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 869.0 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					a_e	3.0	dB	max.	4.0	dB
Insertion loss within OTR1					a_e	2.7	dB	max.	3.5	dB
Nominal frequency					f_N	-			869.0	MHz
Passband					PB	-		f_N ±	1.0	MHz
Pass band variation						1.0	dB	max.	1.7	dB
Pass band variation within OTR1						0.7	dB	max.	1.3	dB
Absolute attenuation					a_{abs}					
10	MHz	…	300	MHz		49	dB	min.	45	dB
300	MHz	…	845	MHz		44	dB	min.	40	dB
845	MHz	…	853	MHz		43	dB	min.	38	dB
879	MHz	…	883	MHz		25	dB	min.	15	dB
879	MHz	…	883	MHz	within OTR1	30	dB	min.	20	dB
883	MHz	…	915	MHz		55	dB	min.	45	dB
915	MHz	…	945	MHz		52	dB	min.	40	dB
945	MHz	…	1200	MHz		52	dB	min.	45	dB
1200	MHz	…	2000	MHz		39	dB	min.	35	dB
Return loss in PB						19	dB	min.	10	dB
Input power level in PB					**)	-		max.	13	dBm
Operating temperature range					OTR	-		- 40 °C ... + 85°C		
Reduced Operating temperature range					OTR1	-		- 20 °C ... + 70°C		
Storage temperature range						-		- 55 °C ... + 125°C		
Temperature coefficient of frequency					TC_f *)	-35	ppm/K			

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

**) 18dBm input power for short term operation for cycle time 1:10

Generated:

Checked / Approved:

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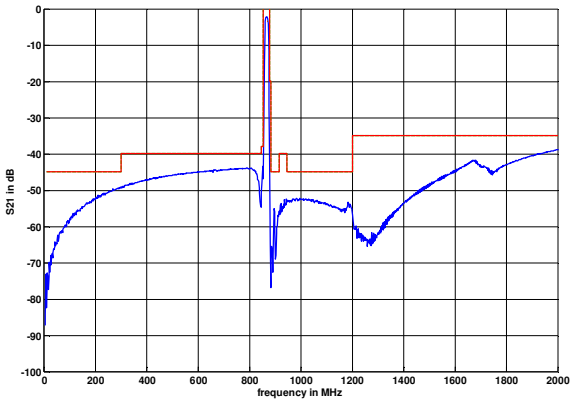
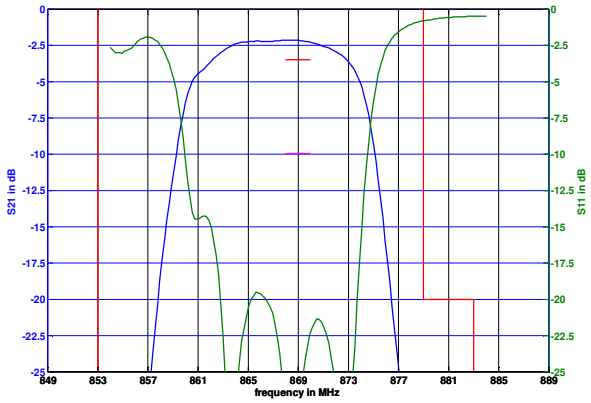
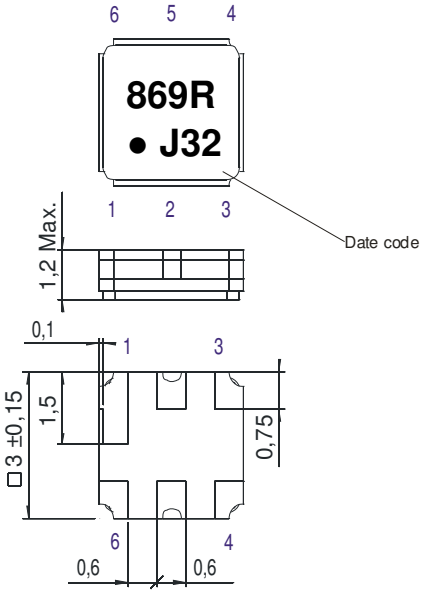
Filter characteristic





Construction and pin connection

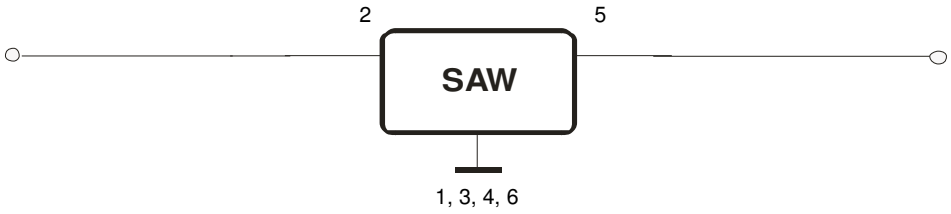
(All dimensions in mm)



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

Date code:	Year + week
J	2017
K	2018
L	2019
...	

