Measurement condition

Ambient temperature T_A:	23	°C
Input power level:	0	dBm
Terminating impedance:		
Input:	50	Ω
Output:	200	Ω

Characteristics

Remark:
The reference level for the relative attenuation a_{rel} is the minimum of the pass band attenuation. This value is defined as the insertion loss a_e. The nominal frequency f_N is fixed at 248.6 MHz without any tolerance. The values of relative attenuation a_{rel} 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 (reference level)	a_e	3.1	dB	max.	3.5	dB
Nominal frequency	f_N	-			248.6	MHz
Passband	PB			f_N ±	352.0	kHz
Pass band ripple		0.2	dB	max.	0.5	dB
Bandwidth	BW					
3 dB		6.6	MHz	min.	5.0	MHz
Relative attenuation	a_{rel}					
f_N - 238.6 MHz ... f_N - 29.2 MHz		58	dB	min.	45	dB
@ f_N + 22.8 MHz		56	dB	min.	45	dB
@ f_N + 52.0 MHz		58	dB	min.	45	dB
@ f_N + 74.8 MHz		59	dB	min.	45	dB
@ f_N + 104.0 MHz		52	dB	min.	45	dB
@ f_N + 126.8 MHz		57	dB	min.	45	dB
Group delay ripple within PB			ns	max.	300	ns
Input power level		-		max.	20	dBm
Operating temperature range	OTR	-		-20 °C ...	+80 °C	
Storage temperature range		-		-55 °C ...	+125 °C	
Temperature coefficient of frequency	TC_f *	-33.5	ppm/K		-	

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

Generated:

Checked / Approved:

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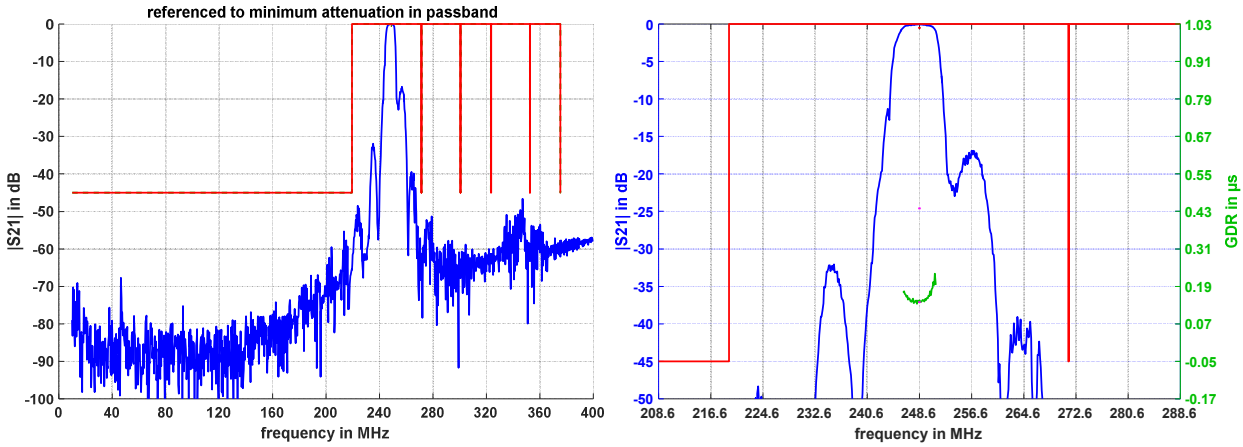
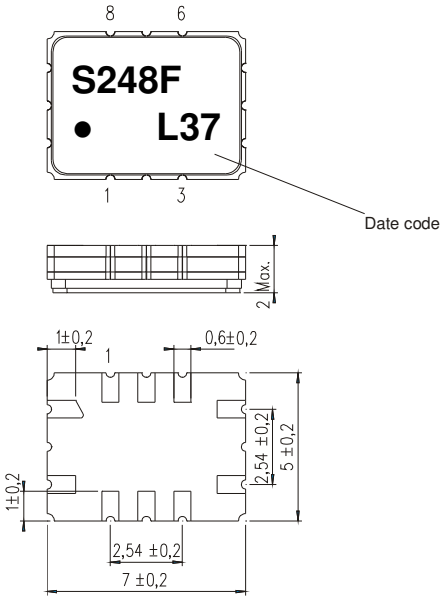
Filter characteristic



Construction and pin connection

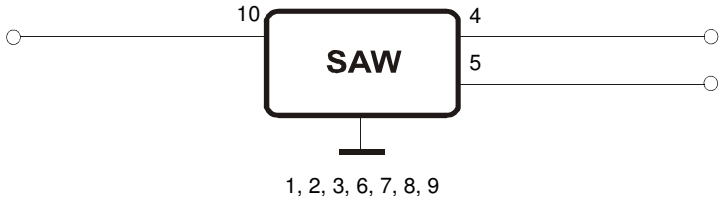
(All dimensions in mm)



1	Ground
2	Ground
3	Ground
4	Output
5	Output
6	Ground
7	Ground
8	Ground
9	Input RF Return
10	Input

Date code:	Year + week
L	2019
M	2020
N	2021
...	

