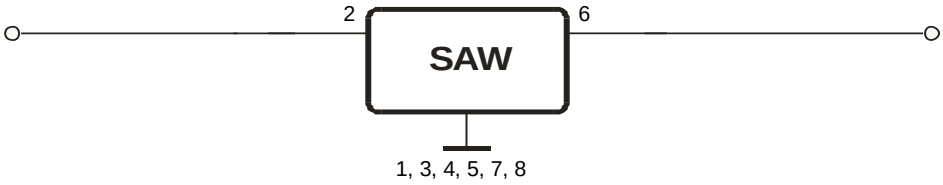
(All dimensions in mm)



1	Ground
2	Input
3	Ground
4	Ground
5	Ground
6	Output
7	Ground
8	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;

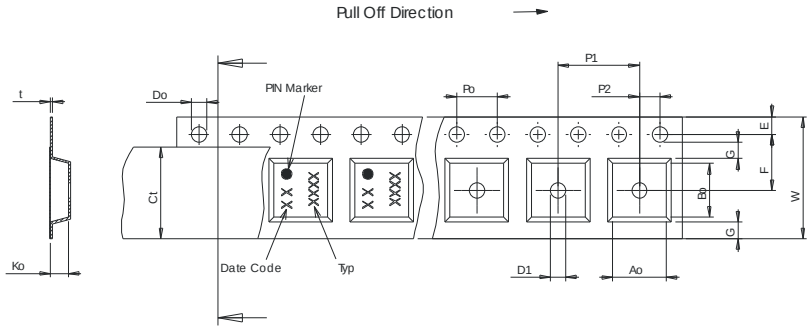
5. SAW devices are Electrostatic Discharge (ESD) sensitive devices.

This filter is RoHS compliant (2011/65/EU)

Packing

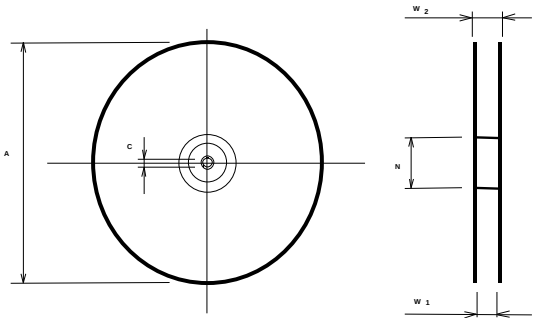
Tape & Reel: IEC 286 – 3, with exception of value for N and minimum bending radius;
tape type II, embossed carrier tape with top cover tape on the upper side;

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	:	12.00	±0.3
Po	:	4.00	±0.1
Do	:	1.50	+0.1/-0
E	:	1.75	±0.1
F	:	5.50	±0.05
G(min)	:	0.75	
P2	:	2.00	±0.05
P1	:	8.00	±0.1
D1(min)	:	1.50	
Ao	:	4.30	±0.1
Bo	:	4.30	±0.1
Ct	:	9.2	±0.1
Ko	:	1.80	±0.1
t	:	0.30	±0.05



Reel (all dimensions in mm)

A	:	330	or 180
W1	:	12.4	+2/-0
W2(max)	:	18.40	
N(min)	:	50.00	
C	:	13.0	+0.5/-0.2

The minimum bending radius is 45 mm.

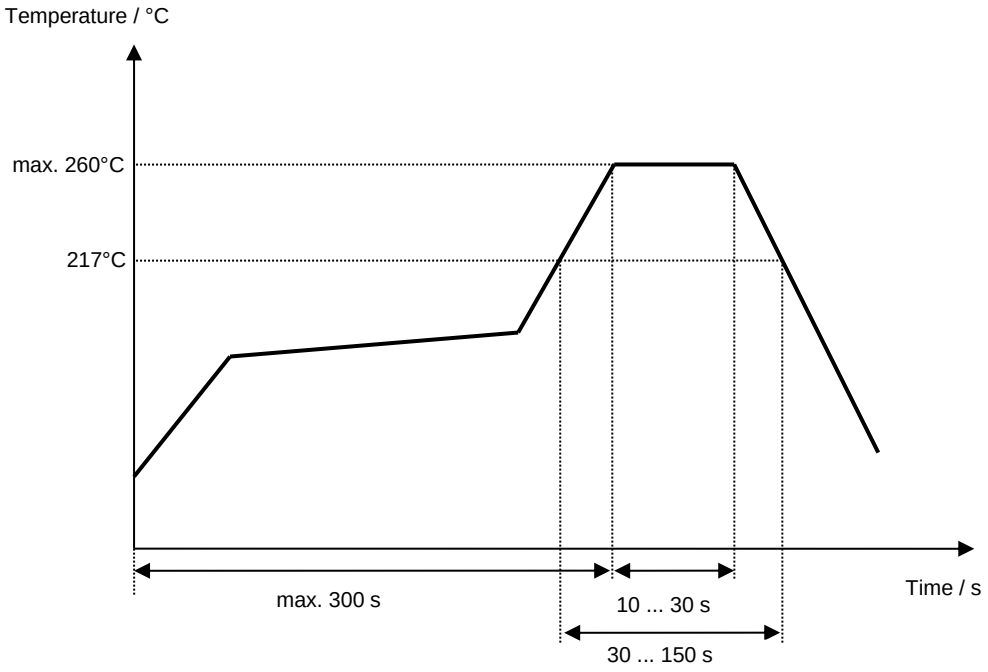
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Air reflow temperature conditions

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	Strehl	22.02.2008
1.1	- Change construction and pin connection, add typical values - Add filter characteristic, generation of filter specification	Channaa	09.05.2008
2.0	- Intermodulation limits removed - Typos corrected - Update of package drawing - Orientation of tape and reel updated	Molke	03.07.2018

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