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;

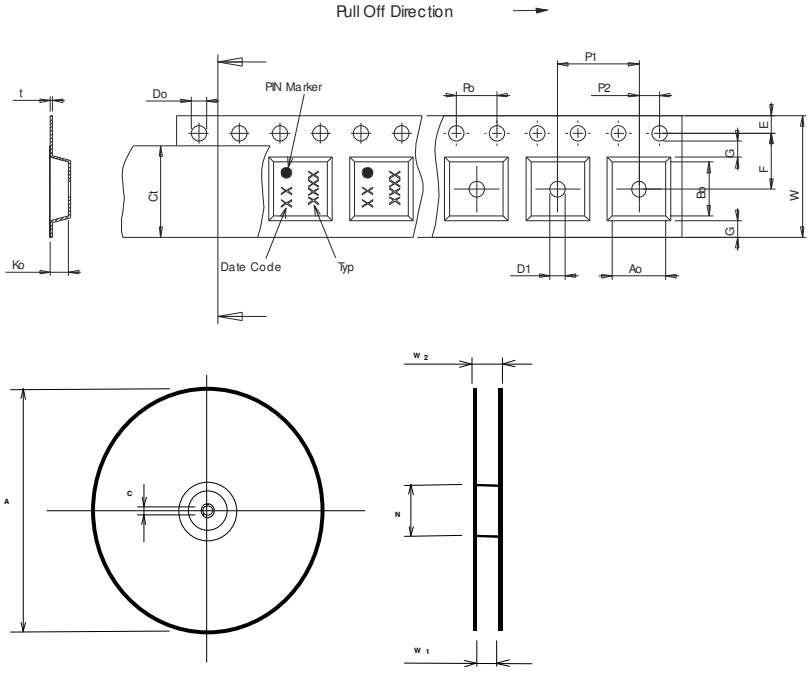
reel of empty components at start:	min. 300 mm
reel of empty components at start including leader:	min. 500 mm
trailer:	min. 300 mm

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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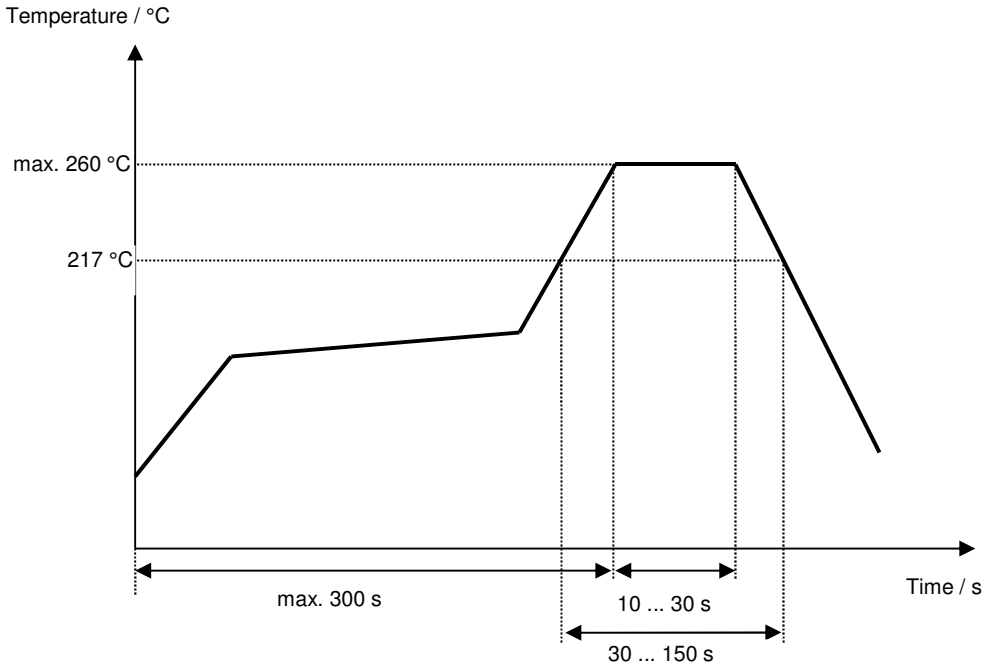
Air reflow temperature conditions

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 filter specification	Abutaimah	09.03.2017
1.1	Update typos Update storage temperature range Update formula for Δf Update Tape & Reel	P. Jaster	11.08.2017

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