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;

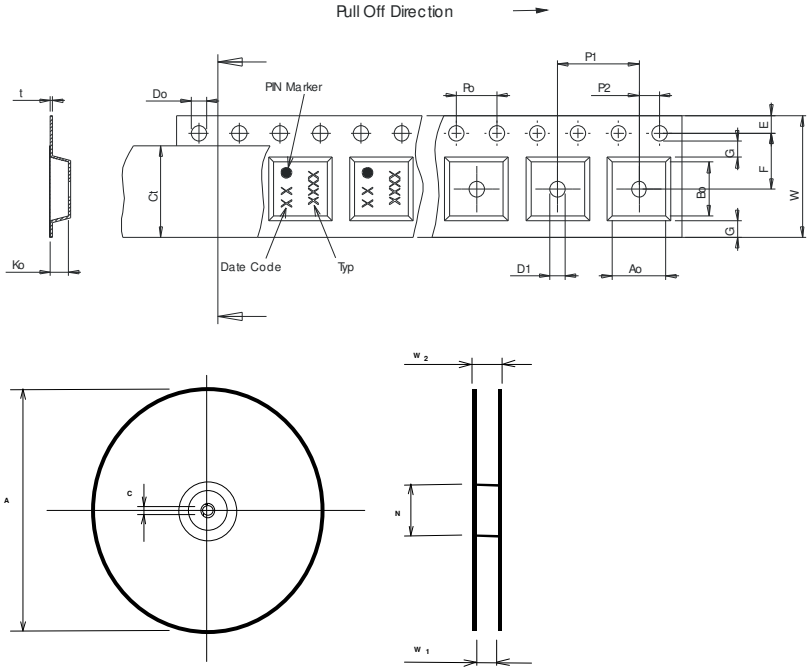
reel of empty components at start:	min. 300 mm
reel of empty components at start including leader:	min. 500 mm
trailer:	min. 300 mm

Tape (all dimensions in mm)

W	:16.00	+0.3/-0.1
Po	:4.00	±0.1
Do	:1.50	+0.1/-0
E	:1.75	±0.1
F	:7.50	±0.1
G(min)	:0.75	
P2	:2.00	±0.1
P1	:8.00	±0.1
D1(min)	:1.50	
Ao	:5.40	±0.1
Bo	:7.60	±0.1
Ct	:13.30	±0.1
Ko	:2.00	±0.1
t	:0.30	±0.05

Reel (all dimensions in mm)

A	:330	or 180
W1	:16.4	+2/-0
W2(max)	:22.40	
N(min)	:50.00	
C	:13.0	+0.5/-0.2



The minimum bending radius is 45 mm.

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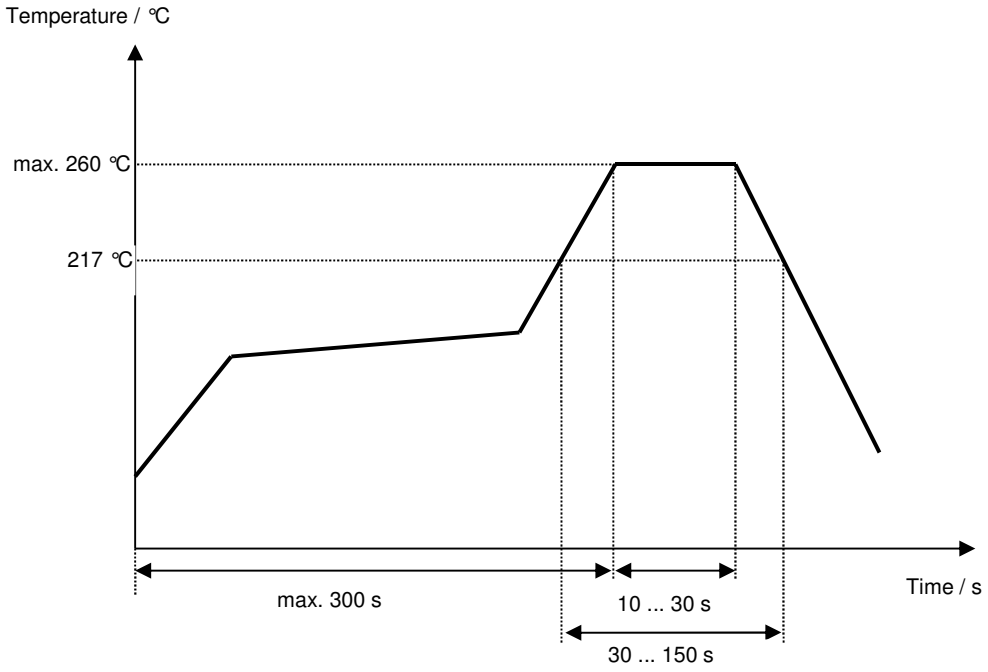
Air reflow temperature conditions

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	- generate according to customer specification	Dr. Sabah	25.09.2001
2.0	- change of package and stop band rejection	Dr. Sabah	13.09.2002
3.0	- filter specification; add of terminating impedance and typ. values	Dr. Sabah	15.11.2002
3.1	- change PB and stability characteristic - add filter characteristic	Strehl	01.04.2008
4.0	- format update - updating typical curve and values - change tape and reel direction	S. Springfeldt	09.09.2019

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